

DRAFT VERSION

Regulation of Norwegian net-cage fish farming

by

Pia Kupka Hansen and Håkon Kryvi

**Institute of Marine Research and Hordaland County Governors environmental department
Bergen, Norway, January 2009**

Introduction	5
Establishing a net-cage farm facility	7
License	7
The application	8
The application process	9
Environmental impact assessment (EIA)	10
The municipality	11
The County Governors environmental department	11
The Food Safety Authority	12
Other authorities	12
The Directorate of Fisheries	13
Site selection	13
Environmental objectives	14
Running a net-cage fish farm facility	15
Internal control	15
Escape of farmed fish	15
Diseases and parasites	16
Medicines and chemicals	16
Environmental impact of organic waste and nutrients	17
Environmental monitoring	17
Concluding remarks	18
Acknowledgement	19
References	19

Annex 1: The Aquaculture Act

Annex 2: The Planning and Building Act

Annex 3: The Pollution Control Act

Annex 4: The Nature Protection Act

Annex 5: The Harbour Act

Annex 6: Aquaculture Operation Regulations

Annex 7: Technical Requirements for Fish Farming Installations

Annex 8: Environmental Objectives for Norwegian Aquaculture

Annex 9: Environmental Monitoring of Marine Fish Farms

Introduction

Over the past 40 years Norway's fish farming industry has developed from small-scale pioneering net-cages to the large-scale modern facilities of today. Parallel to the growth of the industry there has been a development in legislation and regulations covering all aspects of production, as well as management plans and monitoring for control of diseases and environmental problems. During the growth of the industry a number of disease problems and environmental effects were encountered. Some of these have been minimized or resolved while others have grown in importance and new ones have emerged.

Marine fish farming started in Norway in the 1970s and at first, the number of farms was small and annual production was only a few thousand tonnes. Moist feed was used and farming was extensive, with few fish in each cage. In 1973 there were approximately 300 farms and the first provisional Act was drawn up, and in 1981 the first permanent Aquaculture Act was passed.

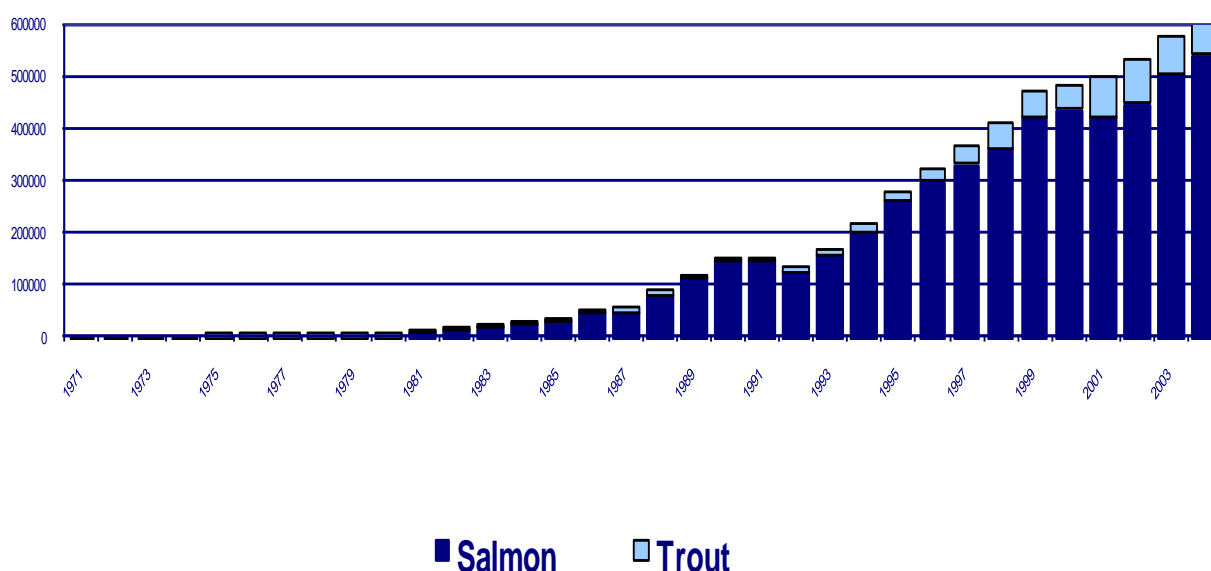


Fig. 1. Production of salmon and rainbow trout from 1971 to 2004 (tonnes) (Directorate of Fisheries)

During the 1980s production rose substantially (Fig. 1). Proper fish feed pellets based on improved feed formulas were developed improving fish growth rates and reducing waste feed. However, infectious diseases and environmental impact of fish farming began to be a problem. Fish farms were located in shallow and protected areas with low current velocities, and the organic waste from the farms had serious effects on the seabed. Infectious diseases hampered the sector and large quantities of antibacterial agents were used in an attempt to solve the problem. Furthermore, conflicts with other users of the coastal zone were becoming more prominent. This eventually led to the development of new legislations and regulations. Vaccines were developed and hygiene regulations were implemented together with a change in site selection criteria in favour of more exposed sites. Environmental objectives were drawn up and environmental monitoring programs were developed. There was also a

change in the industry from many hundreds individual licensed fish farming companies in the 1980s to the current situation of around 150 companies with up to 20 licenses each.

Atlantic salmon (*Salmo salar* L) and rainbow trout (*Oncorhynchus mykiss*) have dominated the production from the beginning, but cod (*Gadus morhua*), halibut (*Hippoglossus hippoglossus*) and mussels (*Mytilus edulis*) are also produced as well as small quantities of other marine fish species and shellfish. From the small beginning in the 1970s, production of salmon and trout has grown to 580 000 tonnes in 2007. Approximately 50 000 metric tonnes of other marine fish species and shellfish were produced in 2007, including cod and mussels.

Norway is particularly suitable for cultivation of cold-water species in net-cages. The country is situated in the northern part of the Scandinavian peninsula between the 58th and 71st northern parallel. Norway is about 3 000 km long with a total area of 324 219 sq km and a population of 4.7 million. The coastline is approximately 25 000 km long if the mainland plus the many fjords, islands, and minor indentations are included. There are approximately 50 000 islands along the coast of which just 2 000 are inhabited, and the length of the entire coastline including islands is about 60 000 km. In spite of its location in the far north the entire coast is free of ice during winter because of warm Atlantic water which flows northward along the entire western and northern coast.

Mean water temperatures along the coast range from 2 – 4 °C during the winter to 12 – 14 °C in the summer in the upper layers. On the coast the mean salinity range between 28 ppt and 34 ppt but in the fjords the upper layers may be covered by fresh water from the many rivers, especially in the spring when the snow melts in the mountains. The fjords on the western coast are sill fjords with a threshold at the mouth that is often much shallower than the fjord basin within. Fjords may reach depths of several hundred meters and some may penetrate up to 200 km inland. In northern Norway the fjords are open and shallower. The current regime along the coast is driven by the Atlantic current, waters from the Baltic Sea and the North Sea, freshwater from the coast and wind. In the fjords the current regime can vary with the season, water exchange incidents and wind conditions.

More than 1800 fish farms sites are located in the fjords and archipelagos along the 2 000 km long western and northern coastline where they are protected from the open sea but where the current regime is adequate for fish production. There is a well-developed infrastructure along the entire coast but population is small and inputs of sewage and other sources of water contamination into the western and northern coastal waters are relatively minor. The sites in use today are located in exposed areas, often at depths from 100 to several hundred meters.



Establishing a net-cage farm facility

Norwegian fish farming is controlled by laws and regulations both with regard to the application for a license and site and later during the operation of the farm.

License

It is illegal to farm fish or shellfish in Norway without a license. The licensing system for salmon and rainbow trout is slightly different from other species since the authorities try to regulate the growth of the industry by keeping the number of licenses (and thereby the potential production) under control. There are currently 921 licenses for salmon and trout farming that have been assigned by the Ministry of Fisheries (now the Ministry of Fisheries and Coastal Affairs) in rounds over the past 30 years. The Ministry decides the total numbers of licenses to be allocated and how many each region will receive, and this is partly based on considerations of regional industrial development. The licenses used to be free, but they are often sold on for large sums, and since 2002 the authorities have charged around US\$1 million per license for salmon and rainbow trout. Although licenses can be bought and sold, they can only be used within the region to which they have been allocated. Licenses for other species are not subject to overall production regulation, since the production is still small, and these licenses are still free.

Licenses include a set of rights and obligations; they are issued for a given species and for a maximum biomass, for salmon and rainbow trout they permit a maximum standing biomass of 780 tonnes.

The application

The application for an aquaculture license and a site to farm is integrated into one application form which must be completed as described in “Guidelines for completion of application form for aquaculture permit for floating or shore-based facilities” (Anon., 2008). The applicant must provide both production-related and site-related information and the following must be included:

1. Planned production
2. Expected feed consumption
3. Contingency plan describing actions in the event of an outbreak of infectious disease on the farm
4. Chart of the area (1:50 000); site map (1:5 000) and farm map (1:1 000)
5. Exact position of the farm (geographical coordinates)
6. Current measurements at the site
7. Description of the seabed at the site
8. Map of bottom topography at the site
9. Salinity throughout the water column
10. Depth of thresholds in threshold fjords
11. Distance to sea traffic, ferries and other shipping activities, underwater cables and pipelines

Two of the points (6 and 7) entails measurements and must be performed by qualified consultants.

Current measurements must be made at the site over a four-week period at three different depths: surface, midway between surface and seabed, and the seabed. The surface current measurement provides information about the water exchange in the net cages; the current between surface and seabed is the dispersion current which is important for dispersing waste particles away from the farm, and the seabed current is important for the ability of organisms living in the seabed to break down the organic waste from the farm.

A description of the seabed at the potential site must be provided. This is done by a study of the natural condition of the seabed and the fauna according to a Norwegian Standard (NS9410) (Norwegian Standards Association, 2000). The standard describes what to measure and how, and it includes a categorization of the seabed on the basis of the results. This provides the authorities with an assessment of the seabed conditions which can be used to make an informed decision on the ability of the site to accommodate effluents from the fish farm.

If the applicant applies for production of more than 3 600 tonnes on a site, an extended Environmental Impact Assessment (EIA) is required. This may include large quantities of extra information and extensive investigations.

The application process

The Aquaculture Act (Anon., 2005) states that production must not lead to a risk of spreading diseases among fish and shellfish or cause pollution or have a distinctly unfortunate location in relation to the environment, lawful traffic or other uses of the area. There must be no likelihood of damage to the ecosystem where production will take place and all due precautions must be taken. Before a license is granted, land-use interests must be considered, as well as alternative use of the area for other forms of aquaculture, other uses of the area and conservation interests.

The application process is illustrated in Fig. 2 and described in “Guidelines for completion of application form for aquaculture permit for floating or shore-based facilities” (Anon, 2008; in Norwegian). The application is delivered to the Directorate of Fisheries’ regional office in the region concerned. The regional office coordinates the processing of the application and forwards it to other relevant authorities. This procedure, where the application is delivered to one office, simplifies the process for the applicant and improves the overall evaluation by involving all the relevant authorities under a single coordinator. The same procedure is used when an applicant applies for a new site for an existing fish farm or if the applicant wishes to considerably increase the size of a fish farm at an existing site.

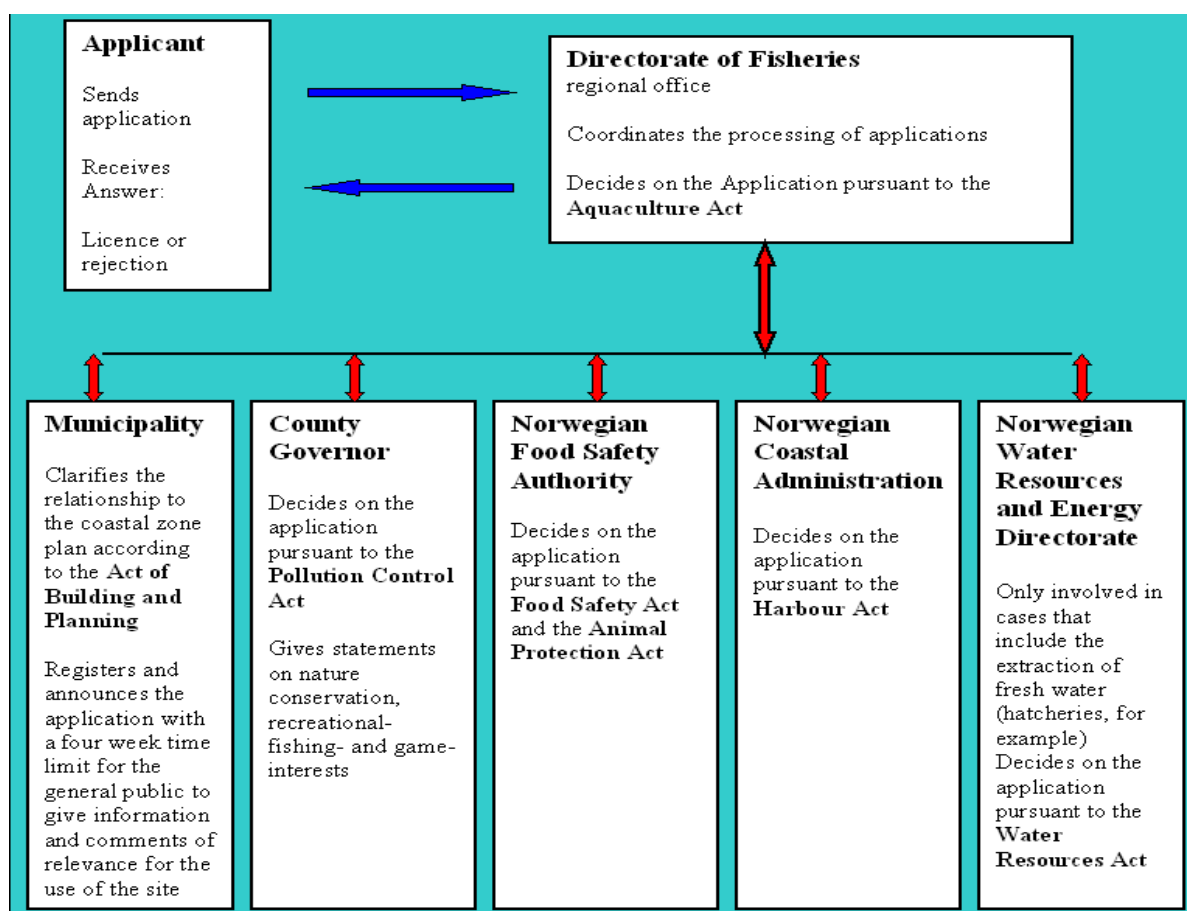


Fig. 2. Flow chart of the application process for an aquaculture license (Directorate of Fisheries)

Once an application has been registered, the Directorate of Fisheries regional office forwards it to the municipality. After being processed by the municipal authorities the application is returned to the Directorate of Fisheries, which then distributes the application, including any remarks from the municipality, to the County Governors environmental department, the Food Safety Authority local office and the Coastal Administration regional office.

The different authorities are bound by a number of Acts of Parliament when they evaluate and assess the application, and these are under the jurisdiction of the Ministry of Fisheries and Coastal Affairs, the Ministry of the Environment and the Ministry of Local Government and Regional Development respectively.

Eight different acts are considered during the application process by the five authorities:

The Aquaculture Act (Anon., 2005) *The Directorate of Fisheries*

The Building and Planning Act (Anon., 1985) *The municipality*

The Pollution Control Act (Anon., 1981) *The County Governors environmental department*

The Nature Conservation Act (Anon., 1970) *The County Governors environmental department*

The Fish Diseases Act (Anon.) *The Food Safety Authority*

The Food Safety Act (Anon., 2003) *The Food Safety Authority*

The Animal Protection Act (Anon., 1974) *The Food Safety Authority*

The Harbour Act (Anon., 1984) *The Coastal Administration*

Environmental Impact Assessments (EIA)

The International Association for Impact Assessment (IAIA) defines an environmental impact assessment (EIA) as "the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made". The purpose of the assessment is to ensure that decision-makers consider the potential environmental impacts before deciding whether or not to proceed with the project. However, the EIA is merely a first step and must be followed by policies or laws which ensure that the conclusions of the assessment are followed. An environmental impact assessment is of little value if it is not followed by monitoring.

The EIA procedure for fish farms in Norway is incorporated in the licensing procedures. The planners and decision-makers obtain information about the potential consequences of the fish farms for the environment. The aim is to facilitate sustainable development. After the license and a site have been allocated, the farmer must follow the regulations, standards and plans for monitoring.

The Municipality

The municipality sorts out user conflicts and considers the application with regard to the various activities in the coastal zone, according to the Building and Planning Act. A four-week time limit is given for the general public to comment on or complain about the proposed fish farming activity.

Many municipalities have drawn up coastal a plan that allocates space for activities such as aquaculture, recreation, fishing, navigation and naval defense and combinations of these. The proposed plan undergoes a public hearing process whereby, among others, governmental bodies at the county level, such as the County Governor and the veterinarian authority have their say. The municipalities incorporate any remarks and approve the plan. Exemptions (dispensations) from the plan can be forwarded and must be approved by the County Governors environmental department. According to this procedure, no fish farming site can be approved if it violates the municipal coastal plan. Most coastal municipalities have now developed area plans for their coastal areas. There is no requirement that marine biological surveys should be performed before an area for aquaculture is allocated. However, according to the Pollution Control Act, such surveys must be carried out before a new site can be approved.

In addition to the environmental assessment at county level, there is an indirect environmental evaluation at municipal level. This clarifies the relationship to the coastal zone plan according to the Building and Planning Act (land use, sorting out user conflicts). Environmental issues are considered in the course of the planning processes.

The County Governor's environmental department

The County Governor's environmental department considers the application with regard to pollution, sensitive habitats, biological diversity, nature conservation, recreational fishing and other environmental related interests. An important part of the evaluation process of the application is environmental considerations. The environmental concerns are divided into pollution and other issues.

A license incorporates a permit to contaminate. This pollution permit is given by the local branch of the Ministry of the Environment (the County Governors environmental department) and is based on the Pollution Control Act, which this Ministry administers.

The pollution permit is based on an evaluation of the discharge of effluents from the fish farm and its potential effects on the environment at the site and the surrounding area. The effluents considered are organic waste and nutrients, surplus feed, fish faeces and toxic chemicals. These parameters are assessed together with other data from the site, such as current conditions at various depths, site topography, depths, and wave exposure. The potential influx to the farm site of sewage or industrial out-lets, and effluents from agriculture, are also considered.

After a comprehensive evaluation of the situation a pollution permit is issued. This permit sets out a number of restrictions on the production of the farm. The most important are a limitation on total biomass, fallowing practices that must be followed, monitoring regime for the effects of discharges, instructions for handling waste (both organic and other), removal and treatment of dead fish and handling of hazardous chemicals. The permit provides instructions regarding what must be monitored and at what frequency, in order to ensure environmentally sound usage of the site.

In addition to pollution, fish farm can affect the environment in other ways. An assessment is made of the impact of the farm on nature conservation issues such as closeness to vulnerable biotopes, sea-bird sanctuaries, otter biotopes and related issues. The distance between the farm and recreational sites for bathing, leisure boat traffic and touring is also considered. Migrating routes for wildlife must also be taken into account. Such issues are usually dealt with by the County Governors environmental department, as the professional environment agency at the county level with jurisdiction concerning the relevant Acts of Parliament. In the case of fish farming, however, the Aquaculture Act requires the assessments of these issues to be carried out by the Ministry of Fisheries at provincial level, but the County Governors environmental department provides advice on these issues to the fisheries authorities.

Atlantic salmon is an indigenous species in Norway and according to the NASCO convention of 1982 it must be protected. Salmon fish farming affects the wild populations mainly through escaped farmed fish which may interbreed with the wild salmon and thereby genetically change them and by infecting the wild fish with parasites, mainly sea-lice. This is currently regarded as the most severe adverse effect of the salmon farming industry on the marine environment in Norway. A great deal of effort is therefore being put into actions in order to give the wild salmon and sea-trout biotopes better protection.

The Food Safety Authority

Problems of disease are unavoidable when large numbers of animals are held in confined spaces but it is vital to prevent or contain them. The Food Safety Authority considers whether the application is in accordance with legislation on fish diseases and fish welfare. It looks specifically into the aspect of prevention of diseases and the potential transmission of harmful germs. An assessment of the fish health conditions in the region is carried out and the distances between sites, particularly the distance between processing facilities such as slaughter-houses and net cages, are considered. For slaughter houses there are strict rules for the processing and the discharge of effluents. Specific consideration is given to protect hatcheries and brood stock facilities from contamination. There are also specific rules for the distance between hatcheries and fish farms, and between slaughtering facilities and fish farms; both must be at least 5 km.

The Food Safety Authority may also require a fallowing regime plan to be implemented at the site. If an outbreak of a serious disease occurs this authority will issue specific instructions for how to slaughter and treat the dead fish and any equipment used.

Other authorities

The Coastal Administration ensures that the planned farm will not be in conflict with shipping lanes and pipelines.

In cases where the use of fresh water is involved, such as salmon hatcheries, the Water Resources and Energy Directorate are involved, and it evaluates the application with regard to the Water Resources Act (Anon., 2000).

The Directorate of Fisheries

Each of the authorities replies to the Directorate of Fisheries regional office. The Directorate then makes an overall assessment of the application, and looks into specific concerns from its own departments, such as any influence of the farm on fishing and breeding grounds, etc. If none of the authorities reject the application it will be considered with regard to the Aquaculture Act. The applicant will then receive either a license or a rejection. In the event of the latter the applicant may appeal to a higher authority; the Fisheries Directorate, the Pollution Control Authority, the Food Safety Authority regional office or the National Coastal Administration.

Site selection

Identifying a good site is a key element in sustainable fish farming, and the natural conditions of a site are crucial. The application process is intended to facilitate good site selection and preferably identify a site that can be used on a long-term basis.

The natural conditions of a good site are linked to the current regime. An adequate current in the surface water will ensure that the farmed fish receive sufficient oxygen and that excretion products are flushed away. The wider water column current disperses the faeces from the fish together with uneaten feed and decreases the risk of accumulation of waste products on the seabed under the farm. The current at the seabed provides oxygen for decomposition of accumulated organic waste and may in periods cause resuspension of sediment and waste. Deeper sites are preferred to more shallow ones since they help to ensure a wider dispersion of the organic waste, but even at sites over 200 m deep accumulation of organic waste has been found.

Site selection is also an important factor when it comes to prevention of diseases. Good sites will ensure that the fish have good quality water and sufficient oxygen, and that they remain in good condition. This makes them less susceptible to disease.

Models can be a useful tool in identifying adequate fish farm sites. A model has been developed for Norwegian fish farming that estimates the maximum production of fish that a site can accommodate without exceeding threshold levels for allowable impact (Stigebrandt et al., 2004). This model can be linked to another model that simulates the environmental quality in fjords (Aure & Stigebrandt, 1990). Such models may improve initial site selection and provide a simulation of the potential impact in larger water areas.

In Norway, the minimum distance between sites is normally 2-3 km depending on local conditions. For the time being, therefore, there are few instances where the organic impacts of two sites overlap. However, clusters of fish farms occur in many other countries and in many such cases a site cannot be regarded as an individual entity. In such cases site selection must be seen in relation to the overall level of fish farming activity in the area.

Coastal zones tend to host a wide range of activities and competition for space is often fierce. In Norway the municipalities draw up coastal zone plans which will be consulted when a fish farm site is being considered. Since the Norwegian coast is very long and sparsely populated so far there has been enough available space for fish farming. However, this could change with further growth of the industry or as a result of changes in siting strategy.

Environmental objectives

Environmental impacts are unavoidable in fish farming and it is vital to find ways to minimize them. To do so, the impacts must be identified and their severity assessed. The authorities must decide which impacts are the most important and how they can be controlled and drawing up environmental objectives is a useful tool. The first environmental objectives for Norwegian aquaculture were developed in 1993 (Anon., 1993). Defining the objectives was a joint project between the authorities concerned with aquaculture in Norway at the time: the Directorate for Nature Management, the Directorate of Fisheries, the Norwegian Pollution Control Authority, the Norwegian Board of Health, the Norwegian Medicines Control Authority, and the Ministry of Agriculture Department of Veterinary Services. The report outlined the political objectives that the government and the parliament had decided upon and these served as overriding objectives. The report also presented the international conventions and treaties, which Norway had agreed upon and which must be followed.

The environmental objectives for Norwegian aquaculture were divided into different problem areas with a description of each, and both short-term result goals and long-term environmental objectives for results for each type of impact were set out. In Norway the most important environmental impact areas were the following: escaped farmed fish, diseases, medicines, chemicals and organic waste and nutrients. The report was followed by annual reports which described the current situation and whether the goals had been achieved (e.g. Directorate for Nature Management, 2000), and in 1997 the environmental objectives were audited (Directorate for Nature Management, 1997). The objectives have not been audited since then and the last annual report was made in 2001. However, there are plans to renew the environmental objectives and revive the annual report system.



Running a net cage fish farm facility

Internal control

After an application has been granted, the fish farm can be built at the site allocated. During the operation of the farm there are a number of regulations and standards that must be complied with. The license requires the farmer to record the operational activities of the farm on a monthly basis. These records are compiled annually into a report that is submitted to the Directorate of Fisheries. The problem areas identified by the environmental objectives must be minimized and monitored.

The following must be reported.

- Stocking (number, species, origin, stocking time and weight)
- Fish density (limited due to fish health and fish welfare considerations)
- Depth of net cages
- Consumption of feed
- Number of escaped fish
- Number and condition of slaughtered fish
- Number of lice on the farmed fish
- Use of medicinal products (type and name, quantity used and treatment period)
- Use of chemicals (type and name, quantity used and consumption period)
- Use of net impregnating agents
- Catches made during fishing for monitoring or recovery purposes (escapes)

Escape of farmed fish

In order to ensure that farms can withstand adverse weather conditions all farms must comply with a technical standard on farm construction (Anon. 2003). This reduces the risk of the farm being damaged or wrecked and of farmed fish escaping. Escape of salmon from the farms is regarded as a serious problem since the farmed fish may genetically interact with the wild salmon. In the case of an escape event or suspicion of escape the Directorate of Fisheries must be notified and recapture of escaped fish within a radius of 500 m from the farm is initiated as required by the Aquaculture Operation Regulations (Anon., 2004).

The standard contains requirements for the physical design of the installation and the associated documentation. This includes calculation and design rules, as well as installation, operating and maintenance requirements. There are requirements for the physical design of all the main components in an installation, and how the installation should be operated in order to prevent escape. All components of new installations must be certified by an accredited body, and existing installations must be issued with a certificate.

Disease and parasites

Diseases are an inescapable factor in fish farming and controlling them has a high priority. The Operation and Diseases Regulations must be observed, and contingency plans must be in place. Many of the major infectious diseases encountered over the years have been combated by vaccination and improved hygiene. This has resulted in very little use of antibacterial agents in current Norwegian fish farming. However, new diseases emerge and it takes time to develop new vaccines. Furthermore, not all diseases can be prevented by vaccines. Rigorous hygiene procedures must therefore be observed and any disease outbreak must be reported to the authorities.

The farms must comply with principles for good fish health management. The primary focus is on disease prevention and a number of actions are taken. It is prohibited to use fresh or frozen fish for feed since this is a perfect route for the transmission of diseases. Only stocking of fish of known origin is allowed and stressing the fish must be avoided. The different year-classes must be kept at different sites and fallowing of sites between production cycles is required.

Sea lice infestations are a major problem in Norwegian salmon farming. The local authorities have the jurisdiction to gather monthly reports, make unannounced checks on farms and demand delousing if lice levels exceed the targets stated in the National Action Plan for Sea Lice. At all fish farms sea lice must be counted at least every second week when the water temperature exceeds 4°C and the results are reported to the Norwegian Food Safety Authority. If the number of lice per fish exceeds the threshold limits the fish farmer is required to delouse at the farm (Anon., 2000). In many areas the authorities require all the fish farms in the area to synchronize their delousing.

Medicines and chemicals

All medicines must be prescribed by a veterinarian and consumption is registered by the Norwegian Medicines Control Authority and the Directorate of Fisheries. The usage of antibacterial agents is currently low, but sea-lice medicines both as bath treatments and in-feed medicines are in use.

The most frequently used chemicals in Norwegian fish farming are antifouling compounds for the net pens. The most usual is copper, although this compound is meant to be phased out and the application should be significantly reduced before 2010 in accordance with the Hague Declaration of March 1990 (Anon., 1990). However, it has proven difficult to find a substitute, and there are still large amounts of copper in use.

There are no mandatory monitoring requirements for medicines or chemicals in the environment but the environmental authorities have the right to require monitoring under the terms of the Pollution Control Act (Anon., 1981).

Environmental impact of organic waste and nutrients

The flux of organic waste (i.e. waste feed and fish faeces) and nutrients (dissolved nitrogen and phosphorous compounds excreted from the fish) is an inescapable consequence of fish farming. The amount of effluents depends on the production but also on how well the farm is run, especially with regard to the amounts of waste feed. The effects of the effluents vary with the site and are one of the main reasons that site selection is so crucial. The current velocity in the upper layers of the water is vital to the removal of excretion products from the fish. These are nutrients and may facilitate increased algae growth in the surrounding area.

According to the Environmental Objectives of Norwegian aquaculture, organic waste from fish farms must not result in unacceptable effects on the environment, either locally or regionally and (Directorate for Nature Management, 1997). Because fish farm sites vary greatly in terms of hydrographical conditions and depths, the amount of organic waste that will settle on the seabed also vary considerably. Furthermore, the size and the management of the fish farm will also influence sedimentation rates. The impact, such as changes in seabed chemistry and in the benthic fauna community, will therefore also vary widely between sites.

A fish farm may also impact the wider area around the farm and there are often different impact zones. The local impact zone which is the immediate vicinity of the farm is where the most severe impact is found and where most of the organic waste tends to settle. Anything in this zone is in high risk of being impacted by the farm. Smaller particles will travel further away from the farm and have a lesser impact but they may be a threat to sensitive species or habitats.

Overloading of sites and accumulation of organic material in the form of waste feed pellets and faeces can, besides the effects on the environment, be a cause of stress, poor growth and disease in the farmed fish, with the associated spread of infectious agents and need for medication. Organic material can therefore play a role in several types of environmental impact, even if the effect is greatest on the sediment under the cages.

Environmental monitoring

Monitoring of the seabed under the fish farms is mandatory in Norway and monitoring of the larger area may be required by the County Governors environmental department. Monitoring is performed in accordance with Norwegian Standard NS9410 (Norwegian Standards Association, 2000) as established in the Aquaculture Operation Regulations (Anon., 2004) and the responsible authorities are the Fisheries Directory and the County Governors environmental department. The standard describes methods for measuring impacts from marine fish farms on the seabed, and provides detailed procedures for how environmental impacts from individual fish farm sites should be monitored. Environmental Quality Standards (EQS) are incorporated in the standard for fish farm sites, while for the wider area the EQS used are general threshold values for the entire Norwegian coast (Molvær et al., 1997).

The monitoring standard NS-9410 focuses on methods to determine the condition of the seabed at and in the vicinity of fish farms. Traditionally monitoring of seabed impact at fish farm sites has consisted of fauna community analysis. This type of monitoring is maintained in NS-9410, but mainly in the larger area, and at the site less time demanding and less expensive surveys are being used. Because of small sampling gear sediment samples can be retrieved from between net cages in compact net cage

groups. Threshold values for environmental impact are set such that fish farm sites may be in use over a long period of time and aim to ensure that the farmed fish enjoys favorable living conditions as well as to prevent unacceptable impact on the surrounding area. The EQS sets a limit for maximum permissible impact and makes it possible to distinguish between different impact levels. The condition of the seabed is divided into four categories ranging from no impact to unacceptable impact. How often the monitoring is performed depends on the impact on the site; if the impact is small monitoring is performed seldom and if it is large the monitoring is frequent. If the impact is unacceptable the fish farms used to move to another site, today, however, other mitigating methods such as reducing production or changing the position of the farm within the site are used. This is in accordance with the principle that fish farm sites should be used over a long period of time.

NS9410 is based on the monitoring program and the EQS of a management system called MOM (Modeling – On growing fish farms – Monitoring) that combines modeling of potential impact with monitoring of benthic impact (Ervik et al., 1997; Hansen et al., 2001). The monitoring program includes three types of surveys (A, B and C investigation). The A- and B-investigations survey the potential and actual impacts on the sediment under and in the immediate vicinity of the fish farm. The C-investigation aims to obtain a picture of the impact on the recipient as a whole. The model can be used during the initial stages of identifying a suitable site or if the fish farmer wishes to increase his production at an existing site.

The authorities may also order additional monitoring, to that already required under statutory monitoring requirements, before the farm begins operating, during operation and after the site has been abandoned.

Concluding remarks

The Norwegian fish farming regulatory system has grown out of the development of the fish farming industry. The legislation and regulations have often lagged behind the rapid growth of the industry, especially in the early days, and have not been put into effect until severe problems have been encountered. However, it is in the interest of both the authorities and the industry to have strict regulations and for the long-term prosperity of the industry it is crucial. Good regulatory systems ensure that both the large-scale and long-term consequences are considered and dealt with.

Norway is particularly suitable for marine fish farming, since the natural conditions, with a long coastline with sheltered sites and generally good water quality are favorable. However, the industry has been hampered by both diseases and environmental problems. Choosing the right site has turned out to be crucial. Site selection is mainly based on the natural conditions and the current in the water column is an important parameter of good water quality for the farmed fish and to avoid impact on the seabed. The distance between sites of different year classes and the distance to other fish farms is also important with regard to transfer of diseases.

Norway is a major fishing nation, and combining fisheries and fish farming in the coastal zone is a constant challenge. Apart from fishing grounds there are spawning areas along the coast and in the

fjords that must be protected. The coast also harbors various special habitats such as cold water coral reefs and there are other valuable underwater areas along the coast which must be protected.

Norway's location on the verge of three major seas means that there are no impacts or disputes with other countries. However, when many countries share a water body it may be useful to consider common regulations and monitoring in a number of areas.

Sustainability and integration with other coastal activities are fundamental for the viability of an aquaculture industry and a regulatory system that can ensure environmentally acceptable operation in the coastal zone is therefore needed. In Norway a system is under development which will cover both the planning and the operational phases of aquaculture and ensure that available space for aquaculture is efficiently used and that the best sites are selected. Information about topography and hydrography as well as an overview of different uses and environmental status will be combined with simulation models to site aquaculture activities and to adapt the environmental impact of aquaculture to local and regional conditions. Monitoring will be an important element and will ensure that the environmental capacity is not exceeded.

Acknowledgement

Anne-Karin Natås from the Directorate of Fisheries provided highly appreciated comments and corrections.

References

- Anonymous, 1970. *Act of 19 June 1970 No.63 Relating to nature conservation (the Nature Conservation Act)*. LOV-1970-06-19 no.63, Lovdata, Oslo, Norway
- Anonymous, 1974. *Lov om dyrevern (dyrevernloven) (Act of 20 December 1974 No.63 Relating to animal protection (the Animal Protection Act))*. LOV-1974-12-20 no.73, Lovdata, Oslo, Norway (In Norwegian)
- Anonymous, 1981. *Act of 13 March 1981 No.6 concerning protection against pollution and concerning waste (the Pollution Control Act), most recently amended by Act of 20 June 2003 No.45*. LOV-1981-03-13 no.6, Lovdata, Oslo, Norway
- Anonymous, 1984. *Act of 8 June 1984 No. 51 relating to Harbours and Fairways (the Harbour Act)*. LOV-1984-06-08 no.51, Lovdata, Oslo, Norway
- Anonymous, 1985. *Act of 14 June 1985 No. 77 the Planning and Building Act*. LOV-1985-06-14 no.77, Lovdata, Oslo, Norway
- Anonymous, 1990. *Ministerial Declaration of the Third International Conference on the Protection of the North Sea*, The Hague, 8 March 1990

- Anonymous, 2000. *Forskrift om bekjempelse av lakselus (Act for combat of sea lice)*. FOR 2000-02-01 nr 70, Lovdata, Oslo, Norway (In Norwegian)
- Anonymous, 2000. *Lov om vassdrag og grunnvann (vannressursloven)(Act of 24 November 2000 no. 82 relating to water resources (the Water Resource Act)*. LOV-2000-11-24 nr. 82, Lovdata, Oslo, Norway (In Norwegian)
- Anonymous, 2003. *Forskrift om krav til teknisk standard for installasjoner som nyttes til akvakultur (Regulations relating to technical standard for installations used in aquaculture)*. FOR-2003-12-11 nr.1490, Oslo, Norway (In Norwegian)
- Anonymous, 2003. *Lov om matproduksjon og mattrygghet (matloven) (Act of 19 December 2003 no. 124 relating to food production and food safety (the Food Safety Act)*. LOV-200-12-19 nr. 124, Lovdata, Oslo, Norway (In Norwegian)
- Anonymous, 2004. *Regulations relating to Operation of Aquaculture Establishments (Aquaculture Operation Regulations)*. FOR 2004-12-22 no. 1785, Lovdata, Oslo, Norway
- Anonymous, 2005. *Act of 17 June 2005 no. 79 relating to aquaculture (Aquaculture Act)*. LOV-2005-06-17, Lovdata, Oslo, Norway
- Anonymous, 2008. *Veileder for utfylling av søknadsskjema for tillatelse til akvakultur i flytende eller landbaserte anlegg (Guidelines for completion of application form for aquaculture permit for floating or shore-based facilities)* Directorate of Fisheries, Bergen, Norway (in Norwegian)
- Aure, J. & Stigebrandt, A., 1990. Quantitative estimates of eutrophication effects on fjords of fish farming. *Aquaculture* 90, 135-156.
- Directorate for Nature Management, 1997. *Miljømål for norsk oppdrettsnæring. Nye miljømål for perioden 1998-2000 (Environmental objectives for Norwegian aquaculture. New environmental objectives for the period 1998-2000)*. DN-note 1999-1, Trondheim, Norway, 34 pp. (In Norwegian, English abstract)
- Directorate for Nature Management, 2000. *Environmental objectives for Norwegian aquaculture. Report on results achieved in 1999*. DN-note 2000-3b, Trondheim, Norway, 44 pp.
- Ervik, A., Hansen, P. K., Aure, J., Stigebrandt, A., Johannsen, P., and Jahnsen, T., 1997. Regulating the local environmental impact of intensive marine fish farming. I. The concept of the MOM system (Modelling - Ongrowing fish farms - Monitoring). *Aquaculture* 158: 85-94
- Hansen, P. K., Ervik, A., Schaanning, M.T, Johannsen, P., Aure, J., Jahnsen, T., Stigebrandt, A., 2001. Regulating the local environmental impact of intensive marine fish farming. II. The monitoring programme of the MOM system (Modelling - Ongrowing fish farms - Monitoring). *Aquaculture* 194: 75-92
- Molvær J., J.Knutzen, J.Magnusson, B.Rygg, J.Skei and J.Sørensen, 1997. *Klassifisering av miljøkvalitet I fjorder og kystfarvann (Classification of environmental quality in fjords and coastal waters)*. SFT Guidelines 97:03. TA-1467/1997, 36pp. (In Norwegian)

- Norwegian Pollution Control Authority, 1993. *Environmental objectives for Norwegian aquaculture*. Oslo, Norway, 17 pp.
- Norwegian Standards Association. 2000. *Environmental monitoring of marine fish farms NS-9410*. Available from firmapost@pronorm.no, 22 pp.
- Stigebrandt, A., Aure, J., Ervik, A., Hansen, P.K. 2004. Regulating the local environmental impact of intensive marine fish farming. III: A model for estimation of the holding capacity in the MOM system (Modelling – Ongrowing fish farm – Monitoring). *Aquaculture* 234: 239-261

Annex 1

Act of 17 June 2005 no. 79 relating to aquaculture (Aquaculture Act)

Published: 25.04.06

Chapter I Purpose and scope

§ 1 Purpose

The purpose of this Act is to promote the profitability and competitiveness of the aquaculture industry within the framework of a sustainable development and contribute to the creation of value on the coast.

§ 2 Subject scope

The Act applies to the production of aquatic organisms (aquaculture). Aquatic organisms are defined as animals and plants that live in, on, or near water. Any measures to influence the weight, size, number, characteristics or quality of living aquatic organisms are regarded as production. In cases of doubt, the Ministry may determine what is to be regarded as aquaculture by an administrative decision or regulations.

Section 12 and Chapters VI to VIII of this Act also apply to the production of goods and services for the aquaculture industry.

The Ministry may determine, by regulations, that the activities mentioned in the first and second paragraphs shall not be encompassed by all or parts of this Act.

The production of anadromous salmonids and fresh-water fish for cultivation purposes is regulated by the Act of 15 May 1992 no. 47 relating to salmonids and fresh-water fish etc.

§ 3 Geographic scope

This Act applies:

- a) on land territory and in territorial waters,
- b) in jurisdiction areas established pursuant to the Act of 17 December 1976 no. 91 relating to Norway's economic zone, and
- c) on the continental shelf.

This Act does not apply to Svalbard and Jan Mayen. The King may prescribe regulations stipulating that this Act shall apply, in full or in part, to Svalbard and Jan Mayen, and lay down detailed provisions out of consideration for the local conditions, including provisions that depart from the provisions in this Act.

Chapter II Aquaculture licences

§ 4 Aquaculture licence requirement

The Ministry may grant a licence to engage in aquaculture activities (aquaculture licence) pursuant to Sections 6 and 7. Such licences may also be acquired by transfer pursuant to Section 19.

No person may engage in aquaculture activities without registration as the holder of an aquaculture licence in the aquaculture register, cf. Section 18, first paragraph.

§ 5 Content of the aquaculture licence

The aquaculture licence permits the production of specific species in limited geographic areas (sites) subject to the prescribed restrictions on the scope of the licence that apply at any given time.

The Ministry may prescribe detailed provisions relating to the content of the aquaculture licences, including the scope, time limitations, etc., by administrative decision or regulations.

§ 6 General conditions for the allocation of aquaculture licences

The Ministry may grant an aquaculture licence by application, if:

- a) it is environmentally responsible,
- b) the requirements in Section 15 concerning land use plans and conservation measures have been met,
- c) the land use interests have been weighed in accordance with Section 16, and
- d) any licences required pursuant to the following acts have been granted:
 - Act of 19 December 2003 no. 124 relating to food production, food safety, etc.,
 - Act of 13 March 1981 no. 6 relating to protection against pollution and relating to waste,
 - Act of 8 June 1984 no. 51 relating to harbours, fairways, etc., and
 - Act of 24 November 2000 no. 82 relating to watercourses and ground water.

The Ministry may prescribe, by regulations, detailed provisions relating to the allocation of aquaculture licences, including requirements for applications and criteria for granting applications.

§ 7 Aquaculture licences for salmon, trout and rainbow trout in particular

For the allocation of licences for the production of salmon, trout and rainbow trout, the Ministry may prescribe regulations relating to:

- a) the number of licences to be allocated,
- b) geographic distribution of licenses,
- c) prioritisation criteria,
- d) selection of qualified applications in accordance with the prioritisation criteria in letter c, including the drawing of lots etc., and
- e) payment for the allocation of licences.

The King may prescribe, by regulations, provisions relating to the adaptation of the production of salmon, trout and rainbow trout.

§ 8 Coordination of matters related to the establishment of aquaculture

The authorities pursuant to this Act, the acts listed in Section 6, first paragraph, letter d, and the municipality, as the planning and building authority here, are obligated to undertake an efficient and coordinated processing of applications.

The Ministry may prescribe, by regulations, detailed provisions relating to the coordination of application processing, including the stipulation of time limits for the processing of applications.

§ 9 Amendment and revocation of aquaculture licences

The Ministry may amend or revoke aquaculture licences:

- a) if such actions are necessary due to environmental considerations,

- b) if there are changes in any material assumptions underlying the licence,
- c) in the event of gross or repeated contravention of the provisions prescribed in or pursuant to this Act,
- d) if the licence is not used, or only used to a limited extent, or
- e) if one or more of the licences required pursuant to the acts listed in Section 6, first paragraph, letter d, has lapsed.

The amendment or revocation of licences pursuant to the first paragraph may be time-limited. A time-limited amendment or revocation may be made contingent on the improvement or amendment of specific circumstances.

The Ministry may prescribe, by regulations, detailed provisions relating to the amendment and revocation of aquaculture licences.

Chapter III Environmental considerations

§ 10 Environmental standard

Aquaculture facilities shall be established, operated and abandoned in an environmentally responsible manner.

The Ministry may prescribe, by administrative decision or regulations, detailed provisions to ensure environmentally responsible aquaculture, including banning the release of foreign organisms.

§ 11 Environmental monitoring

The Ministry may require, by administrative decision or regulations, that any person who holds or applies for an aquaculture licence shall conduct the necessary environmental surveys and document the environmental condition of the site at the time of the establishment, operation and abandonment of aquaculture facilities.

§ 12 Requirements for installations, equipment, etc.

Installations and equipment that are used for activities encompassed by this Act shall be properly designed, have the proper characteristics, and be used with the necessary caution.

The Ministry may prescribe, by regulations, requirements for the manufacture, use and characteristics of the installations mentioned in the first paragraph, including the establishment of approval and certification schemes.

§ 13 Restoration and recapture obligations

Any person who engages in aquaculture activities shall restore the site and adjoining areas if the production is discontinued in full or in part, including the removal of organisms, installations, equipment, etc.

The Ministry may prescribe, by administrative decision or regulations, provisions requiring that any person who engages in aquaculture activities recapture any released species.

The Ministry may prescribe regulations requiring that security be pledged for the restoration and recapture obligation pursuant to the first and second paragraphs.

The Ministry may prescribe regulations relating to a taxation scheme to ensure satisfaction of the restoration and recapture obligation. The prescribed tax may be recovered by execution proceedings.

§ 14 Protection of specific areas

The Ministry may establish a ban, order relocation or place other conditions on aquaculture activities if such actions are necessary to protect areas of special value to aquatic organisms.

Chapter IV Land utilisation

§ 15 Relationship to land use plans and conservation measures

Aquaculture licences may not be granted in contravention of:

- a) adopted land use plans pursuant to the Planning and Building Act of 14 June 1985 no. 77,
- b) adopted conservation measures pursuant to the Act of 19 June 1970 no. 63 relating to nature conservation, or
- b) adopted conservation measures pursuant to the Act of 9 June 1978 no. 50 relating to cultural heritage.

An aquaculture licence may nevertheless be granted if the relevant planning or conservation authority gives its consent.

§ 16 Weighing of land use interests with respect to aquaculture

The Ministry shall weigh the land use interests in determining sites for aquaculture. Particular importance shall be attached to:

- a) applicant's land use requirements for the planned aquaculture production,
- b) alternative use of the area for other aquaculture,
- c) other use of the area, and
- d) conservation interests that are not encompassed by Section 15, letters b and c.

The Ministry may prescribe, by regulations, detailed provisions relating to the use and localisation of aquaculture activities.

§ 17 Utilisation of sites etc.

A person who holds an aquaculture licence has exclusive rights to the withdrawal and recapture of the released species at the site.

The Ministry may, by administrative decision or regulations, regulate the withdrawal and recapture of the individual species at the site, regardless of the provisions in the Act of 3 June 1983 no. 40 relating to saltwater fisheries.

The Ministry may limit or ban, by regulations, any traffic on or other use of the sites and adjoining areas, including fishing for species other than the released species, if this is necessary due to aquaculture production considerations.

Chapter V Registration, transfer and mortgaging of aquaculture licences

§ 18 Registration of aquaculture licences

A register shall be kept of the aquaculture licences (the aquaculture register). The individual licences shall have a separate record in the register.

A journal shall be kept of all the legal rights that are to be registered.

The Ministry may prescribe regulations relating to the registration scheme, including the registration authority, compensation scheme, journal keeping, etc.

The rules in the Act of 7 June 1935 no. 2 relating to property rights registration, Chapters 2 and 3 and Section 35, apply correspondingly as long as they are appropriate and the provisions prescribed in or pursuant to this Act do not state otherwise.

§ 19 Transfer of aquaculture licences

The aquaculture licences may be transferred.

The transfer of aquaculture licences is not of any significance to the authorities' use of measures pursuant to this Act.

The leasing of aquaculture licences is not permitted. In exceptional cases the Ministry may grant exemptions from the ban of leasing.

The Ministry may prescribe, by regulations, detailed provisions relating to the transfer of aquaculture licences.

§ 20 Mortgaging of aquaculture licences

Aquaculture licences may be mortgaged.

The mortgage will be afforded legal protection when it is registered on the licence's record in the aquaculture register.

The mortgaging of aquaculture licences is not of any significance to the authorities' use of measures pursuant to this Act.

The State's mortgage takes precedence over any other encumbrances on licences for claims for enforcement damages pursuant to Section 28, claims for the reimbursement of execution expenses pursuant to Section 29, and for violation fines pursuant to Section 30.

The Ministry may prescribe, by regulations, detailed provisions relating to the mortgaging of aquaculture licences, including limitation of the amount of the State's mortgage pursuant to the fourth paragraph.

Chapter VI General requirements and obligations

§ 21 Supervision

The Ministry determines who the supervisory authorities shall be pursuant to this Act. The supervisory authorities shall supervise that the provisions prescribed in and pursuant to this Act are observed.

§ 22 Professional competence

Any person who participates in the activities encompassed by this Act shall have the necessary professional competence to carry out such activities.

The Ministry may prescribe, by regulations, detailed provisions relating to the professional competence requirements for activities encompassed by this Act.

§ 23 Systematic control measures

To ensure that the requirements in or pursuant to this Act are observed, the Ministry may determine by regulations that any person who engages in the activities encompassed by this Act are obligated to establish and implement systematic control measures.

§ 24 Duty of disclosure and investigation

At the order of the supervisory authorities, any person who engages in the activities encompassed by this Act has a duty to disclose information, documents, test samples or other materials that are necessary so that the supervisory authorities can perform their duties pursuant to this Act.

At the order of the supervisory authorities, any person who engages in the activities encompassed by this Act has a duty to conduct any investigations that are necessary so that the supervisory authorities can perform their duties pursuant to this Act.

The Ministry may prescribe, by regulations, detailed provisions relating to the duty of disclosure and investigation in the first and second paragraphs, including whether these duties shall be performed regularly.

§ 25 Duty to assist

Any person who engages in the activities encompassed by this Act has a duty to grant the supervisory authorities access to areas, installations and equipment associated with the activities, so that the supervisory authorities can perform their duties pursuant to this Act.

Any person who engages in the activities encompassed by this Act shall provide the necessary premises, materials, organisms and assistance for the performance of the supervision and otherwise provide assistance for the performance of supervisory work.

§ 26 Fees

The Ministry may prescribe regulations relating to fees for the processing of applications and the performance of supervisory work in accordance with the provisions in or pursuant to this Act.

Any fees owed may be recovered by execution proceedings.

Chapter VII Sanctions for contravention

§ 27 Orders to execute measures

If the provisions prescribed in or pursuant to this Act are contravened, the supervisory authorities may order the execution of measures to remedy the illegal situation and bring it to an end. A time limit may be stipulated for the performance of such measures.

§ 28 Enforcement damages

To ensure implementation of the provisions prescribed in or pursuant to this Act, the supervisory authorities may impose running enforcement damages on the responsible party. Enforcement damages that fall due for each contravention may also be adopted. Enforcement damages may also be adopted at the same time as an order to execute measures pursuant to Section 27, or at a later date.

The enforcement damages will take effect when the responsible party exceeds the deadline for remedying the situation stipulated by the supervisory authorities in the enforcement damages decision, and they will remain in effect for the duration of the situation. They will, however, not take effect as long as compliance is impossible due to circumstances beyond the control of the responsible party.

If there are several responsible parties in accordance with the enforcement damages decision, the responsible parties are jointly liable for payment of the enforcement damages. The enforcement damages may be recovered by execution proceedings. The Ministry may waive the accrued damages.

The Ministry may prescribe, by regulations, detailed provisions relating to enforcement damages, including the amount and duration of the enforcement damages, stipulation of enforcement damages and waiving the accrued enforcement damages.

§ 29 Execution of measures at the expense of the responsible party

If the deadline for the performance of orders pursuant to Section 27 has expired, the supervisory authorities may take steps to ensure that the measures are executed.

Even if an order has not been made pursuant to Section 27, the supervisory authorities may, if it is necessary to execute the measure immediately or other special reasons exist, take steps to ensure the execution of measures to bring the illegal situation to an end.

The reimbursement of the expenses associated with the execution pursuant to the first and second paragraphs may be claimed from the responsible party. If there are several responsible parties, they are jointly and severally liable for the expenses. Claims for the reimbursement of execution expenses may be recovered by execution proceedings.

The Ministry may prescribe, by regulations, detailed provisions relating to the execution of measures, including the recovery of the execution expenses.

§ 30 Violation fines

Violation fines may be imposed on any person who contravenes with the provisions prescribed in or pursuant to this Act by the supervisory authorities. The fines shall be commensurate with any gain obtained by the responsible party as a result of the contravention. The supervisory authorities' expenses associated with control measures and work on the case may also be taken into account.

Final violation fine decisions may be recovered by execution proceedings.

The Ministry may prescribe, by regulations, detailed provisions relating to violation fines, including provisions relating to interest and additional fees if the violation fine is not paid when due.

§ 31 Criminal liability

Any person who contravenes the provisions prescribed in or pursuant to this Act with wilful intent or gross negligence may be punished by fines or imprisonment for a maximum of one year, or both, provided the offence is not subject to more severe penal provisions.

In particularly aggravating circumstances, imprisonment for a maximum of two years may be applied, unless the offence is subject to more severe penal provisions.

Aiding and abetting and attempts are subject to the same punishment.

Regulations prescribed pursuant to this Act may stipulate that contravention of the regulations is not punishable.

Chapter VIII Concluding provisions

§ 32 Entry into force

This Act enters into force on 1 January 2006.

§ 33 Transitional provisions

Administrative decisions and regulations issued pursuant to the Act of 14 June 1985 no. 68 relating to the farming of fish, shellfish, etc., and the Act of 21 December 2000 no. 118 relating to sea ranching will continue.

§ 34 Continuation of the regulations relating to the supervision of ownership in table fish farming

The Regulations of 22 December 2004 no. 1800 relating to the regulation of ownership in companies etc. licensed to operate seawater rearing units for salmon and trout will be continued, even though the legal authority pursuant to the Act of 14 June 1985 no. 68 relating to the farming of fish, shellfish, etc., is repealed.

Annex 2

Law, published 14.05.1985

This document was published 14.05.1985 by Ministry of the Environment

Act of 14 June 1985 No. 77 the Planning and Building Act The Ministry of the Environment and the Ministry of Local Government and Regional Development

With amendments in force 1 April 2005. (The translation does not contain the amendments after 1 April 2005.)

Act of 14 June 1985 No. 77, with amendments in force 1 April 2005

MSWord:

[Act of 14 June 1985 No. 77, with amendments in force 1 April 2005](#)

Regulation pursuant to the act:

- [Regulations on Environmental Impact Assessment](#)

Chapter and section headings

CHAPTER I. GENERAL PROVISIONS

Section 1. Applicability

Section 2. Purpose

Section 3. By-laws

Section 4. Adoption of by-laws

Section 5. Maps and geodata

Section 6. Regulations

Section 7. Dispensation

Section 8. Delegation of the Municipal Council 's authority

CHAPTER II. THE PLANNING AND BUILDING AUTHORITIES

Section 9-1. The planning authorities in the municipality

Section 9-2. The planning administration in the municipality

Section 9-3. Duty of other public bodies to cooperate

Section 9-4. Cooperation between the Public Roads Administration, the county and the municipality on the planning of national and county roads

Section 10-1. **The municipality's functions and duty to cooperate**

Section 10-2. (Repealed by the Act of 11 June 1993 No. 85)

Section 10-3. (Repealed by the Act of 5 June 1987 No. 25)

Section 11-1. (Repealed by the Act of 11 June 1993 No. 85)

Section 11-2. (Repealed by the Act of 11 June 1993 No. 85)

Section 12-1. The highest planning authority in the county

Section 12-2. The planning administration in the county

Section 12-3. Duty of other public bodies to cooperate

Section 13. National planning and building authorities

Section 14. Distribution of planning functions and cooperation thereon

Section 15. Relationship to the Public Administration Act, and appeals

CHAPTER III. CONSULTATION, PUBLICATION AND INFORMATION

Section 16-1. Consultation, publication and information

Section 16-2. Requirements relating to environmental impact assessments for plans with significant effects

CHAPTER IV. PLANNING AT NATIONAL LEVEL

Section 17-1. National policy provisions

Section 17-2. Prohibition against building on or partitioning off a property inside a 100-metre-wide belt along the shoreline to the sea

Section 18. A centrally prepared zoning plan and the land-use part of the municipal master plan

CHAPTER V. COUNTY PLANNING

Section 19-1. County planning

Section 19-2. Cooperation between counties on planning

Section 19-3. Organization of county planning work

Section 19-4. Consideration of the county master plan

Section 19-5. Revision

Section 19-6. Effects of the county master plan

CHAPTER VI. MUNICIPAL PLANNING

Section 20-1. Municipal planning

Section 20-2. Organization of municipal planning work

Section 20-3. Inter-municipal planning

Section 20-4. The land-use part of the municipal master plan

Section 20-5. Consideration of the municipal master plan

Section 20-6. Effects of the municipal master plan

Section 21. Realization of property

CHAPTER VII. THE ZONING PLAN

Section 22. Definition

Section 23. Duty to prepare a zoning plan - relationship to master plans

Section 24. Simplified zoning plan

Section 25. Categories of land use

Section 26. Zoning provisions

Section 27-1. Preparation of zoning plans

Section 27-2. Zoning decisions

Section 27-3. Appeal against zoning decisions

Section 28-1. Alteration and cancellation of a zoning plan

Section 28-2. Building development plans

Section 29. Cooperation between municipalities and public agencies concerning zoning

Section 30. Private zoning proposals

Section 31. Effects of a zoning plan

Section 32. Compensation for loss caused by a zoning plan or building development plan

Section 33. Temporary prohibition against division and construction work

CHAPTER VII-A. ENVIRONMENTAL IMPACT ASSESSMENTS

Section 33-1. Scope and purpose

Section 33-2. General provisions

Section 33-3. Relationship to other states

Section 33-4. Costs

Section 33-5. Regulations

Section 33-6. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-7. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-8. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-9. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-10. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-11. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-12. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-13. (Repealed by the Act of 24 September 2004 No. 72.)

CHAPTER VIII. EXPROPRIATION

Section 34. Definition

Section 35. Expropriation for the purpose of implementing a zoning plan or building development plan

Section 36. Expropriation independent of a zoning plan

Section 37. Expropriation for water and sewerage installations etc.

Section 38. The landowner's right to expropriate for purposes of access, sewerage installations and common areas, and for green belts in industrial areas

Section 39. Adjustment of lots

Section 40. Time of the expropriation

Section 41. Preliminary assessment

Section 42. The landowner's right to demand realization of property

Section 43. Extension of the expropriation

Section 44. Compensation in the form of land, temporary dwelling

Section 45. Take-over of property by the State or the county

CHAPTER IX. REFUNDING COSTS OF ROADS, WATER SUPPLY AND SEWERAGE, ETC.

Section 46. Works for which a refund is payable

Section 47. The refund unit

Section 48. Costs that are refundable

Section 49. Areas liable to pay a refund

Section 50. Distribution factors. Valuation. Additional refund

Section 51. Right to realization of property

Section 52. Approval of plans

Section 53. Preliminary calculation of the refund

Section 54. When the project may be started

Section 55. Determination of the refund

Section 56. Due date of payment

Section 57. Refund debtor, legal charge

Section 58. Legal proceedings

CHAPTER X. ASSESSMENT AUTHORITY

Section 59. Ordinary assessment authority

Section 60. Special court of assessment for building matters

Section 61. Costs of a case

CHAPTER XI. DIVISION OF PROPERTY

Section 62. (Not enacted)

Section 63. Division of property

Section 64. (Not enacted)

CHAPTER XII. THE BUILDING LOT

Section 65. Water supply

Section 66. Access and sewers

Section 66a. District heating plants

Section 67. Requirements concerning construction of roads and common main pipeline for water and waste water

Section 67a. Requirement concerning development of common areas and of green belts in industrial areas

Section 68. Building land. Environmental conditions

Section 69. The undeveloped part of the lot, common areas

CHAPTER XIII. BUILDINGS

Section 70. Location of the building, its height and distance from the boundary of adjoining property

Sections 71-73. (Not enacted)

Section 74. Arrangement and appearance

Section 75. Privy - WC

Section 76. Additional rooms

Section 77. Execution of the construction work. Requirements regarding construction products

CHAPTER XIV. SPECIAL BUILDINGS AND INSTALLATIONS

Section 78. Location of business enterprises and installations, etc. within the municipality

Section 79. Unusual buildings

Section 80. Buildings and activities entailing hazard or particular inconvenience

Section 81. Agricultural buildings

Section 82. Leisure buildings

Section 83. Pools, wells and ponds

Section 84. Other permanent structures or installations. Significant encroachments on terrain, etc.

Section 85. Temporary or transportable buildings, structures or installations

Section 86. Secret military installations

Section 86a. Minor projects on developed property

Section 86b. Building work within the area of a particular enterprise

CHAPTER XV. EXISTING STRUCTURES

Section 87. Alteration, repair or change of use, etc. of existing structures

Section 88. Dispensation from section 87

Section 89. Maintenance and improvement

Section 89a. Improvement programme

Section 90. (Repealed by the Act of 5 May 1995 No. 20 (in force from 1 July ...))

Section 91. Demolition

Section 91a. Change of use and demolition of dwellings

Section 92. Other provisions

Section 92a. Alteration or removal of projects pursuant to section 93, second paragraph

Section 92b. Inspection of existing structures and ground

CHAPTER XVI. ADMINISTRATIVE PROCEDURES, RESPONSIBILITY AND CONTROL

Section 93. Projects requiring application and permission

Section 93a. Preliminary conference

Section 93b. Responsible applicant and designer

Section 94. Application for permission. Notice to neighbours

Section 95. Processing of the application by the municipality

Section 95a. Stage by stage processing

Section 95b. Projects requiring simple processing

Section 96. Lapse of permission

Section 97. Control of projects. Person responsible for control of design and execution

Section 98. The responsible contractor

Section 98a. Central approval of persons exercising the right to accept responsibility

Section 99. Final inspection and certificate of completion

CHAPTER XVII. SUNDRY PROVISIONS

Section 100. Safety measures. Construction equipment

Section 101. Measures on adjoining land

Section 102. Investigations on real property

Section 103. Fencing

Section 104. Tidiness and use of undeveloped land. Safety measures in connection with buildings, etc.

Section 105. Lighting and cleaning, etc.

Section 106. Technical installations

Section 106a. Lifts, escalators and moving pavements

Section 107. Signs and advertisements

Section 108. The duty of other authorities to report

Section 109. Fees

CHAPTER XVIII. PENAL LIABILITY

Section 110. Fines may be imposed on any person who wilfully or negligently:...

Section 111. Fines may be imposed on any person who wilfully or negligently:...

Section 112. Fines may be imposed on any person who wilfully or negligently:...

CHAPTER XIX. UNLAWFUL CONSTRUCTION WORK, ETC.

Section 113. Stopping unlawful construction work and cessation of unlawful use. Removal or remedying of unlawfully executed work

Section 114. Writ concerning the obligation to comply with an order or prohibition

Section 115. Enforcement

Section 116. Compensation

Section 116a. Coercive fine

Section 116b. Reasonableness and coordination

CHAPTER XX. TRANSITIONAL PROVISIONS

Section 117. (Repealed by the Act of 11 June 1993 No. 85)

Section 118. Temporary by-law concerning anchoring and mooring of leisure craft, etc.

Section 119. Administrative decisions, etc. pursuant to earlier legislation

Section 120. Final processing of proposed plans

Section 120a. (Repealed by the Act of 24 September 2004 No. 72.)

Section 121. Further provisions concerning the effects of commencement of this Act

CHAPTER XXI. COMMENCEMENT, REPEAL AND AMENDMENT OF OTHER ACTS

Section 122. Commencement

Section 123. Repeal and amendment of other Acts

External link:

[Text of the law \(in Norwegian\)](#)

TOPICS

- [Disabled people](#)
- [Housing and building policy](#)
- [Planning](#)

ASSOCIATED REGULATION

- [Regulations on Environmental Impact Assessment](#)

[Skip left menu navigation](#)

- **Portal home**
- **What's new**
- **Topics**
- **Documents**
 - [Acts and regulations](#)
 - [Circular](#)
 - [Official Norwegian Reports](#)
 - [Reports and plans](#)
 - [Guidelines and brochures](#)
- **Webcast**
- **The Government**
- **Document Archive**

Government Administration Services, Einar Gerhardsens plass 3, Postbox 8129 Dep, 0032 OSLO, Norway
Tlf: + 47 22 24 90 90 | E-mail: redaksjonen@dss.dep.no

THE PLANNING AND BUILDING ACT

Act of 14 June 1985 No. 77, with amendments in force 1 April 2005

CHAPTER I. GENERAL PROVISIONS

Section 1. Applicability

Section 2. Purpose

Section 3. By-laws
Section 4. Adoption of by-laws
Section 5. Maps and geodata
Section 6. Regulations
Section 7. Dispensation
Section 8. Delegation of the Municipal Council 's authority

CHAPTER II. THE PLANNING AND BUILDING AUTHORITIES

Section 9-1. The planning authorities in the municipality
Section 9-2. The planning administration in the municipality
Section 9-3. Duty of other public bodies to cooperate
Section 9-4. Cooperation between the Public Roads Administration, the county and the municipality on the planning of national and county roads
Section 10-1. The municipality's functions and duty to cooperate
Section 10-2. (Repealed by the Act of 11 June 1993 No. 85)
Section 10-3. (Repealed by the Act of 5 June 1987 No. 25)
Section 11-1. (Repealed by the Act of 11 June 1993 No. 85)
Section 11-2. (Repealed by the Act of 11 June 1993 No. 85)
Section 12-1. The highest planning authority in the county
Section 12-2. The planning administration in the county
Section 12-3. Duty of other public bodies to cooperate
Section 13. National planning and building authorities
Section 14. Distribution of planning functions and cooperation thereon
Section 15. Relationship to the Public Administration Act, and appeals

CHAPTER III. CONSULTATION, PUBLICATION AND INFORMATION

Section 16-1. Consultation, publication and information
Section 16-2. Requirements relating to environmental impact assessments for plans with significant effects

CHAPTER IV. PLANNING AT NATIONAL LEVEL

Section 17-1. National policy provisions
Section 17-2. Prohibition against building on or partitioning off a property inside a 100-metrewide belt along the shoreline to the sea

2

Section 18. A centrally prepared zoning plan and the land-use part of the municipal master plan

CHAPTER V. COUNTY PLANNING

Section 19-1. County planning
Section 19-2. Cooperation between counties on planning
Section 19-3. Organization of county planning work
Section 19-4. Consideration of the county master plan
Section 19-5. Revision
Section 19-6. Effects of the county master plan

CHAPTER VI. MUNICIPAL PLANNING

Section 20-1. Municipal planning
Section 20-2. Organization of municipal planning work
Section 20-3. Inter-municipal planning
Section 20-4. The land-use part of the municipal master plan
Section 20-5. Consideration of the municipal master plan
Section 20-6. Effects of the municipal master plan
Section 21. Realization of property

CHAPTER VII. THE ZONING PLAN

Section 22. Definition
Section 23. Duty to prepare a zoning plan - relationship to master plans
Section 24. Simplified zoning plan

Section 25. Categories of land use
Section 26. Zoning provisions
Section 27-1. Preparation of zoning plans
Section 27-2. Zoning decisions
Section 27-3. Appeal against zoning decisions
Section 28-1. Alteration and cancellation of a zoning plan
Section 28-2. Building development plans
Section 29. Cooperation between municipalities and public agencies concerning zoning
Section 30. Private zoning proposals
Section 31. Effects of a zoning plan
Section 32. Compensation for loss caused by a zoning plan or building development plan
Section 33. Temporary prohibition against division and construction work

CHAPTER VII-A. ENVIRONMENTAL IMPACT ASSESSMENTS

Section 33-1. Scope and purpose
Section 33-2. General provisions
Section 33-3. Relationship to other states
Section 33-4. Costs
Section 33-5. Regulations

3

Section 33-6. (Repealed by the Act of 24 September 2004 No. 72.)
Section 33-7. (Repealed by the Act of 24 September 2004 No. 72.)
Section 33-8. (Repealed by the Act of 24 September 2004 No. 72.)
Section 33-9. (Repealed by the Act of 24 September 2004 No. 72.)
Section 33-10. (Repealed by the Act of 24 September 2004 No. 72.)
Section 33-11. (Repealed by the Act of 24 September 2004 No. 72.)
Section 33-12. (Repealed by the Act of 24 September 2004 No. 72.)
Section 33-13. (Repealed by the Act of 24 September 2004 No. 72.)

CHAPTER VIII. EXPROPRIATION

Section 34. Definition
Section 35. Expropriation for the purpose of implementing a zoning plan or building development plan
Section 36. Expropriation independent of a zoning plan
Section 37. Expropriation for water and sewerage installations etc.
Section 38. The landowner's right to expropriate for purposes of access, sewerage installations and common areas, and for green belts in industrial areas
Section 39. Adjustment of lots
Section 40. Time of the expropriation
Section 41. Preliminary assessment
Section 42. The landowner's right to demand realization of property
Section 43. Extension of the expropriation
Section 44. Compensation in the form of land, temporary dwelling
Section 45. Take-over of property by the State or the county

CHAPTER IX. REFUNDING COSTS OF ROADS, WATER SUPPLY AND SEWERAGE, ETC.

Section 46. Works for which a refund is payable
Section 47. The refund unit
Section 48. Costs that are refundable
Section 49. Areas liable to pay a refund
Section 50. Distribution factors. Valuation. Additional refund
Section 51. Right to realization of property
Section 52. Approval of plans
Section 53. Preliminary calculation of the refund

Section 54. When the project may be started

Section 55. Determination of the refund

Section 56. Due date of payment

Section 57. Refund debtor, legal charge

Section 58. Legal proceedings

CHAPTER X. ASSESSMENT AUTHORITY

Section 59. Ordinary assessment authority

Section 60. Special court of assessment for building matters

4

Section 61. Costs of a case

CHAPTER XI. DIVISION OF PROPERTY

Section 62. (Not enacted)

Section 63. Division of property

Section 64. (Not enacted)

CHAPTER XII. THE BUILDING LOT

Section 65. Water supply

Section 66. Access and sewers

Section 66a. District heating plants

Section 67. Requirements concerning construction of roads and common main pipeline for water and waste water

Section 67a. Requirement concerning development of common areas and of green belts in industrial areas

Section 68. Building land. Environmental conditions

Section 69. The undeveloped part of the lot, common areas

CHAPTER XIII. BUILDINGS

Section 70. Location of the building, its height and distance from the boundary of adjoining property

Sections 71-73. (Not enacted)

Section 74. Arrangement and appearance

Section 75. Privy - WC

Section 76. Additional rooms

Section 77. Execution of the construction work. Requirements regarding construction products

CHAPTER XIV. SPECIAL BUILDINGS AND INSTALLATIONS

Section 78. Location of business enterprises and installations, etc. within the municipality

Section 79. Unusual buildings

Section 80. Buildings and activities entailing hazard or particular inconvenience

Section 81. Agricultural buildings

Section 82. Leisure buildings

Section 83. Pools, wells and ponds

Section 84. Other permanent structures or installations. Significant encroachments on terrain, etc.

Section 85. Temporary or transportable buildings, structures or installations

Section 86. Secret military installations

Section 86a. Minor projects on developed property

Section 86b. Building work within the area of a particular enterprise

5

CHAPTER XV. EXISTING STRUCTURES

Section 87. Alteration, repair or change of use, etc. of existing structures

Section 88. Dispensation from section 87

Section 89. Maintenance and improvement

Section 89a. Improvement programme

Section 90. (Repealed by the Act of 5 May 1995 No. 20 (in force from 1 July ...))

Section 91. Demolition

Section 91a. Change of use and demolition of dwellings

Section 92. Other provisions

Section 92a. Alteration or removal of projects pursuant to section 93, second paragraph

Section 92b. Inspection of existing structures and ground

CHAPTER XVI. ADMINISTRATIVE PROCEDURES, RESPONSIBILITY AND CONTROL

Section 93. Projects requiring application and permission

Section 93a. Preliminary conference

Section 93b. Responsible applicant and designer

Section 94. Application for permission. Notice to neighbours

Section 95. Processing of the application by the municipality

Section 95a. Stage by stage processing

Section 95b. Projects requiring simple processing

Section 96. Lapse of permission

Section 97. Control of projects. Person responsible for control of design and execution

Section 98. The responsible contractor

Section 98a. Central approval of persons exercising the right to accept responsibility

Section 99. Final inspection and certificate of completion

CHAPTER XVII. SUNDRY PROVISIONS

Section 100. Safety measures. Construction equipment

Section 101. Measures on adjoining land

Section 102. Investigations on real property

Section 103. Fencing

Section 104. Tidiness and use of undeveloped land. Safety measures in connection with buildings, etc.

Section 105. Lighting and cleaning, etc.

Section 106. Technical installations

Section 106a. Lifts, escalators and moving pavements

Section 107. Signs and advertisements

Section 108. The duty of other authorities to report

Section 109. Fees

CHAPTER XVIII. PENAL LIABILITY

Section 110. Fines may be imposed on any person who wilfully or negligently:...

6

Section 111. Fines may be imposed on any person who wilfully or negligently:...

Section 112. Fines may be imposed on any person who wilfully or negligently:...

CHAPTER XIX. UNLAWFUL CONSTRUCTION WORK, ETC.

Section 113. Stopping unlawful construction work and cessation of unlawful use. Removal or remedying of unlawfully executed work

Section 114. Writ concerning the obligation to comply with an order or prohibition

Section 115. Enforcement

Section 116. Compensation

Section 116a. Coercive fine

Section 116b. Reasonableness and coordination

CHAPTER XX. TRANSITIONAL PROVISIONS

Section 117. (Repealed by the Act of 11 June 1993 No. 85)

Section 118. Temporary by-law concerning anchoring and mooring of leisure craft, etc.

Section 119. Administrative decisions, etc. pursuant to earlier legislation

Section 120. Final processing of proposed plans

Section 120a. (Repealed by the Act of 24 September 2004 No. 72.)

Section 121. Further provisions concerning the effects of commencement of this Act

CHAPTER XXI. COMMENCEMENT, REPEAL AND AMENDMENT OF OTHER ACTS

Section 122. Commencement

Section 123. Repeal and amendment of other Acts

7

CHAPTER I. GENERAL PROVISIONS

Section 1. Applicability

Unless otherwise decided in or in pursuance of an Act, this Act applies to the whole country including watercourses. In the case of sea areas the Act applies out to the base lines. In the case of certain sea areas the King may fix the limit of the area of application further in than the base lines. However, the Act does not apply to marine pipelines for transport of petroleum.

The King may decide that the Act shall apply in whole or in part to Svalbard.

Section 2. Purpose

Planning pursuant to the Act is intended to facilitate coordination of national, county and municipal activity and provide a basis for decisions concerning the use and protection of resources and concerning development and to safeguard aesthetic considerations.

By means of planning, and through special requirements concerning individual building project, the Act shall promote a situation where the use of land and the buildings thereon will be of

greatest possible benefit to the individual and to society.

When carrying out planning pursuant to this Act, special emphasis shall be placed on securing children a good environment in which to grow up.

Section 3. By-laws

For a municipality or part of a municipality, by-laws may be adopted which modify, make more restrictive, add to or exempt from the provisions of this Act to the extent considered necessary out of regard for local conditions, unless otherwise provided by the Act.

Nevertheless, the provisions of Chapters I, II, VI, VII, VII-a, X, XVI, XVIII, XIX, XX and XXI of the Act may not be departed from by means of by-laws unless explicitly stated in the provision concerned. The provisions of the Act concerning expropriation and refund may not be departed from to the detriment of a landowner or a holder of rights. Nor may modifications be made by means of by-laws to the provisions of section 65, first paragraph or section 66, subsection 1, or any changes be made in the provisions laid down in or in pursuance of sections 81,

82 and 84.

Section 4. Adoption of by-laws

By-laws shall be adopted by the Municipal Council itself. Amendment or repeal of a by-law shall be done in the same way.

Section 5. Maps and geodata

The municipality shall ensure that there is an up-to-date, public set of basic map data for the purposes of the Act, including the preparation of the land-use part of the municipal master plan, zoning plans and site plans. The State shall make national map data available to all municipalities. The set of basic map data must also be available for use for other public and private purposes.

The municipality may require any person who presents an environmental impact assessment, plan proposal or project application to prepare maps, when this is necessary in order to

be able to come to a decision on the impact assessment, proposal or application. In accordance with

regulations pursuant to the fourth paragraph, the municipality may make provisions or administrative decisions concerning requirements as regards technical design and content,

8

including in larger matters the requirement that the data be submitted in digital form. The

municipality may incorporate such maps into the public set of basic map data. The Ministry may in regulations make rules regarding maps and geodata, including requirements relating to content, design, quality, reporting, updating and storage. The King may decide that national or local projects shall be initiated to collect, check, revise or supplement information relating to planning and building matters and the public set of basic map data. The King may order public agencies to provide the information necessary to carry out the project.

Section 6. Regulations

The Ministry may lay down regulations for the purpose of implementing and supplementing the provisions of this Act, including time limits for the individual parts of the preparatory proceedings for and processing of planning and building matters, procedures for dealing with administrative appeals and the effects of failure to comply with a time limit. The Ministry may also make regulations prescribing exemptions to the rules regarding time limits.

Section 7. Dispensation

When special reasons exist for so doing, the municipality, unless otherwise stipulated in the provision concerned, may after application grant permanent or temporary dispensation from provisions contained in this Act, by-laws or regulations. The authority to make a decision concerning dispensation from the land-use part of the municipal master plan, a zoning plan or a building development plan, unless otherwise stipulated in the plan concerned, is assigned to the Standing Committee for Planning Matters pursuant to section 9-1 of this Act. The conditions for granting dispensation from plans or planning provisions as mentioned in the previous sentence are the same as those following the first comma in the first sentence. The Standing Committee for Planning Matters is also the authority empowered to grant dispensations pursuant to sections 17-2, 23 and 33 of this Act. Dispensations may be made subject to conditions.

Temporary dispensation may be granted for a specific period or for an indefinite period and implies that the applicant, when the period of dispensation has expired, or by order and without cost to the municipality, must remove or alter that which has been constructed or discontinue the temporarily permitted use or comply with the requirement for which postponement has been granted, and if required, restore the property to its previous state. The dispensation may be made subject to a declaration where also the owner (lessee) on his part accepts these obligations. It may be required that the declaration be registered. It is binding on the mortgagee and other holders of rights to a property regardless of when the right was established and regardless of whether the declaration is registered.

Before a decision is made, notice shall be given to adjoining and opposite neighbours in the manner stipulated in section 94, subsection 3. Nevertheless, separate notice is not necessary when the application for dispensation is submitted together with an application for permission pursuant to

section 93 or when the application obviously does not affect the neighbour's interests.

In connection with dispensation from the land-use part of the municipal master plan, a zoning plan,

a building development plan or from sections 17-2 and 23 of this Act, the county and national authorities whose area of responsibility is directly affected shall be given the opportunity to express

their opinion before dispensation is granted.

9

Section 8. Delegation of the Municipal Council's authority

The authority and responsibilities of the Municipal Council pursuant to sections 4, 9-1, 20-5, 27-1, 27-2, 27-3, 28-2, 30, 35 subsection 2, 36, 37, 69 subsection 4, 109 and 118 may not be delegated.

CHAPTER II. THE PLANNING AND BUILDING AUTHORITIES

Section 9-1. The planning authorities in the municipality

The Municipal Council shall be responsible for and shall administer municipal planning and work on zoning plans in the municipality. In each municipality there shall be a Standing Committee

for Planning Matters. In municipalities with a parliamentary system of government, cf. Chapter 3 of

the Local Government Act, the Municipal Council itself may assign the Committee's functions to the Municipal Executive Board. Section 31, subsection 6, of the Local Government Act shall not apply when the Municipal Executive Board deals with matters which pursuant to this Act have been assigned to the Standing Committee for Planning Matters. The Municipal Council shall designate a head of department or another civil servant who shall have particular responsibility for safeguarding the interests of children when the Standing Committee prepares and considers proposals for plans pursuant to this section.

Section 9-2. The planning administration in the municipality

The head of the municipal administration shall be administratively responsible for the municipality's planning functions pursuant to this Act.

Section 9-3. Duty of other public bodies to cooperate

Public bodies with tasks concerning use of resources, protection and conservation, physical development, or social and cultural development within the area covered by the municipality shall give the municipality necessary assistance in planning activity.

Such bodies shall, at the request of the municipality, participate in advisory committees established by the municipal council in order to promote cooperation on planning.

After the municipality and the body concerned have expressed an opinion, the Ministry may exempt a county or national body from participating in such cooperative committees.

Section 9-4. Cooperation between the Public Roads Administration, the county and the municipality on the planning of national and county roads

The Public Roads Administration may prepare and submit draft overall plans, including road surveys, pursuant to chapters V and VI, and zoning plans and building development plans pursuant to chapter VII. The decision to present such plans for public inspection may be made by the Public Roads Administration. The municipality shall be kept informed of the planning work. The Ministry may lay down more detailed provisions concerning road planning, including road surveys, cf. section 6.

The county and the municipality are under obligation to consider the draft plans submitted by the Public Roads Administration without delay.

10

Section 10-1. The municipality's functions and duty to cooperate

The municipality shall perform the functions assigned to it in this Act, in regulations and in by-laws, and shall oversee compliance with planning and building legislation in the municipality. The planning and building authorities shall seek cooperation with other public authorities with interests in matters pursuant to the Planning and Building Act, and shall collect comments in matters pertaining to the area of responsibility of the authorities concerned.

Section 10-2. (Repealed by the Act of 11 June 1993 No. 85)

Section 10-3. (Repealed by the Act of 5 June 1987 No. 25)

Section 11-1. (Repealed by the Act of 11 June 1993 No. 85)

Section 11-2. (Repealed by the Act of 11 June 1993 No. 85)

Section 12-1. The highest planning authority in the county

The County Council shall be responsible for and shall administer work on county master plans. The County Council's authority to adopt county master plans may not be transferred to another body.

Section 12-2. The planning administration in the county

The County Governor shall be responsible for administering the tasks of the county

pursuant to this Act.

Every county shall have an expert planning and development administration to prepare and consider plans and to provide expert advice on planning pursuant to this Act.

Section 12-3. Duty of other public bodies to cooperate

Public agencies whose tasks concern use of resources, protection and conservation, physical development and cultural or social development within the area covered by the county shall give the county necessary assistance in planning work. The County Governor shall oversee that national

bodies fulfil their obligations to provide assistance.

Such bodies shall, at the request of the county, take part in advisory committees established by the county to promote cooperation on planning.

After the county and the body concerned have expressed an opinion, the King may exempt a municipal or national body from participating in such cooperative committees.

As far as possible, the county shall provide municipalities with assistance and advice in connection with their functions pursuant to this Act.

Section 13. National planning and building authorities

The King is responsible for and directs planning activity at the national level.

The Ministry shall have the main administrative responsibility for the national authorities' planning functions pursuant to this Act, and shall work to ensure that the decisions made at the national level are followed up in county and municipal planning.

The Ministry is also the central building authority.

11

The Ministry may transfer the authority assigned to it in or in pursuance of this Act to the County Governor. Furthermore, as a national building authority the Ministry may transfer technical

control and approval functions to another public or private expert. However, the Ministry may not delegate the authority to lay down regulations. The provisions of section 12-3, last paragraph, apply

correspondingly to the County Governor.

Section 14. Distribution of planning functions and cooperation thereon

The provisions of chapters IV-VII of the Act apply to the distribution of planning functions between the municipal, county and national authorities. If there is any doubt about the distribution of functions between the planning bodies concerned, and it is impossible to reach agreement, the matter will be decided by the King.

The national, county and municipal planning authorities shall cooperate on collection, handling and exchange of information that is considered to be of major importance for planning and information activities pursuant to the Act. The Ministry may issue further rules for implementation of this cooperation.

Section 15. Relationship to the Public Administration Act, and appeals

Unless otherwise provided, the Public Administration Act applies to the handling of matters pursuant to this Act.

The county and national bodies may appeal against individual decisions pursuant to this Act if the decision directly affects the area of responsibility of the authority concerned.

The Ministry is the administrative appeal body in the case of decisions pursuant to this Act.

In the case of an appeal against a decision made by the Standing Committee for Planning Matters pursuant to this Act, the matter shall be submitted to the Committee which may reverse the

decision if it finds the appeal to be justified. If this is not the case, the matter shall be sent to the Ministry with the Committee's comments. In the case of an appeal against a decision concerning dispensation made by the Municipal Council or another body empowered to grant dispensations pursuant to a special provision in the land-use part of the municipal master plan, a zoning plan or a

building development plan, the matter shall in the same way be submitted to the body that is empowered to grant dispensations.

The Ministry is the administrative appeal body in the case of decisions made by the county governor or another public or private expert.

CHAPTER III. CONSULTATION, PUBLICATION AND INFORMATION

Section 16-1. Consultation, publication and information

The national, county and municipal planning authorities shall make an active effort at an early stage of the planning work to inform the public about planning activities pursuant to the Act. Affected individuals and groups shall be given an opportunity to participate actively in the planning process.

When a draft plan pursuant to sections 18, 20-5 and 27-1 is published, it shall be pointed out whether there are alternative draft plans pursuant to this Act which have not been or will not be made public. If so, it shall also be pointed out that these are available at the office of the planning authority.

Any person has the right, at the office of the authority concerned, to acquaint himself with the alternative draft plans referred to in the second paragraph and with the documents forming the

12
basis for the draft plans, with the exceptions in consequence of sections 5a or 6 of the Public Administration Act.

Section 16-2. Requirements relating to environmental impact assessments for plans with significant effects

The provisions regarding environmental impact assessments in chapter VII-a, as well as the administrative provisions of sections 19-4, 20-5, 27-1 and 27-2, shall apply to county master plans and municipal master plans that lay down guidelines or limits for future physical development, and

to zoning plans that may have significant effects on the environment, natural resources or the community.

CHAPTER IV. PLANNING AT NATIONAL LEVEL

Section 17-1. National policy provisions

The King may define general objectives and frameworks and issue guidelines for the physical, economic and social development in counties and municipalities that shall form the basis for planning pursuant to this Act.

When necessary in order to safeguard national or regional interests the King, after consultation with the affected municipalities and counties, may prohibit for a period of 10 years the

initiation of specified building or construction activity within specifically defined geographical areas unless consent has been obtained from the Ministry, or may decide that, without such consent, such projects may only be initiated in accordance with the land-use part of the municipal master plan or a zoning plan. The King may extend the prohibition for five years at a time.

Before a decision mentioned in the second paragraph is made, the proposed provisions shall be made available for public inspection in the affected municipalities in accordance with the provisions of section 27-1.

Section 17-2. Prohibition against building on and partitioning off a property inside a 100 metre wide belt along the shoreline to the sea

Buildings, structures, installations and fences may not be erected nearer to the sea than 100 metres from the shoreline measured horizontally at normal high tide, and nor may such be substantially altered. The prohibition also applies to the division of property, including the sale or leasing out of an undeveloped part (parcel or plot) of a property.

The provision in the first paragraph does not apply to built-up areas nor to areas covered by a zoning plan or shore plan. The same applies to areas which in the land-use part of the municipal

master plan are designated as building areas or areas for extraction of raw materials. Nor does the provision apply to measures which comply with the provisions laid down pursuant to section 20-4,

second paragraph, letter c. In cases of doubt the County Governor decides whether an area is to be regarded as a built-up area.

Nor does the provision in the first paragraph apply to:

1. buildings, structures, installations or fences that are necessary for defence, agriculture, reindeer farming, timber rafting, hunting and fisheries industry, for water supply, sewerage installations, power plants and water regulation installations, general transport and communications, mining operations or operations connected with mineral deposits not covered by special mining permit arrangements, other than gravel, sand and clay;

13

nor do they apply to the partitioning off, sale or leasing out of an undeveloped part of a property for such economic activities.

2. bathing facilities etc. and toilet facilities in recreation areas open to the general public, and buildings etc. for purposes of nature conservation in areas that are protected in pursuance of the Nature Conservation Act.

3. jetties on a developed property to ensure access for the owner or user.

Section 18. Centrally prepared zoning plan and the land-use part of the municipal master plan

When the implementation of important national or county development, construction and conservation measures make it necessary, or when other societal considerations so dictate, the Ministry may request the municipality concerned to prepare and adopt a zoning plan or a land-use part of a municipal master plan, or may do this itself.

The provisions of the Act concerning a zoning plan and the land-use part of the municipal master plan apply correspondingly to plans prepared pursuant to the first paragraph. The Ministry acts in lieu of the Municipal Council as regards the authority to instruct the Standing Committee for

Planning Matters.

CHAPTER V. COUNTY PLANNING

Section 19-1. County planning

The county shall ensure that county planning is carried out continuously within the county's area.

The Ministry shall oversee compliance with the obligation to carry out continuous county planning.

County planning shall coordinate national, county and the main aspects of municipal physical, economic, social and cultural activity in the county.

In each county, the county shall prepare a county master plan. The county master plan consists of objectives and long-term guidelines for development in the county and a coordinated programme of action for the activity of the national and county sectors, stating how the objectives are to be achieved. The programme of action shall also cover municipal sectors in so far as matters

of major importance to the county or large parts of it are concerned.

The plan shall also lay down guidelines for the use of land and natural resources in the county in respect of issues that will have significant impact beyond the boundaries of a municipality or which the individual municipality is unable to resolve within its own area and which must be considered for several municipalities jointly.

When appropriate, a county master plan may be prepared for specific areas of activity or groups of projects covered by the county planning, and for parts of the county.

The planning shall be based on the financial and other resource-related prerequisites for its implementation.

Section 19-2. Cooperation between counties on planning

The Ministry may lay down provisions concerning cooperation between two or more counties in connection with county planning. The municipality of Oslo is regarded as a county in this connection. The Ministry may hereunder lay down provisions concerning the establishment of the necessary cooperative bodies, concerning which tasks cooperation shall encompass and

14

concerning which geographical areas it shall cover. Before such provisions are laid down, the counties concerned shall have been given an opportunity to express their views.

Section 19-3. Organization of county planning work

The county organizes county planning work in accordance with the provisions of sections 12-1, 12-2 and 12-3. It establishes the committees and decides the measures that it considers necessary for coordination, cooperation and consultation pursuant to section 16-1, and ensures that drafts of the county master plan, including revisions and alterations of the plan, are proposed at the right time. The County Governor shall oversee that national bodies fulfil their obligation to provide assistance, cf. section 12-3.

The county shall cooperate continuously with the municipalities in the county, and with public bodies and private organizations and others that have a particular interest in county planning work.

Section 19-4. Consideration of the county master plan

As early as possible during preparation of the draft plan, the county shall make known the proposed goals for development in the county and the main elements of the proposed long-term guidelines for the sectors' planning and programme of action. The proposals shall be presented in a

form which makes them suitable as a basis for public debate and shall be made public in an appropriate manner.

The draft county master plan shall be submitted for comment to the County Governor, to the municipalities and to public bodies and organizations etc. which will be affected by the draft. A time limit, which must not be less than 30 days, may be fixed for expressing an opinion.

When it has been adopted by the County Council, the county master plan is submitted to the King for approval. In connection with the approval the King may stipulate such changes in the plan

as are found to be necessary out of consideration for national policy interests.

Section 19-5. Revision

At least every second year the County Council should evaluate the assumptions on which the plan is based and its implementation, and make any necessary changes. Major changes and additions which affect national and municipal interests shall be reported to the Ministry, which decides whether the whole plan or part of the plan shall be taken up for review.

The County Council shall review the plan at least once during each election period. The provisions of sections 19-1 to 19-4 shall apply correspondingly.

The Ministry may order county master plans to be changed.

Section 19-6. Effects of the county master plan

The county master plan shall form the basis for county activity and shall serve as a guideline for municipal and national planning and activity in the county.

If, within the national fields of activity, it becomes relevant to deviate from the assumptions of the county master plan, the national body concerned shall raise the matter with the county planning authorities. As far as possible, such matters should be taken up by the State early enough to enable new or modified solutions to be included in the routine review of the county master plan,

cf. section 19-5.

15

CHAPTER VI. MUNICIPAL PLANNING

Section 20-1. Municipal planning

Municipalities shall carry out continuous planning with a view to coordinating physical, economic, social, aesthetic and cultural development within their own areas.

A municipal master plan shall be prepared in each municipality. The plan shall comprise a long-term and a short-term component. The long-term component consists of:

- goals for development in the municipality, guidelines for sector planning and a land-use part for the management of land and other natural resources.

The short-term component consists of:

- a coordinated programme of action for sectoral activity during the next few years.

Municipal planning shall be based on the financial and other resource-related prerequisites for implementation.

A land-use plan and a programme of action may be prepared for parts of the municipality and a programme of action for specific areas of activity.

At least once during every election period the Municipal Council shall evaluate the municipal master plan as a whole, including whether it is necessary to change it in any way.

The Ministry shall oversee compliance with the obligation to carry out continuous municipal planning.

Section 20-2. Organization of municipal planning work

The municipality organizes municipal planning work in accordance with the provisions of sections 9-1, 9-2 and 9-3. It establishes the committees and takes the measures that it considers necessary for coordination, cooperation and consultation pursuant to section 16-1. The county shall, as far as possible, give the municipality expert planning assistance and guidance.

At an early stage in the preparations the municipality shall seek cooperation with public authorities, organizations etc. that have particular interests in the municipal planning work.

Section 20-3. Inter-municipal planning

The Ministry may lay down more specific provisions concerning inter-municipal planning.

Hereunder, the Ministry may lay down provisions concerning the establishment of the necessary cooperative bodies, concerning which tasks cooperation shall encompass, and concerning which geographical areas it shall cover. Before such provisions are laid down, the municipalities concerned shall be given an opportunity to express their views.

Section 20-4. The land-use part of the municipal master plan

As far as is necessary the part referring to land use shall designate:

1. Building areas.
2. Agricultural areas, nature areas and areas for open-air recreation.
3. Areas for extraction of raw materials.
4. Other areas that are reserved or are to be reserved for specifically defined purposes pursuant to this or another Act and areas reserved for the Norwegian Defence Forces.
5. Areas for special use or protection of sea and watercourses, including areas for traffic, fisheries areas, aquaculture areas, nature areas and open-air recreation areas separately or in combination with one or more of the mentioned land-use categories.
6. Important links in the system of communications.

16

Supplementary provisions may be laid down in connection with the land-use part of the municipal master plan:

a) In the case of areas reserved for development, areas for extraction of raw materials and areas alongside watercourses up to 100 m from the shoreline measured horizontally at average flood water level, it may be stipulated that projects referred to in sections 81, 86a, 86b and 93 of this Act may not be carried out until the area has been included in a zoning plan or a building development plan.

b) In the case of areas set aside for development it may be stipulated that development shall take place in a specific order, and that development within the areas concerned may not take place until technical installations and community services such as electricity supply, communications, including a system of footpaths and cycle paths,

health and social welfare services, including day care centres, schools and day care facilities for schoolchildren, etc. have been established. In connection with development areas, and in agricultural areas, nature areas and areas for open-air recreation where scattered development is permitted, provisions may also be laid down concerning the permitted height of buildings, building density and other ways of controlling the size, form etc. of buildings and installations. Further criteria may also be laid down for the location of various development projects and use of land within the building areas.

c) In the case of the areas mentioned in the first paragraph, sub-paragraph 2, provisions may be laid down concerning the extent and location of scattered residential buildings and commercial buildings that are not connected to industry specifically linked to the local area, and concerning leisure cabins, including a requirement for a building development plan.

d) In the case of building areas and agricultural areas, nature areas and open-air recreation areas where scattered building of dwellings is permitted, requirements may be imposed concerning the size and functions of play areas and other outside public areas, including requirements that such outside areas are completed at the same time as the dwellings.

e) It may be stipulated that the building of new or the substantial extension of existing leisure cabins shall not be permitted for the whole or parts of the municipality.

f) In the case of areas alongside watercourses within 100 m of the shoreline measured horizontally at average flood water level, it may be stipulated that the initiation of specified building and construction projects is prohibited.

g) In the case of certain stretches of road and certain projects in the roads network it may be stipulated that it is sufficient to include the area in a building development plan before construction is started.

h) In the case of specified areas it may be stipulated that the designation of land use pursuant to the first paragraph shall not have legal consequences pursuant to section 20-6, second paragraph. Nor will the plan, in the event, have consequences pursuant to section 20-6, third paragraph.

Section 20-5. Consideration of the municipal master plan

In good time before the municipal master plan is considered by the Municipal Council the municipality shall make sure that the most relevant matters in the municipal planning work are made known in a manner that it finds appropriate, to enable them to become a topic for public debate.

The draft municipal master plan shall be sent to the county, affected national bodies and organizations etc. that have particular interests in the planning work, and shall be made available for public inspection as stipulated in section 27-1. A time limit, which must not be less than

17

30 days, may be stipulated for expression of an opinion. The case shall then be submitted to the Municipal Council for decision.

The rules concerning participation and public inspection in the first and second paragraphs do not apply to the updating of the municipality's overall programme of action.

If objections are connected to clearly delimited parts of the plan, the Municipal Council may nevertheless decide that the rest of the plan shall have legal effect pursuant to section 20-6.

If the county, a neighbouring municipality or affected national expert authorities have objected to the land-use part of the municipal master plan, this part shall, after a decision by the Municipal Council, be sent to the Ministry for approval unless the municipality has taken the objections into account. The Ministry will decide whether the objections shall be upheld. In this connection the Ministry may make such changes to the plan as are found to be necessary.

When the whole municipal master plan, the land-use part or the updated programme of action have been adopted by the Municipal Council with legal effect, a copy shall be sent to the Ministry, the County Governor, the county and affected national expert authorities for information.

Even if the county or affected national expert authorities have had no objections to the landuse part of the municipal master plan the Ministry may, after the Municipal Council has had an opportunity to express an opinion, make changes to the plan out of consideration for national interests. The municipality must be informed within three months' of the Ministry's receiving it that

the plan will be changed.

When the plan is final, it shall be made public in an appropriate manner in the municipality. The Municipal Council's and the Ministry's decision to approve the plan or to alter the landuse part of the plan may not be appealed.

The provisions of this section apply correspondingly to the consideration of the land-use part of the municipal master plan or a programme of action applying to parts of the municipality or specific areas of activity.

When revising the municipal master plan or the main elements of such a plan alone, the provisions of this section and section 33 apply correspondingly.

Section 20-6. Effects of the municipal master plan

The municipal master plan shall form the basis for planning, management and development in the municipality.

Projects mentioned in sections 81, 86a, 86b and 93 must not, unless otherwise provided, conflict with land use or provisions laid down in the final plan for land use. The same applies to other measures which may be of major disadvantage for implementation of the plan. In the case of areas that are to be reserved for specified purposes in pursuance of this or other Acts, cf. section 20-4, first paragraph, subparagraph 4, the effect of the land-use part of the plan is limited to

a period of four years from the time the plan is adopted by the Municipal Council. Upon application by the municipality, the Ministry may extend the period of effect by up to two years. Unless otherwise provided, the land-use part of the municipal master plan takes precedence over older provisions concerning national policy, a zoning plan and a building development plan, but lapses to the extent that it contravenes such provisions that are made to apply later.

Section 21. Realization of property

If an undeveloped property or a large part of such a property is set aside in the land-use part of the plan for the purposes mentioned in section 25, subparagraphs 3, 4, 7 and 8 and for State, county or municipal buildings or graveyards and cemeteries, and the property is not, within four years, zoned or set aside for other purposes in the land-use part of the plan, the landowner (lessee) may claim compensation after judicial assessment, or that the land be expropriated immediately, if the reservation of the land entails that the property can no longer be used in a profitable manner. If

18
the land has been developed, the owner/lessee has the same right when the buildings have been removed.

CHAPTER VII. THE ZONING PLAN

Section 22. Definition

For the purpose of this Act a zoning plan shall mean a detailed plan with associated provisions which regulates the use and protection of land, watercourses, sea areas, buildings and the external environment in specific areas in a municipality within the framework defined in sections 25 and 26.

A zoning plan may cover one or more of the purposes and provisions mentioned in sections 25 and 26.

Section 23. Duty to prepare a zoning plan – relationship to master plans

1. A zoning plan shall be prepared for the areas in the municipality where it is decided in the landuse

part of the municipal master plan that development etc. may take place only in accordance with such a plan and for areas where large building and construction works are to be undertaken. A

building permit pursuant to section 93 may not be issued until a zoning plan has been prepared. Zoning plans shall also be prepared to the extent necessary to ensure implementation of the integrated planning pursuant to the Act. Zoning plans shall be sufficiently limited in scope to enable them to be implemented within a reasonable period of time.

2. When buildings have been destroyed by fire or in some other way, the municipality shall immediately raise the question of whether the area needs to be zoned or rezoned.

3. National policy provisions, the county master plan and the land-use part of the municipal master

plan shall serve as guidelines for preparation of zoning plans.

Section 24. Simplified zoning plan

For specific building areas, a zoning plan may be limited to zoning provisions which determine the different categories of land use and the density of the development. Further provisions concerning the method of calculation may be laid down in regulations. In the case of certain building areas, it may be required that building development plans are prepared pursuant to

section 28-2.

Section 25. Categories of land use

To the extent necessary the zoning plan shall designate:

1. Building areas:

including areas for dwellings with associated facilities, shops, offices, industry, buildings for leisure purposes (leisure cabins with connected outhouses), as well as sites for public (State, county and municipal) buildings with a specified purpose, other buildings of specifically defined use to the general public, hostels and catering establishments and garages and petrol stations.

2. Agricultural areas:

19

including areas for farming and forestry, reindeer farming and market gardening.

3. Public traffic areas:

Roads – for the purpose of this Act this also includes streets with pavements, footpaths, cycle paths, courtyards and squares – bridges, canals, railways, tramways, bus stations, parking areas, harbours, airports and other traffic facilities and the necessary land for installations and means of making the traffic areas safe etc.

4. Public outdoor recreation areas:

Parks, hiking trails, camping sites, areas used for play and sport, and sea areas used for such activities.

5. Danger areas:

Areas for high voltage installations, shooting ranges, stores of flammable goods and other installations which may represent a hazard to the public, and areas where, due to risk of landslide, flood or other special hazard, building is not permitted or shall be permitted only on special conditions out of consideration for safety.

6. Special areas:

including areas for private roads, camping, areas for installations in the ground and in watercourses or for marine installations, areas with buildings and installations which should be preserved on account of their historical, antiquarian or other cultural value, fishing settlements, reindeer farming areas, areas for open-air recreation that are not included under item 4, green belts in industrial areas, nature conservation areas, climate conservation zones, sources of water supply with catchment area, areas with unobstructed visibility close to roads, areas where building is restricted around airports, and areas and installations for operation of radio navigation aids outside airports, areas for installation and operation of municipal technical facilities, graveyards and cemeteries, water and sewerage installations, areas for construction and operation of plants for energy production or district heating, cableways, amusement parks, golf courses, stone quarries and soil extraction sites and other

areas entailing significant encroachment on terrain, installations for the Telecommunications Administration and exercise areas with appurtenant installations for the Defence Forces and the Civil Defence.

7. Common areas:

Common exit roads and common parking areas, common playgrounds for children, courtyards and other areas common to several properties.

8. Areas for renewal:

Densely built areas which are to be totally renewed or improved.

Several land use categories may be established within the same area or in the same building.

However, the land use categories open air recreation area and nature conservation area may not be combined with the category agricultural area. It may also be stipulated that an area or building,

20

after a specifically defined period of time or when other specific conditions have been fulfilled, shall be transferred from one land use category to another.

Section 26. Zoning provisions

To the extent necessary, provisions may be made by means of a zoning plan concerning the design and use of areas of land and buildings in the area covered by the plan. The provisions may impose conditions for use or may prohibit certain kinds of use in order to promote or ensure compliance with the purpose of the zoning. It may also be required that measures in pursuance of the plan are implemented in a special order. No provisions may be laid down concerning the discharge of water or the water level.

Provisions pursuant to the first paragraph should stipulate the smallest play area required for each dwelling unit and lay down further rules for the content and design of such areas.

Section 27-1. Preparation of zoning plans

1. The Municipal Council shall ensure that the Standing Committee for Planning Matters has proposals for zoning plans prepared as required by section 23 and that the plans are taken up for revision as circumstances require. For this purpose the Municipal Council may give the Standing Committee for Planning Matters the directions and general guidelines needed for the work. The plans shall be prepared by experts, and shall be presented in a uniform and understandable form. In

the same way, the Municipal Council may order the Standing Committee for Planning Matters to have zoning plans prepared for areas which are not subject to the zoning obligation stipulated in section 23, or to revise such plans.

When an area is to be zoned, the Standing Committee for Planning Matters shall ensure that an announcement of this is published, usually in at least two newspapers that are widely read locally. The announcement shall describe the intended purpose of the zoning and the expected consequences for the area. As far as possible, landowners and holders of rights (including lessees) should be notified by letter and should be given a reasonable time limit by which to express an opinion before the Standing Committee for Planning Matters in the event considers the zoning proposal.

When zoning and rezoning areas with existing buildings, the municipality shall facilitate the active participation of persons living in the area or who are engaged in commercial activity in the area.

The Standing Committee for Planning Matters shall, at an early stage of the preparations, seek cooperation with public authorities, organizations etc. that have particular interests in the zoning work, cf. sections 9-3 and 16-1.

2. When a proposal for a zoning plan has been prepared in accordance with the provisions of subsection 1, it shall be submitted to the Standing Committee for Planning Matters, which decides whether it shall be made available for public inspection. The announcement concerning public inspection shall normally be published in at least two newspapers that are widely read locally. It shall clearly define the area covered by the proposal and shall state a reasonable time limit for comment, which must not be fixed at less than 30 days. Nevertheless, in minor zoning matters, the

Standing Committee for Planning Matters may specify a shorter time limit. As far as possible, landowners and holders of rights in the area should be informed by letter. When the time limit has expired, the Standing Committee for Planning Matters takes the case up for consideration, together with the comments that have been received. The Standing Committee for Planning Matters shall be informed if the matter has not been dealt with within 24 hours after a decision has been made to make the proposal available for public inspection.

21

In connection with the announcement pursuant to the provisions of the first paragraph, the Standing Committee for Planning Matters shall submit the matter to neighbouring municipalities, the county and the national expert bodies that have special interests in the area, with a reasonable time limit for expressing an opinion. Objections shall be submitted within the time limit.

Section 27-2. Zoning decisions

1. When the Standing Committee for Planning Matters has finished dealing with the proposal, it is submitted to the Municipal Council for a decision, if necessary with alternatives. The Municipal Council must make a decision within twelve weeks of the Standing Committee for Planning Matters having finished dealing with the proposed plan. If the Municipal Council disagrees with the proposal it may return the case for re-consideration, if necessary with guidelines for the further work.

2. If objections to the plan have been received from the county, neighbouring municipalities or national expert authorities whose area of responsibility will be affected, a zoning plan that has been

adopted by the Municipal Council must be sent to the Ministry, which decides whether the plan shall be confirmed. If the Ministry confirms the plan it may, after the municipality has been given an opportunity to express an opinion, make such changes in the plan as are found to be necessary. Nevertheless, this must not lead to any changes in the main features of the plan.

3. The municipality shall announce the plan as soon as it has been adopted and in the event confirmed. A copy of the plan shall be sent to the county and the Ministry. The announcement shall

as a rule be published in at least two newspapers that are widely read locally. It shall clearly state the area covered by the plan and inform about the time limits mentioned in section 32, subsection 1,

second paragraph, and in section 42, second paragraph. The municipality shall have decisions concerning the zoning of areas to be renewed (section 25, subsection 8), with the restrictions on use

pursuant to section 31, subsection 4, registered in respect of the affected properties. As far as possible, landowners and holders of rights in the area shall receive special notification by letter. The letter shall contain information about the right to appeal, if relevant, pursuant to section 27-3 (cf. Chapter VI of the Public Administration Act) and about the time limits mentioned

in section 32, subsection 1, second and third paragraphs and section 42, second paragraph.

If the Ministry finds that a zoning plan that has been finally considered in the municipality conflicts with national interests, the county master plan or the land-use part of the municipal master

plan, it may – after the municipality has been given an opportunity to express an opinion – at its own initiative cancel the plan or make such changes as found to be necessary. The changes made by the Ministry must not lead to any change in the main features of the plan.

Section 27-3. Appeal against zoning decisions

The Ministry's decision in zoning matters may not be appealed.

The Municipal Council's final decision in zoning matters may be appealed to the Ministry pursuant to section 15 of this Act. The appeal shall be submitted in writing to the Standing

Committee for Planning Matters which – if it finds grounds to allow the appeal – submits the matter to the Municipal Council with a proposal for changing the decision, and otherwise expresses

an opinion and sends the matter via the County Governor to the Ministry.

Section 28-1. Alteration and cancellation of a zoning plan

1. In the case of alteration or cancellation of a zoning plan, sections 27-1 and 27-2 shall apply correspondingly.

22

2. Less important changes to a zoning plan may be made by the Standing Committee for Planning Matters. Changes which may lead to increased costs for the municipality shall be submitted to the Municipal Council in advance. In the case of zoning plans referring to national and county roads, less important changes as a result of technical conditions during the period of implementation may be made by the regional roads department.

3. If the parcelling of land is not fixed in a zoning plan, this may be determined by the Standing Committee for Planning Matters.

4. Before a decision is taken pursuant to subsection 2 or 3 the owners/lessees of properties that are directly affected shall be given an opportunity to express an opinion.

Section 28-2. Building development plans

For the purposes of this Act a building development plan means a plan adopted by the Standing Committee for Planning Matters itself which establishes land use and design of buildings,

installations and associated outside areas within a specifically delimited area where, according to the land-use part of the municipal master plan or a zoning plan, such a plan is required as a basis for development.

A building development plan may, within the framework of the land-use part of the municipal master plan or a zoning plan and the categories of land use mentioned in section 25, provide for any supplements or changes to such plans as are considered necessary to carry out the development.

The preparation of a building development plan is subject to the provisions of section 27-1, subsection 1, second, third and fourth paragraphs. When the plan is prepared by a private person, section 30, third paragraph, applies correspondingly.

Before the proposed building development plan is adopted it shall be made available for public inspection pursuant to the provisions in section 27-2, subsection 2. If the building development plan causes other than minor changes to the land-use part of the municipal master plan or to a zoning plan, it shall be submitted to neighbouring municipalities, the county and national expert authorities as provided in section 27-1, subsection 2. If any objections to the plan are received from the county, neighbouring municipalities or a national expert authority whose area

of responsibility will be affected, the plan must be sent to the Municipal Council and be dealt with in the same way as a zoning plan pursuant to the rules in section 27-2, subsection 2.

As soon as the plan has been adopted, the municipality shall announce it publicly. The announcement shall as a rule be made in at least two newspapers that are widely read locally. It shall clearly define the area covered by the plan and provide information about the time limits mentioned in section 32, subsection 1, second paragraph and section 42, second paragraph. As far as possible, landowners and holders of rights in the area should be notified specially by letter. The letter shall contain information on the right to appeal, if relevant, pursuant to the sixth paragraph of

this section (cf. Chapter VI of the Public Administration Act) and the time limits mentioned in section 32, subsection 1, second and third paragraphs and section 42, second paragraph.

Decisions of the Standing Committee for Planning Matters concerning a building development plan may be appealed to the Ministry pursuant to section 15 of this Act.

Section 31, subsection 1, applies correspondingly to a building development plan adopted

by the Standing Committee for Planning Matters.

In the case of changes in a building development plan the above provisions apply correspondingly.

23

Section 29. Cooperation between municipalities and public agencies concerning zoning

When county or national authorities are to make preparations for measures which make it necessary or desirable to undertake zoning or rezoning, they shall consult the municipality at an early stage in the preparations.

The municipality may in the event leave it to the authority concerned to prepare a proposal for a zoning plan and make the announcements pursuant to section 27-1, subsection 1, second paragraph and subsection 2.

Disputes between the municipality and the county concerning zoning shall be decided by the Ministry, which may in the event issue the necessary instructions concerning zoning, cf. section 18. Disputes concerning national measures shall be raised pursuant to section 18.

Section 30. Private zoning proposals

Landowners, holders of rights or other interested parties who wish to have a zoning plan prepared should, before the planning is started, submit the zoning issue to the Standing Committee for Planning Matters. The Standing Committee for Planning Matters can give advice about whether

the plan should be prepared and can help in the planning work.

When private zoning proposals are received, the Standing Committee for Planning Matters shall consider the proposal as soon as possible and within twelve weeks. The person submitting the

proposal and the municipality may agree on another time limit. If the Standing Committee for Planning Matters itself finds no reason to present a zoning proposal for the area, the person who has submitted the proposal shall be informed by letter. If the proposal refers to unzoned land or entails a significant change in the current zoning plan, the person who has submitted the proposal may demand that the zoning issue be put before the Municipal Council.

The provision in section 27-1, subsection 1, second paragraph applies correspondingly to private zoning proposals. The obligation concerning public announcement and information pursuant to section 27-1, subsection 1, second paragraph, rests with the person who has had the zoning plan prepared.

Section 31. Effects of a zoning plan

1. A finally adopted zoning plan is immediately binding on all projects mentioned in sections 81, 86a, 86b and 93 within the area covered by the plan. Moreover, the land may not be taken into use in another way or be partitioned off for purposes which will make it difficult to implement the plan.

A decision by the Municipal Council pursuant to section 27-2, subsection 1, is immediately binding if it is valid without confirmation by the Ministry pursuant to section 27-2, subsection 2.

A

decision made by the Standing Committee for Planning Matters pursuant to section 28-1, subsections 2 and 3, is immediately binding.

2. The right of the Municipal Council to undertake expropriation in pursuance of a zoning plan or a

building development plan pursuant to section 35, subsections 1 and 2, no longer applies if the Municipal Council's decision concerning expropriation is not made within a period of ten years after the plan has been announced pursuant to section 27-2, subsection 3.

In the case of areas that are zoned for renewal (section 25, subsection 8) the right to expropriate and the limitations on use of land pursuant to subsection 4 no longer apply to properties

for which the Municipal Council or the expropriator pursuant to section 35, subsection 6, have not

requested judicial assessment before a period of five years has expired.

24

3. When public roads are closed down in accordance with a zoning plan for areas which are or will

be densely developed, section 8 of the Public Roads Act of 21 June 1963 does not apply.

4. From the time a decision to zone an area for renewal (section 25, subsection 8) has been announced in accordance with section 27-2, subsection 3, a landowner (holder of rights) within the

area may not assert a right in accordance with the plan. From the same time, the rules concerning limitations on the right of use pursuant to section 28 of the Act of 23 October 1959 relating to expropriation of real property shall apply correspondingly to the landowner (holder of rights) within the area to be renewed.

Section 32. Compensation for loss caused by a zoning plan or building development plan

1. If a zoning plan or building development plan, through provisions imposing limitations on buildings near to roads or for other special reasons, makes the property unsuitable as a building plot, and also prevents it from being used in another profitable manner, the municipality shall pay compensation in an amount fixed by judicial assessment unless it acquires the property pursuant to

section 43. The same applies if a zoning plan entails that properties which can only be used for agricultural purposes can no longer be operated profitably. When planning nature conservation areas pursuant to this Act the municipality shall pay compensation in an amount fixed by judicial assessment in accordance with sections 20, 20b and 20c of the Act of 19 June 1970 No. 63 on nature conservation.

A claim for compensation must be presented at the latest three years after a zoning plan is announced publicly pursuant to section 27-2, subsection 3, a decision pursuant to section 28-1, subsection 2 is announced, or a building development plan is announced publicly pursuant to section 28-2, fifth paragraph.

If the land has been developed, the owner (lessee) has the same claim when the buildings have been removed. The claim must in such case be presented at the latest three years from the time of removal.

Unless otherwise provided, compensation for loss caused by a zoning plan that is prepared and adopted by the Ministry or by the municipality in pursuance of section 18 shall be paid by the State.

2. When a property is developed in accordance with a zoning plan or a building development plan and is thus significantly better utilized than other properties in the area, and the value of the latter are consequently considerably reduced, the owners (lessees) of these properties may be awarded compensation fixed by judicial assessment, to be paid by the owner of the first-mentioned property.

The amount of the compensation may not exceed the increase in value which the improved utilization entails for the property concerned, after deductions for the refunds which the owner (lessee) has been obliged to pay in accordance with the provisions of Chapter IX of the Act as a result of the utilization of the property.

The claim for compensation must be presented at the latest three months after a building permit has been issued. The owner (lessee) of a property whose utilization has been improved may

demand prior judicial assessment so that the question of compensation can be decided when the final zoning plan or building development plan is available. The compensation falls due for payment when construction work is started, but at the earliest three months from the time when the

sum is finally fixed.

Section 33. Temporary prohibition against division and construction work

If the Standing Committee for Planning Matters itself finds that an area should be zoned or rezoned, the said committee may decide that projects such as mentioned in sections 81, 86a, 86b and 93 may not be started until the question of zoning has been finally decided. The same applies to

other projects which may make planning or implementation of the plan more difficult.

The Standing Committee for Planning Matters may consent to a property being divided or to work being done if, in the judgement of the Council, this will not make the new zoning more difficult.

If the intended zoning is for purposes of renewal (section 25, subsection 8), the council may also decide that the landowner (holder of rights) may not, without the consent of the municipality, have legal disposal of property within the renewal area in a way which might make implementation

of the plan more difficult or more expensive. The Committee shall have such a decision registered in respect of the affected properties.

If the question of zoning is not finally decided at the latest two years after the prohibition is imposed, the prohibition shall lapse and the registered decision pursuant to the third paragraph shall

be deleted. Previously submitted proposals for division and applications for building permits shall immediately be taken up for consideration and decision. The Standing Committee for Planning Matters may in the event fix the boundaries of building plots and the location, height and area of the building(s).

The Ministry may extend the time limit in special cases. An application for extension of the time limit must state the length of the desired period of extension and be sent through a postal operator or by telegraph or given to a public official with authority to receive the application, before the time limit expires. If an extension of the time limit is applied for, the prohibition applies

until the matter is decided.

If the time limit is extended the Ministry may decide that the affected landowners, immediately or as from a specific date, shall be given the right to demand realization of their property as if the property – or the part of the property affected by the prohibition against construction – had been zoned for the purposes mentioned in section 25, subsections 3, 4, 7 or 8 or

for State, county or municipal buildings or graveyards or cemeteries. The provisions of section 42 are made to apply correspondingly.

In connection with planning pursuant to section 17-1, second paragraph, and section 18 and otherwise when there are special reasons for doing so, the Ministry may make decisions as mentioned in the first paragraph. In such case the provisions of sections 16 and 27, first and second

paragraphs, of the Public Administration Act apply correspondingly in relation to the municipality concerned.

The provisions apply correspondingly when the land-use part of the municipal master plan is revised, cf. section 20-5, last paragraph.

CHAPTER VII-A. ENVIRONMENTAL IMPACT ASSESSMENTS

Section 33-1. Scope and purpose

The provisions shall apply to plans pursuant to the Planning and Building Act as specified in section 16-2, and certain specified plans and projects pursuant to other legislation, which may have significant effects on the environment, natural resources or the community.

The purpose of the provisions is to ensure that the environment, natural resources and the community are taken into account during the preparation of the plan or project, and when a decision is taken as to whether, and if so subject to what conditions, the plan or project may be

carried out.

26

Section 33-2. General provisions

For plans and projects that are covered by the provisions, as early as possible during the preparation of the plan or project, a proposal shall be drawn up for a programme for the planning and assessment process. The proposal shall describe the purpose of the plan or application, the need

for assessments and arrangements for participation. The proposal shall be circulated for consultation and made available for public inspection.

Proposed plans or applications accompanied by an environmental impact assessment shall be prepared on the basis of the prescribed planning or assessment programme and circulated for consultation and made available for public inspection,

Administrative decisions on the matter shall be published with the grounds for the decision.

The grounds shall state how the effects of the proposed plan or application and any consultative comments received have been assessed, and what importance has been attached to them in making the decision, particularly as regards the choice of alternatives.

In connection with the decision, conditions shall be considered and insofar as necessary laid down with a view to monitoring and remedying possible negative effects of significant importance.

The conditions shall be set out in the decision.

Section 33-3. Relationship to other states

If plans and projects that are considered pursuant to this chapter may have significant negative effects in another country, the state in question shall be notified and given the opportunity

to participate in the planning or assessment process pursuant to these provisions.

Section 33-4. Costs

The costs of preparing an environmental impact assessment shall be borne by the person presenting the proposal.

Section 33-5. Regulations

The King may in regulations issue provisions concerning plans and projects that are covered by this chapter as well as supplementary provisions concerning environmental impact assessments.

27

Section 33-6. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-7. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-8. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-9. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-10. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-11. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-12. (Repealed by the Act of 24 September 2004 No. 72.)

Section 33-13. (Repealed by the Act of 24 September 2004 No. 72.)

CHAPTER VIII. EXPROPRIATION

Section 34. Definition

For the purposes of this Act, expropriation takes place when the right of ownership to real property or any building or other object permanently attached to such property is acquired by compulsion in return for compensation fixed by judicial assessment, or when any right of use, easement or other right to or over real property is acquired, altered, transferred or redeemed by compulsion in return for compensation fixed by judicial assessment.

Section 35. Expropriation for the purpose of implementing a zoning plan or building development plan

1. The Municipal Council may effect expropriation for the purpose of implementing a zoning plan or building development plan.

The State may effect expropriation for the purpose of implementing a zoning plan or building development plan. The provisions made in subsections 2 to 6 hereunder shall apply correspondingly.

2. As far as is necessary for the purpose of implementing a zoning plan or building development plan, the Municipal Council may, with the consent of the Ministry, extend the expropriation pursuant to subsection 1 to include temporary and/or permanent encroachment on land and rights outside the zoning area. Nevertheless, consent is not necessary in the case of expropriation of land for road cuttings and fillings outside the zoning area.

3. Before the Municipal Council makes a decision concerning expropriation pursuant to subsection

1 and concerning an application for consent to expropriation pursuant to subsection 2, the matter shall be clarified as well as possible, and the persons who are to be affected by the encroachment shall be given an opportunity to express an opinion. Sections 12 and 28 of the Act of 23 October 1959 concerning expropriation of real property shall apply correspondingly.

28

Nevertheless, section 12, first paragraph, second sentence, of the Expropriation of Property Act shall not apply when expropriation is effected pursuant to this section.

4. Expropriation of individual developed or undeveloped lots should normally not be effected unless the municipality has first given the owner or the lessee a reasonable time limit within which to build in accordance with the plan, and the said time limit has been exceeded. This does not apply to lots within areas zoned for renewal (section 25, subsection 8).

5. Expropriation pursuant to this section may not be effected in respect of land designated in the plan as agricultural areas (section 25, subsection 2).

6. In the event of expropriation of land designated as a renewal area (section 25, subsection 8), the Municipal Council may consent to another legal person who is to be responsible for the renewal having the right of expropriation.

Section 36. Expropriation independent of a zoning plan

1. With the consent of the Ministry, the Municipal Council may effect expropriation in order to secure for the municipality land for new built-up areas. Consent may be granted and the encroachment may be implemented even if no zoning plan, building development plan or relevant building plans have been prepared for the area concerned.

2. With the consent of the Ministry, the Municipal Council may effect expropriation for the purpose of zoning a district that has been destroyed by fire or otherwise, even if no zoning plan or building development plan exists.

3. If an owner of real property does not put into effect or comply with the provisions of an improvement programme pursuant to section 89a within a time limit fixed by the municipality, the Municipal Council may, with the consent of the Ministry, expropriate all or parts of the property and the rights therein for the purpose of implementing the programme.

4. Section 35, subsection 3, first paragraph, applies correspondingly in the case of expropriation pursuant to subsections 1, 2 and 3.

Section 37. Expropriation for water and sewerage installations, etc.

For sewerage installations, cf. section 21 of the Pollution Control Act, for a zoned area, the Municipal Council may, with the consent of the Ministry, effect expropriation outside the ground acquired for the road for the purpose of pipelines and appurtenant devices. In connection with the expropriation pursuant to the first sentence, expropriation may also be effected for water pipes with

appurtenant devices.

Section 35, subsection 3, first paragraph, applies correspondingly.

Section 38. The landowner's right to expropriate for purposes of access, sewerage installations and common areas, and for green belts in industrial areas

In cases where pursuant to section 67, it is decided that division or building must not take place unless a road or main sewers have been constructed, the landowner (lessee) may, subject to the consent of the Municipal Council, effect expropriation for these purposes. In connection with expropriation for sewerage installations, section 37, first paragraph, second sentence, applies correspondingly.

29

Similarly, a landowner (lessee) in any block of buildings for which, in a zoning plan or building development plan, areas have been set aside for a common exit road, common parking area, common playground, common courtyard or any other form of common area for several properties, may be given permission to effect expropriation in order to implement the whole or part of the plan.

When the municipality, pursuant to section 67 a, second paragraph, has made it a condition for granting a building permit that green belts in industrial areas be acquired in accordance with a zoning plan or building development plan, the landowner (lessee) may, with the consent of the Municipal Council, effect expropriation for this purpose.

Section 39. Adjustment of lots

1. In order to obtain suitable lots, the municipality may, pursuant to a decision by the Municipal Council, expropriate undeveloped parcels of land which according to a zoning plan or building development plan may not be built on independently.

2. The municipality may make it a condition for granting a building permit (section 93) that the applicant acquires smaller parcels of undeveloped land in order to give the lot a more suitable boundary or form. The municipality may consent to the applicant effecting the necessary expropriation.

3. For the purposes of this section, land with building(s) thereon is also regarded as undeveloped land when, in the opinion of the municipality, such building(s) is/are of little financial or practical value.

Section 40. Time of the expropriation

Expropriation that may be effected by the municipality pursuant to this Act without the special consent of the Ministry may take place gradually and to the extent decided by the municipality, regardless of whether the purpose of the expropriation will not be realized until later.

Section 41. Preliminary assessment

When a proposed zoning plan or building development plan has been adopted by the Standing Committee for Planning Matters, the Municipal Council may demand a judicial assessment for the purpose of fixing compensation in cases of expropriation pursuant to section 35. Before enforcement can be demanded on the basis of such an assessment, cf. section 41 of the Act of 1 June 1917 No. 1 concerning judicial assessment and cases of expropriation, the plan must be final and the Ministry's consent to the expropriation must have been obtained in those cases where such consent is needed.

Section 42. The landowner's right to demand realization of property

If a zoning plan or building development plan entails that the municipality pursuant to section 35, subsection 1, or another legal person with the consent of the municipality pursuant to subsection

6, has the right to expropriate an undeveloped property as a whole, the landowner (lessee) may demand that the expropriation be effected immediately when the decision applies to land that has been designated in the plan for the purposes mentioned in section 25, subsections 3, 4, 7 and 8 or for State, county or municipal buildings or graveyards and cemeteries. The same applies when the right to expropriate covers undeveloped parts of the property, if as a result of the expropriation the property will no longer be considered suitable for profitable use, taking into account the size of

the whole property, its location and other circumstances.

30

A demand pursuant to the first paragraph must be presented not later than three years from the

date of publication of the zoning plan or the building development plan pursuant to section 27-2, subsection 3 or 28-2, fifth paragraph, or of notification of a decision pursuant to section 28-1, subsection 2. If the land is built on, the owner (lessee) has the same right when the building has been removed. The demand must in that case be presented not later than three years from that date.

Section 43. Extension of the expropriation

1. If a landowner or holder of rights so demands, it may be decided that expropriation pursuant to this Act shall also include land, buildings, rights or other objects which would be substantially reduced in value for the owner or holder of rights if expropriation were effected. In such cases it may also be decided, if so demanded, that the expropriation shall involve renunciation of ownership, even if right of use or other special right in the property has been demanded.

2. When the municipality effects expropriation pursuant to this Act, it may be decided, if the municipality so demands, that the expropriation shall also include land, buildings, rights or other objects as mentioned in subsection 1, if it is found that the municipality has a justifiable interest in such an extension of the expropriation.

When it is confirmed by judicial assessment that the conditions for compensation pursuant to section 32, subsection 1, subsist, it may, if the municipality so demands, be decided that the municipality may expropriate the property concerned if it is found that the municipality has a justifiable interest in so doing.

3. A decision referred to in subsections 1 and 2 will be made by the court in the course of the same

judicial assessment as is required for fixing the compensation.

Section 44. Compensation in the form of land, temporary dwelling

When the municipality has effected expropriation of land on which a house has been built, the owner of the house should, if possible, be given an opportunity to take over another residential lot in the vicinity. The same applies to all house-owners in renewal areas. The municipality will provide a temporary dwelling for a person who becomes homeless as a result of expropriation pursuant to this Act.

Section 45. Take-over of property by the State or the county

1. If the municipality has acquired a property which, in a zoning plan or building development plan, is set aside as a site for a State building, the municipality may fix a reasonable time limit for the State to take over the property. If the State fails to take over the property before the time limit has expired, the municipality may keep it for its own use or otherwise dispose of it.

2. When a property has been designated for the purposes mentioned in section 25, subsection 3, and installations belonging to the State are concerned, the State is liable for compensation claimed pursuant to section 32 and for the cost of realization of the property pursuant to section 42 in so far as it is not provided by other legislation or by agreement that the municipality shall be responsible for these costs. In the same case the State may effect expropriation pursuant to section 35.

3. The provisions of subsections 1 and 2 apply correspondingly to the county in respect of property

that has been set aside as the site of a county building or for installations belonging to the county.

31

CHAPTER IX. REFUNDING COSTS OF ROADS, WATER SUPPLY AND SEWERAGE

Section 46. Projects for which a refund is payable

1. Any person who has laid, re-laid or extended an approved public road or approved public installation for transporting water or waste water may claim to have his costs refunded pursuant to the provisions of this Act. Private claims for a refund of costs are subject to a condition that the project has been imposed in accordance with section 67. The term "road" means a roadway with pavement and turning places, path, cycle track, public footpath or public place. No refund

may be claimed of the costs of a stretch of public road from which private exit roads are not permitted.

2. Moreover, a refund may be claimed by a person who in accordance with a zoning plan or a building development plan has provided land for or developed a common exit road, common courtyard, other area common to several properties or a green belt along an industrial area. Finally, anyone who has laid, altered or extended private installations for transporting water or waste water in an area that is included in a zoning plan or a building development plan, may claim a refund of costs.

Section 47. The refund unit

1. The total costs relating to a stretch where a continuous development, alteration or extension of projects mentioned in section 46, subsection 1, takes place shall be distributed between the areas which, pursuant to section 49, are liable to pay a refund to the unit. If the conditions of the terrain or a change in the character of the area bordering the stretch or other special circumstances so indicate, the municipality may decide that the costs shall be distributed on the basis of another unit when this is found necessary in order to prevent a clearly unfair distribution of costs among the properties affected by the project.

2. In the case of projects mentioned in section 46, subsection 2, the project described in the plan constitutes a unit.

Section 48. Costs that are refundable

The person entitled to a refund may reclaim all costs necessarily incurred in order to complete the project.

Where ground is acquired for a road or the construction is carried out to a greater width than that specified in section 67, the costs shall be reduced in proportion to the ratio between the width for which a refund may be claimed, and the actual width. If, as a consequence of the greater width, it becomes necessary to remove a building or installation, the amount of compensation and the costs of demolition and clearing up are not refundable.

If pipes with a greater diameter than that specified in section 67 are laid, the costs shall be reduced in proportion to the ratio between the pipe diameter for which a refund may be claimed and the actual diameter of the pipe.

Section 49. Areas liable to pay a refund

1. A refund for projects mentioned in section 46, subsection 1, is charged to an undeveloped area that may be built on, and that because of the project obtains or may obtain lawful connection to a road, water pipe or sewer pursuant to section 67. An undeveloped part of a developed property is also regarded as an undeveloped area when the undeveloped part can be built on independently. The same applies to a part of a developed property that cannot be built on

32

independently, if existing buildings constitute less than two thirds of the permitted utilization. Finally, an area with buildings which in the opinion of the municipality are due for demolition or which for other reasons have a value clearly lower than the value of the site they occupy, is also regarded as undeveloped.

A refund is also to be charged to developed land that has been granted a temporary postponement of the fulfilment of its obligations pursuant to section 67, if such obligations are fulfilled through the project.

2. The refund for projects mentioned in section 46, subsection 2, is to be charged to the areas that they are intended to serve according to the zoning plan or the building development plan. In the case of areas that are wholly or partly developed, the same rules as in subsection 1 shall apply.

Section 50. Distribution factors. Valuation. Additional refund

1. The costs for which a refund may be claimed are to be apportioned among the areas that are liable to pay a refund, one half being allotted to each of the factors building plot area and permitted utilization. When the utilization has not been determined in an approved plan, the municipality will decide the presumably permitted utilization.

The Municipal Council may, for the whole or part of the municipality, determine another ratio between the factors or that other factors shall be applied.

2. The amount of the refund that may be imposed on the individual property shall be limited to the added value that the project is assumed to confer on the property. The owner or the lessee may demand that the added value be determined by valuation carried out by three experts appointed by the district court. The demand for valuation must be submitted to the municipality not later than three weeks after notification of the municipality's decision pursuant to section 53 has been received. The valuation may be reviewed by three new experts appointed by the Court of Appeal. A claim for a review may be presented by those affected financially and must be submitted not later than three weeks after notification of the result of the valuation has been received. The municipality may, pursuant to section 31 of the Public Administration Act, grant reinstatement of proceedings if the said time limit of three weeks is exceeded. The person who demands valuation shall bear the costs of the valuation proceedings. The valuation committee may decide on another distribution of the costs. This decision may not be appealed.

If as a result of the provision in the first paragraph not all the costs pursuant to section 48 are covered in respect of one or more of the properties, the refund creditor may demand that the amount or amounts that are not covered be distributed among the other properties in accordance with the provisions of subsection 1. It is a condition that each of the properties on which an additional refund has been imposed must be assumed to have an added value at least as great as the sum of the amounts to be refunded by the property. The provisions of the first paragraph apply correspondingly. The time limit for claiming a valuation begins to run from the date notification of an additional refund is received.

Section 51. Right to realization of property

A landowner who thinks that his area of land cannot be built on in a financially justifiable manner if it is to be burdened with the refund imposed may claim that the developer purchase the area. The claim must be submitted not later than three months after receiving the final demand for a

refund. The developer is obliged to issue a summons for a judicial assessment in order to determine

the purchase sum.

33

Section 52. Approval of plans

Before the project is started, the developer shall prepare plans on a map, together with an estimate of the costs. The developer shall indicate on the map which properties may benefit from the installation. The developer shall send the material to the municipality for approval, with a copy

to affected landowners or lessees. The parties concerned may submit an opinion to the municipality

within three weeks of receiving the material. The municipality may require to be supplied with binding quotations for the execution of the project, if relevant obtained by competitive tender.

Section 53. Preliminary calculation of the refund

Before the municipality makes a decision concerning a preliminary calculation of the refund, the persons financially affected shall be sent for comment a provisional refund map showing the areas liable to pay a refund and specifying the size and utilization of the said areas. They shall also be sent an estimate of costs and a provisional summary of their distribution among the areas liable to pay a refund, and shall be informed of the right to demand a valuation pursuant to section 50, subsection 2. The persons concerned may submit their comments to the municipality within three weeks of receiving the material.

When the material pursuant to section 52 is available and the time limit laid down in the first paragraph has expired, the municipality shall as soon as possible decide which areas are liable to pay a refund and, as the case may be, decide which refund unit pursuant to section 47, subsection 1,

second sentence, and which utilization presumably permitted pursuant to section 50, subsection 1, first sentence, shall apply. If the municipality makes a decision pursuant to section 47, subsection 1, second sentence, the reason shall be stated.

Section 54. When the project may be started

Unless it is otherwise decided by the municipality in a particular case where importance should be attached to the nature of the project and the significance that proceeding with it has for the project, the right to claim a refund lapses if the project is started before the material pursuant to section 52 has been approved by the municipality.

Section 55. Determination of the refund

When the work has been completed, an account shall be drawn up with the necessary vouchers. Private refund creditors shall send the account together with the vouchers to the municipality for checking.

The municipality shall as soon as possible provisionally determine the amount that may be claimed as a refund, and distribute it among the areas liable to pay a refund. The draft shall be sent

for comment to the persons liable to pay a refund. A decision on the refund shall subsequently be made by the municipality. The decisions in the case made pursuant to section 53 are binding on the

person who makes the decision on a refund. The decision shall be notified to the persons concerned, with notice of the time limit for institution of legal proceedings pursuant to section 58.

Section 56. Due date of payment

The refund amount falls due for payment five weeks after the persons liable to pay a refund have been notified of the decision thereon.

In respect of an area which is liable to pay a refund pursuant to section 49, subsection 1, second and third sentences, the amount of the refund does not, however, fall due before division or building has been completed.

34

If the owner (lessee) so wishes, a refund amount that may be claimed by the public authorities may be paid over a maximum period of five years in annual instalments with ten per cent interest per annum on the amount outstanding at any time. The King may determine a higher or lower rate of interest than that laid down in the previous sentence.

If as a result of a temporary prohibition against building, or for any other special reason unrelated to the affairs of the persons liable to pay a refund, the area cannot for the time being be utilized in the manner stipulated in the obligation to pay a refund, payment of the refund amount, or

the relevant part of it, as the case may be, may not be claimed before the opportunity for such utilization occurs.

From the date that payment is due, the refund debtor is obliged to pay interest on the amount overdue at the current rate. The Act of 17 December 1976 No. 100 relating to interest on overdue payment, etc. applies correspondingly. If the date for payment of a refund is postponed, the refund amount shall be adjusted in accordance with the consumer price index from the time the persons liable to pay a refund have been notified until the date that payment is due.

Section 57. Refund debtor, legal charge

The person who owns the area that is liable to pay a refund when the decision on a refund is made is responsible for payment. Any claim for a refund that has been finally determined is secured

by a legal charge on the area liable to pay a refund or – if the area has not been separated by division proceedings – on the property of which the area is a part. The claim for a refund is enforceable by execution.

When the land is leased out, the lessee, unless it is otherwise agreed, is responsible for payment if the land is leased out by a heritable lease or for so long a period that at least 30 years of the tenancy remain after the claim or any part of it has fallen due. The same applies if the lessee by

agreement has the right to claim that the lease be extended for so long a period that the total remaining period of tenancy, if the lease is extended, will be at least 30 years.

Section 58. Legal proceedings

Legal proceedings to test the legality of the refund decision must be instituted not later than two months after notification of the decision. Reinstatement of proceedings may not be granted when the time limit has been exceeded.

Any landowners concerned who have not been made parties through a summons shall be notified by the court and be given a time limit of three weeks within which to intervene as parties. If the decision on a refund is declared invalid, it shall be wholly rescinded and remitted to the municipality for a new hearing.

CHAPTER X. ASSESSMENT AUTHORITY

Section 59. Ordinary assessment authority

Assessment is dealt with pursuant to the Act of 1 June 1917 No. 1 relating to assessment and expropriation cases, unless otherwise indicated by the provisions of this chapter or section 41. In cases not relating to section 32 or Chapter VIII, the assessment in a district sheriff's district will be conducted by the district sheriff (*lensmann*).

35

Section 60. Special court of assessment in building cases

When special reasons so indicate, the Ministry may on the application of a municipality decide that there shall be a court of assessment consisting of five members in the municipality to make assessments pursuant to this Act, and in cases concerning voluntary purchase of land and rights that

could have been expropriated by the purchaser pursuant to the provisions of this Act. When the volume of cases so warrants, the Ministry may decide that a court shall have two or more divisions,

constituted as specified in the first sentence. The Ministry may issue rules concerning the distribution of cases.

The president of the court of assessment together with his personal deputy shall be appointed by the Ministry, the other members together with their deputies shall be appointed by the district court.

The appointment shall last for four years. The president and his deputy shall have the qualifications

prescribed for district court judges.

If in a particular case it is not possible for a full court to sit because of unavoidable absence or disqualification, substitutes may be appointed by the proper authority pursuant to the second paragraph.

When appropriate, the Ministry may decide that two or more municipalities shall have a common court of assessment. If one court of assessment is common to two or more municipalities that do not have the same district court, the Ministry decides which court shall appoint the members.

Members of a court of assessment for building cases shall be remunerated by the municipality. Such remuneration is determined by the county governor on the advice of the Municipal Council. When two or more municipalities have a common court of assessment, the county governor decides

the distribution among the municipalities.

In other respects the provisions concerning judicial assessment in the Assessment Act shall apply when conducting assessments as mentioned in the first paragraph, cf. however sections 41 and 61 of the present Act.

Section 61. Costs of a case

In the case of an assessment pursuant to this Act that is not concerned with expropriation, the assessment authority may decide that one of the parties shall wholly or partly compensate the other

for the costs specified in sections 42 and 43 of the Act of 1 June 1917 No. 1 relating to assessment and expropriation cases.

CHAPTER XI. DIVISION OF PROPERTY

Section 62. (Not enacted)

Section 63. Division of property

A property may not be divided or units established for leasing out as mentioned in section 93 h, in such a manner as to cause a situation that contravenes this Act, regulations, a by-law or plan. Nor must a property be divided or a unit as mentioned above leased in such a manner that lots are formed which, in the opinion of the municipality, are not well suited for building purposes, owing to their size or shape.

36

Section 64. (Not enacted)

CHAPTER XII. THE BUILDING LOT

Section 65. Water supply

No building may be constructed or put to use for the purpose of housing humans or animals without satisfactory access to hygienically safe and sufficient potable water.

When a public water main is laid across the property or in a road bordering upon it, or across a nearby area, such buildings as are located on the property shall be connected to the main.

When, in the opinion of the municipality, the cost of implementing the provisions of the second paragraph will be disproportionately high, or when other special reasons so indicate, the municipality may approve some other arrangement.

The municipality may, also in cases other than those mentioned in the second paragraph, require that buildings be connected to a public water main when special considerations so warrant.

Section 66. Access and sewers

1. A property may be divided or developed only if the building lot(s) either has (have) been secured

lawful access to a road that is open to general traffic, or by judicially registered document or in some other way has(have) been secured such road access as the municipality considers satisfactory. An exit road from a public road must be approved by the roads authority concerned, cf. the Public Roads Act of 21 June 1963, sections 40-43.

When, in the opinion of the municipality, a road connection cannot be provided without disproportionate difficulty or expense, the municipality may approve some other arrangement.

2. Before a lot is partitioned off or construction of a building is started, drainage of waste water shall be ensured in accordance with the Pollution Control Act.

When a public sewer is laid across the property or in a road bordering upon it, or across a nearby area, such buildings as are located on the property shall be connected to the sewer. The municipality may waive this requirement if it leads to disproportionate cost or if there are other special reasons for so doing.

The municipality may also in cases other than those mentioned in the second paragraph require that the building be connected to a sewer, when special considerations so warrant.

Section 66a. District heating plants

After a licence has been granted pursuant to the Act relating to the production, conversion, transmission and distribution of energy, etc. (the Energy Act), it may be decided by means of a bylaw

that buildings constructed within the area to which the licence applies must be connected to the district heating plant.

Section 67. Requirement concerning construction of roads and common main pipeline for water and waste water

1. In zoned areas and areas covered by a building development plan, a lot may be divided or developed only if:

a) a road has been laid and approved as far as is shown in the plan, up to and along the side of

the lot from which access to it is gained. It may be required that the road be laid out to a width of ten metres with the necessary additions for filling and cutting, and be built up to an effective road width of up to six metres. In the case of properties where, according to the

37
plan, all or some of the buildings are presumed to serve other than a residential purpose, and in the case of properties where the plan allows apartment blocks of four storeys or more, the obligation both in respect of purchase of ground and execution of road work shall nevertheless apply to a road width of up to 20 metres with the necessary additions for filling and cutting.

b) a main sewer pipe, also including if necessary special storm water drainage pipes, leads to and alongside or across the lot. The installation of pipes with a diameter of more than 305 mm cannot be required.

The municipality may approve sewerage connection to another main sewerage plant.

c) a water main leads to and alongside or across the lot. The installation of pipes with a diameter of more than 105 mm cannot be required. The municipality may approve water supply from another water pipe.

The municipality may grant permission to divide a lot on condition that the works pursuant to the first paragraph, a, b and c are carried out before the lot is developed.

2. In areas which in a municipal master plan are set aside for buildings or extraction of raw materials, the municipality may make it a condition for permission to divide a property or for a building permit that the measures mentioned in subsection 1, a-c, have been carried out.

3. The municipality may lay down rules concerning execution of the work.

4. Roads, main sewers and water mains which are laid by the landowner (lessee) in accordance with the provisions of subsections 1 or 2 above, shall be maintained by the municipality from the date the installation is completed and approved, then becoming the property of the municipality without compensation. Take-over proceedings shall be held. The municipality does not, however, undertake to take over roads that have not been developed to their full width in accordance with subsection 1, a.

The take-over by the municipality does not prevent a landowner (lessee) who is a refund creditor from claiming a refund after the take-over proceedings have been held.

Section 67a. Requirement concerning development of common areas and of green belts in industrial areas

When a zoning plan or a building development plan specifies a common exit road, common yard or other area common to several properties, the municipality may make it a condition for permission pursuant to section 93 that the common area is purchased, made subject to proviso and developed in accordance with the plan.

In industrial areas where a green belt is specified in a zoning plan or a building development plan, the municipality may make it a condition for permission pursuant to section 93 to build on the adjoining lots that a green belt is acquired and developed along the lot in accordance with the plan.

Section 68. Building land. Environmental conditions

Land may only be divided or developed when there is adequate safeguard against risk or significant inconvenience as a result of natural or environmental conditions.

In the case of land or areas as mentioned in the first paragraph the municipality may if necessary prohibit building or impose special requirements concerning building land, buildings and outside areas.

Section 69. The undeveloped part of the lot, common areas

1. When a lot is developed, a sufficiently large part of the lot shall remain undeveloped in order to provide the buildings with adequate light and safety from fire. To whatever extent may be necessary, land shall also be secured to provide satisfactory open-air spaces for residents,

including playgrounds for children, and for exit road and parking facilities for automobiles, motorcycles and bicycles as needed by the residents. When found necessary for these purposes, the municipality may require the removal or pruning of trees and plants on the lot.

2. In order to satisfy the purposes mentioned in subsection 1 above, the municipality may agree that

a common area be set aside for two or more properties.

3. Provisions may be made in by-laws for the design and development of undeveloped parts of the lot and of common areas.

4. It may be provided by means of by-laws that the municipality may agree that, instead of a parking space on one's own ground or in a common area, a sum of money be paid to the municipality in each case where a parking space is lacking for the purpose of building a parking facility. The Municipal Council will decide what rates shall apply at any time in such cases.

5. The provisions of subsections 1-4 concerning parking spaces apply correspondingly in the event of change of use.

CHAPTER XIII. BUILDINGS

Section 70. Location of the building, its height and distance from the boundary of adjoining property

1. The location of the building, including the level of location, and the height of the building shall be approved by the municipality. A building where the cornice height exceeds eight metres and the height of the roof ridge exceeds nine metres can only be built if authorized in a plan pursuant to Chapters VI and VII. As regards the location of projects to which section 93, first paragraph, applies, the provisions of Chapter XVI shall apply correspondingly.

The municipality shall ensure that the provisions of the Public Roads Act concerning the building limit and unobstructed visibility are complied with.

2. Unless otherwise decided in a plan pursuant to Chapters VI and VII, the distance of the building

from the boundary of adjoining property shall be equal to at least half the height of the building and not less than four metres.

The municipality may approve that a building be located closer to the boundary of adjoining property than the distance specified in the first paragraph, or on the boundary of adjoining property

a) when the owner (lessee) of the adjoining property has given his written consent, or

b) when a garage, outhouse or similar small building is to be erected.

3. Further provisions, including rules concerning fire prevention, the method for calculating height,

the distance from the boundary of adjoining property and the area of such buildings as are mentioned in subsection 2, second paragraph, letter b, shall be made in regulations.

Sections 71-73. (Not enacted)

Section 74. Arrangement and appearance

1. Any building with rooms intended for human habitation shall be satisfactorily arranged, with satisfactory lighting, insulation, heating, ventilation and fire prevention.

Any building that is subject to the provisions of the Act of 4 February 1977 No. 4 relating to worker protection and working environment shall moreover satisfy the requirements concerning a completely satisfactory working environment.

Further provisions may be made in regulations.

39

2. The municipality shall ensure that any work that is subject to the provisions of this Act is planned and carried out in such a way that, in the municipality's opinion, it satisfies reasonable aesthetic requirements both in itself and in relation to the surroundings. Measures taken pursuant to this Act shall be aesthetically well designed in accordance with the functions thereof and with respect for natural and built-up surroundings. Unsightly colours are not permitted and may be

required to be changed.

Section 75. Privy - WC

1. Each family apartment shall be provided with a separate water closet or privy. The municipality may also otherwise require that a building be provided with privies and may in such cases determine the number of privies.

2. Where there is an adequate water supply and drainage the Municipal Council, after obtaining an opinion from the municipality, may order installation of water closets in specific areas. When this would be advantageous hygienically and from the point of view of pollution, installation of another specific type of closet may be ordered in specific areas. Given the same conditions, the municipality may order installation of a water closet or another specific type of closet upon specific properties.

Section 76. Additional rooms

Buildings containing more than one apartment shall have the necessary rooms for laundering and drying clothes, for storing bicycles, perambulators and the like. In addition, each apartment shall have the necessary rooms for storing clothes, food and fuel. It may be decided by means of by-laws that the municipality may require the provision of the necessary garage space to meet the property's needs.

Section 77. Execution of construction work. Requirements regarding construction products

1. Any construction work shall be carried out in a workmanlike and technically sound manner so that the completed construction satisfies the requirements in regard to safety, health, the environment and serviceability laid down in or pursuant to this Act.

2. Any product that is to be used in constructing a building shall possess such characteristics that it

will, for the purpose for which it is intended, help to satisfy the requirements mentioned in subsection 1 in the completed structure. The manufacturer or his representative shall ensure that the characteristics of the product are attested and is obliged to provide the supervisory authority with all the information that is deemed to be required for supervising the characteristics of the product. The Ministry will appoint the supervisory authority.

The Ministry may issue regulations concerning technical specifications and the approval and control systems that are to be applied in regard to attestation and supervision, in pursuance of which the Ministry may lay down requirements concerning the marking of construction products (CE-marked product). Such regulations shall conform to the obligations imposed on Norway by international agreements.

If the supervisory authority finds there is a justified suspicion that a CE-marked product which does not comply with the stipulations for such marking is being sold, and the product is intended to be used in a structure, the said authority shall examine the product. If the conditions set out in the first sentence are fulfilled, the supervisory authority may order a temporary stoppage of the sale and use of the product.

If the supervisory authority finds that any product does not satisfy the stipulations relating to approval, control or marking, the said authority may order the sale of the product to be stopped.

40

The same applies to any product that, even though it has been declared to be in conformity with the requirements, may entail a risk to life, health or the environment. The supervisory authority may also prohibit the use of and order the recall of such a product from the market, or take other steps to ensure that the product is made to comply with the requirements if the product has already been sold. The supervisory authority shall be allowed such access to products, premises, ground or other areas as is deemed necessary for exercising supervision.

The Ministry may issue regulations concerning fees for supervisory work to ensure that the provisions and decisions made in or pursuant to this section are complied with. The payment of such fees is enforceable by execution.

CHAPTER XIV. SPECIAL BUILDINGS AND INSTALLATIONS

Section 78. Location of business enterprises and installations, etc. within the municipality

1. It is not permitted to locate in residential districts any enterprise or installations or to engage in any activity which in the opinion of the municipality would entail special fire hazard or cause significant inconvenience to the residents in the district. Storage and warehouses may be prohibited in residential districts.

Residential buildings may not be erected in industrial districts. Nor may a dwelling be installed in a building used for industrial purposes. The municipality may grant exceptions to this provision in special cases.

It may be decided by means of by-laws that the municipality may prohibit the location, within the municipal area or any part thereof, of enterprises, installations, warehouses or storage of a hazardous or particularly disagreeable nature.

2. The location of sports facilities, petrol and service stations, garages and tank installations, openair

cafes and kiosks must be approved by the municipality. When deciding whether to grant approval, the municipality shall take into account, inter alia, whether such installations will impair the appearance of the district or inconvenience the traffic or population therein.

Section 79. Unusual buildings

The municipality may prohibit buildings which, by their nature or size, differ considerably from the type that is usual in the district, if in the opinion of the municipality such buildings will prevent

or especially obstruct a satisfactory development of the district in the future.

Section 80. Buildings and activities entailing hazard or particular inconvenience

In respect of buildings which, by their nature or because of the activities for which they are intended or the traffic they give rise to, are presumed to entail hazard or particular inconvenience to

persons in the building or other persons, the Ministry may make special provisions by means of regulations. In the case of these buildings the municipality may impose any special requirements considered necessary over and above the provisions made in this Act, regulations and by-laws. If the hazard or particular inconvenience may be caused by pollution or refuse, then the provisions of

the Pollution Act apply instead of the first and second sentences.

Section 81. Agricultural buildings

The provisions of this Act apply in so far as they are appropriate to the erection of new agricultural buildings and to alteration and repair of existing agricultural buildings. The provisions 41

of section 65, second, third and fourth paragraphs, and of section 66, subsection 1 and subsection 2,

second and third paragraphs, do not apply. The Ministry may lay down regulations to the effect that

also other provisions made in or pursuant to this Act shall not apply, and concerning the practical applicability of the provisions of this section.

No permission pursuant to section 93 is needed for the project if notification is sent to the municipality concerning the project and stating that it will be carried out in accordance with the provisions made in or pursuant to this section. The notification shall be in writing and shall provide

information concerning the plans applicable to the work.

Before notification is sent, notice shall be given to adjoining and opposite neighbours, unless they have stated in writing that they have no comments to make. The notice to neighbours shall state that any comments must be received by the municipality not later than two weeks after the notice was sent and the information on which the notification to the municipality is based was made available. A list of the properties concerned and their owners or lessees shall be provided in

the notification to the municipality. Copies of the letters of notice to neighbours and of receipts showing that the letters were sent shall be enclosed with the notification to the municipality. The provisions of section 94, subsection 3, second to fifth paragraphs, shall apply correspondingly. The project may be carried out three weeks after the report is received by the municipality. The municipality may extend the time limit by a further three weeks when there are special reasons for doing so.

Except for the provisions of section 93a, Chapter XVI of this Act shall not apply to projects that are carried out in accordance with the provisions of the first and second paragraphs. The municipality may give such orders as are considered necessary for ensuring that the project is carried out satisfactorily. If the project is not commenced within three years of the report being sent

to the municipality or the project is discontinued for a period of more than two years, the provisions

of section 96 shall apply correspondingly.

The Ministry may by regulations make further provisions concerning the contents of the report mentioned in the second paragraph and concerning building and fire prevention requirements.

The provisions of this section also apply to shelters for summer dairy farming or forestry operations.

Section 82. Leisure buildings

With the exception of section 65, second, third and fourth paragraphs and section 66, subsection 2, second and third paragraphs, the provisions of this Act apply to leisure buildings (leisure homes and associated outhouses). The Ministry may issue regulations to the effect that also other provisions made in or pursuant to this Act shall not apply. Moreover, the Ministry may lay down regulations concerning administrative procedures and concerning building and fire prevention requirements.

Section 83. Pools, wells and ponds

Pools and wells shall at all times be made safe enough to prevent children from falling into them. The municipality may order wells or ponds that are deemed to be particularly hazardous to children to be filled in or made safe in some other way within a specified time limit. Such filling-in

may not be done if the well or pond is required for water supply purposes. Ponds to which the Water Resources Act applies shall be made safe pursuant to the provisions of the said Act.

The landowner is responsible for ensuring that installations are made safe as specified in the first paragraph. If the land is leased out for more than two years, the responsibility rests with the lessee,

If the installations are used only by someone who is not responsible pursuant to the above regulations, the responsibility rests with the user.

42

Section 84. Other permanent structures or installations. Significant encroachments on terrain, etc.

Insofar as they are appropriate, the provisions made in or pursuant to this Act apply to permanent structures or installations, significant encroachments on terrain, and the construction of roads and parking places. This applies to projects on or under the ground, in watercourses or in marine areas. The municipality may determine the height and shape of terrain. The Ministry may issue regulations to the effect that provisions made in or pursuant to this Act shall not apply and concerning the practical application of the provisions of this section.

Section 85. Temporary or transportable buildings, structures or installations

Temporary or transportable buildings, structures or installations must not be so placed as to obstruct general passage or outdoor pursuits or in any other way cause significant inconvenience for the surroundings. Insofar as they are appropriate, provisions made in or pursuant to this Act shall apply to the above-mentioned projects.

The municipality shall be notified in advance of the location of temporary buildings, structures

or installations. Temporary or transportable buildings, structures or installations must not be positioned for a period exceeding four months without the prior consent of the municipality, and shall be removed immediately when the period has expired or, if such consent has been given for an indefinite period, when the municipality so demands.

It may be decided by means of by-laws that temporary or transportable buildings, structures or installations may not be positioned within specific parts of the municipal area, or that they may be placed there only on specific conditions.

The Ministry may by regulations prescribe that the second and third paragraphs shall not apply to specific temporary or transportable buildings, structures or installations.

Section 86. Secret military installations

When an area, installation or structure is declared secret pursuant to the legislation concerning military secrets, it is the responsibility of the military authority concerned to ensure that the provisions laid down in this Act, regulations or by-laws are complied with.

Section 86 a. Minor projects on developed property

Minor projects on developed property may be carried out without permission pursuant to section 93 if

a. notice thereof is given to adjoining and opposite neighbours, cf. section 81, third paragraph, which shall be made to apply correspondingly, and they do not subsequently demand that the plans be submitted to the municipality as an application for permission pursuant to section 94.

Any demand for such procedure must reach the municipality within two weeks of notice being sent, and

b. notification of the project is sent to the municipality and the latter does not within three weeks of receiving such notification require that the project be submitted to the municipality as an application for permission pursuant to section 94, and

c. the project is otherwise carried out in accordance with current provisions made in or pursuant to statute.

With the exception of section 93a, Chapter XVI of this Act shall not apply to projects carried out in accordance with the provisions of the first paragraph. If the project is not commenced within three years of notification being sent to the municipality, or if work is suspended for a period exceeding three months, the provisions of section 96 shall apply correspondingly.

43

The Ministry may make further provisions by regulations.

Section 86 b. Building work within the area of a particular enterprise

Pursuant to a decision made by the Ministry, building work within the area of a particular enterprise may be carried out without involving the application of Chapter XVI of the Act relating to building permission and control of building work. The Ministry may attach conditions to such a decision. Before the Ministry makes a decision, the municipality shall be given the opportunity to express its opinions.

Building work pursuant to the first paragraph must not be carried out before notification concerning the work is sent to the municipality. If the work is not commenced within three years of

notification being sent to the municipality, or if the work is suspended for a period exceeding three

months, the provisions of section 96 shall apply correspondingly.

The Ministry may make further provisions by regulations.

CHAPTER XV. EXISTING STRUCTURES

Section 87. Alteration, repair or change of use, etc. of existing structures

1. Projects affecting a structure must not be carried out if it this would cause the structure to contravene provisions made in or pursuant to this Act, or cause the structure to contravene the said provisions to a greater extent than is already the case. No work specified in subsection 2, a, c or e shall be carried out on a structure that conflicts with a plan pursuant to Chapters VI and VII unless the plan is complied with.

A structure that conflicts with a plan pursuant to Chapters VI and VII must not be put to use for any purpose other than that it had previously.

2. Provisions made in or pursuant to this Act, cf. however the second paragraph, also apply to:

a) alteration or repair of a structure when, in the opinion of the municipality, the work is so extensive that the whole structure is substantially renewed (general renovation).

The Ministry may issue regulations concerning what is to be regarded as general renovation and the procedure for so deciding.

b) alteration or repair of a structure which, in the opinion of the municipality, will entail substantial

renovation of certain parts of the structure,

c) any addition to, extension of or underpinning of a structure,

d) erection, alteration or repair of technical installations

e) change of use or any significant extension or significant alteration of previous operations

For the projects mentioned under a), this Act applies to the structure as a whole, for the projects mentioned under b) to e), only to such parts of the structure as are affected by the project. On the basis of projects mentioned under b and d, however, technical requirements may be imposed only in regard to the structure itself and installations pertinent thereto.

3. The municipality may make it a condition for permitting the above-mentioned projects that other

parts of the structure are put into proper condition as regards technical requirements if the municipality finds that the structure is in such a poor state that it would otherwise be inadvisable to carry out the project.

Section 88. Dispensation from section 87

The municipality may grant dispensation from provisions made in or pursuant to this Act in respect of the projects mentioned in section 87 when this is justifiable in regard to health, fire prevention and technical considerations, and the project does not cause the building to contravene

44

the Act to a greater extent than it did before. The municipality may impose conditions for such dispensation.

Section 89. Maintenance and improvement

The owner shall ensure that structures and installations to which this Act applies are so maintained as to entail no hazard or significant inconvenience to persons or property, and as not to appear unsightly themselves or in relation to their surroundings. The planning and building authorities may issue such orders as are necessary to prevent or remedy such conditions as are subject to this provision.

The Ministry may by regulations make provisions empowering the planning and building authorities to issue orders for the improvement of existing structures and installations within the framework of provisions made in or pursuant to this Act when weighty considerations for health, the environment, safety or accessibility make this necessary. Orders may only be issued in respect of specific types of structures, the improvement of which will significantly improve the structural functions. In making an assessment importance shall also be attached to the costs entailed by the order, the number of users, the hazards or inconveniences to which they are exposed and the difference between the existing condition and the current requirements.

The owner shall be granted a reasonable period of time in which to comply with orders pursuant to this section.

Section 89 a. Improvement programme

For one or more properties in a built-up area, the Municipal Council may adopt a programme for improvement of buildings and associated land.

The municipality may encourage owners and residents of the affected real property, including houses on leased land, to provide the necessary information, and shall give them an opportunity to participate in the preparation of the improvement programme.

The improvement programme may comprise:

1. rebuilding, improvement or repair,
2. composition of apartments, heating, electricity supply, sanitary installations etc.
3. structural and fire prevention conditions
4. laying out common areas and arranging common installations for the buildings, and future maintenance and operation of common areas and common installations.

Section 90. (Repealed)

Section 91. Demolition

If a structure has reached such a state that, in the opinion of the municipality, it cannot be restored except by general renovation, cf. section 87, subsection 2 a, and new building or general renovation cannot be carried out or is not started within a reasonable period of time stipulated by the municipality, the municipality may require the structure or the remains thereof to be removed and the lot to be cleared.

The removal of a structure may similarly be required if, in the opinion of the municipality, it entails a hazard or significant inconvenience to persons or property, or is very unsightly, and it is not repaired within a stipulated time limit.

The municipality may reject an application for demolition pursuant to section 93, first paragraph, letter d, until a zoning plan or building development plan has been adopted for the property. Furthermore, project start-up permission may be required. The provisions in the first and second sentences do not apply to areas owned by the Norwegian Defence Forces.

45

Section 91 a. Change of use and demolition of dwellings

The Municipal Council may by means of by-laws decide that permission must be obtained from the municipality for:

- a) converting a dwelling into business premises, including a hotel or other type of hostel, or using it for such purposes,
- b) demolishing a building containing a dwelling, except when the building has
 1. been expropriated by the public authorities
 2. is located within an area zoned for renewal (section 25, subsection 8) and has been purchased by the municipality or by another person who, with the consent of the municipality, is to be responsible for the renewal,
- c) combining dwellings or dividing apartments into bed-sitting rooms,
- d) other reconstruction of dwellings than that mentioned in letters a or c when the reconstruction entails that an apartment must be vacated.

When deciding whether to grant permission pursuant to the first paragraph, letters a to d, it is necessary to take into account proper utilization of the building complex. It may be stipulated as a condition that affected residents shall be provided with a compensatory dwelling.

If a dwelling is converted in contravention of a by-law made pursuant to the first paragraph, the municipality may order that the dwelling be restored to such a state that it can serve its original purpose.

Section 92. Other provisions

The provisions of section 65, second to fourth paragraphs, section 66, subsection 2, second to third paragraphs concerning connection to water mains and public sewers, section 68, to the extent that it concerns drainage of ground water and storm water, section 69, subsection 1, third sentence concerning removal and pruning of trees and plants, section 80 concerning buildings or activities entailing a hazard or particular inconvenience, section 103 concerning fencing, section 105 concerning lighting and cleaning etc., and section 106 concerning technical installations also apply

to existing structures. The same applies to section 75 concerning privies and water closets, provided that the order pursuant to section 75, subsection 2, second sentence, is given by the Municipal Council, and that the municipality may accept that a water closet for common use is installed for two or more apartments.

When a developed property includes undeveloped land which, in the opinion of the

municipality, is suitable for the building purposes mentioned in section 69, subsection 1, the municipality may require the land to be set aside and developed for such purposes.

Section 74, subsection 2, applies correspondingly to any alteration of an existing structure and restoration of the exterior. The municipality shall ensure that any historical, architectural or other cultural value connected to the exterior of a structure is preserved as far as possible.

92a. Alteration or removal of projects pursuant to section 93, second paragraph

Projects pursuant to section 93, second paragraph, shall be carried out in compliance with the requirements pursuant to provisions made in or pursuant to this Act. Moreover, the planning and building authorities may require that such projects be removed or altered if their position, design etc. or the activity which they otherwise give rise to may lead to a hazard or unreasonable inconvenience for the surroundings or for public interests.

46

Section 92 b. Inspection of existing structures and ground

The planning and building authorities may inspect structures that are not subject to inspection pursuant to section 97 and ground to ensure that no unlawful use or other unlawful conditions pursuant to this Act subsist which may entail a hazard or significant inconvenience to persons or property. Inspection may, however, only be carried out when there is reason to assume the existence of such conditions as are mentioned above or measures pursuant to section 89 are to be considered.

Anyone using a structure, ground or relevant parts of it is under obligation to provide the authorities concerned with the necessary information and access to undertake any necessary investigations.

The owner shall be informed of any unlawful conditions mentioned in the first paragraph. The planning and building authorities may give the owner a written order to remedy the matter within a

specified time limit, and may in special cases wholly or partly prohibit use of the structure or ground until the unlawful conditions are remedied.

CHAPTER XVI. ADMINISTRATIVE PROCEDURES, RESPONSIBILITY AND CONTROL

Section 93. Projects requiring application and permission

The following projects, on the ground, underground, in watercourses or in marine areas, must not be carried out until a prior application, or an application for dispensation as the case may be, has been sent to the municipality and it has subsequently granted permission:

- a) Erection of, addition to, extension of, underpinning or positioning a permanent, temporary or transportable building, structure or installation.
- b) Alteration of the exterior, significant alteration or significant repair of projects mentioned under a.
- c) Alteration of use or significant extension or significant alteration of previous operation of projects mentioned under a.
- d) Demolition of projects mentioned under a.
- e) Erection, alteration or repair of technical installations.
- f) Division or combination of occupancy units in dwellings and other reconstruction intended to convert dwellings to another purpose.
- g) Erection of fencing against a road, signs or advertising devices and the like.
- h) Division of property or establishment of a unit that can be leased out for a period exceeding ten years. Such permission is not necessary for division done in the course of land consolidation in accordance with a legally binding plan.
- i) Significant encroachment on the terrain.
- j) Construction of roads or parking places.

Permission pursuant to the first paragraph is not necessary for projects that are carried out in accordance with sections 81, 85, 86 a or 86 b. The Ministry may by regulations exempt projects from the provisions of Chapter XVI. The developer is responsible for ensuring that exempted

projects are nevertheless carried out in accordance with the requirements otherwise imposed by provisions made in or pursuant to this Act.

47

Section 93 a. Preliminary conference

A preliminary conference may be held between the developer, the municipality and other parties and bodies concerned for further clarification of the frameworks and contents of the project. A preliminary conference may be required by the developer or by the planning and building authorities. Minutes of the preliminary conference shall be kept. The minutes shall record the assumptions on which the project is based and form the basis for further action in the matter. The preliminary conference shall be held not later than two weeks after the date on which the developer

has requested that such a conference be held.

Section 93b. Responsible applicant and designer

1. An application for every project pursuant to section 93 shall be managed by a responsible applicant who shall act as a connecting link between the responsible designer, the responsible contractor, the responsible controller, the developer and the municipality. The responsible applicant shall ensure that the application documents how all the relevant requirements of provisions made in or pursuant to this Act shall be fulfilled, unless it is otherwise expressly stated in the application. The application shall be signed by both the developer and the responsible applicant.

2. When the responsibility for project design, execution or control is divided, the responsible applicant shall coordinate the application and ensure that responsibility for all functions has been duly assigned and confirm this in writing in the application. Each individual person is then responsible for what is covered by his allotted share. The division of responsibility must be clearly evident from the application.

3. The responsible applicant and the enterprises responsible for the design shall be approved by the

municipality in each individual case. The enterprise must document that it is adequately qualified for the individual building assignment. Its area of responsibility shall be evident from the application. If the work requires special knowledge, this shall be taken into account when deciding whether approval is to be given. The municipality may direct a responsible contractor to use specially qualified persons to execute the parts of the building assignment that they themselves do not execute.

The right to assume personal responsibility may be granted in special cases.

The municipality may withdraw the approval at any time if it finds that the responsible enterprise fails to meet the necessary requirements as regards reliability and competence or if the enterprise concerned has in the case in question, or previously, shown that it is not professionally competent for the task. Before this is done, the enterprise concerned shall be given an opportunity to express its opinion. When the municipality deems it to be necessary, it may immediately invalidate the approval until the matter has been finally decided.

Section 94. Application for permission. Notice to neighbours

1. An application for permission pursuant to section 93 shall be made in writing and shall provide the information that is necessary for the municipality to decide whether the conditions for granting permission are fulfilled. In the case of technical installations, the application shall also include documentation as a basis for evaluating whether permission for operation may be granted.

48

The application may be divided up so that documentation as a basis for evaluating any remaining designing, execution and control may be submitted after general permission has been granted in accordance with section 95 a, subsection 1. The same applies to an application for the right to be responsible for execution and control. In special cases the municipality may permit further division of the application.

The persons mentioned in section 3-1, third paragraph, letters a to h, of the Act relating to survey, division and registration of real property (The Land Division Act) may apply for permission to divide a property. The applicant must state how he wishes the division to be done. It may be done by demonstration in the field, by specification of the size of the areas that are to be partitioned off, by definition of ratios between the different parts or in some other way approved by the municipality. The applicant is also obliged to submit a proposal for boundary courses drawn on a map when the municipality so requires. The proposal shall show how the division can suitably be incorporated into future utilization of the area, including how the requirements specified in section 69, subsection 1, can be complied with.

2. When the work pursuant to the statutory provisions is subject to the permission or consent of an authority other than the municipality, or when plans for the work shall be submitted to such an authority, it shall be stated in the application whether the case has been submitted to such an authority. If a decision or opinion has been received from the authority concerned, this shall be enclosed with the application.

3. Before an application is submitted, notice shall be given to adjoining and opposite neighbours unless they have stated in writing that they have no comments to make on the application. In the notice it shall be stated that any comments must reach the responsible applicant not later than two weeks after the notice was sent and the information on which the application was based has been made available. When notice is sent to adjoining and opposite neighbours, a copy of the letters of notice shall be sent to the municipality, together with particulars of the properties concerned and their owners or lessees. A receipt showing that the letters of notice have been sent, any comments from adjoining and opposite neighbours, and a brief account from the responsible applicant or the developer of any action that has been taken to satisfy such comments, shall be enclosed with the application. Before the municipality makes a decision on the application, it shall consider whether there are grounds to require that notice again be given to adjoining and opposite neighbours.

The municipality may exempt the applicant from giving notice to adjoining and opposite neighbours if their interests are not affected by the work. The municipality may require that owners or lessees other than those mentioned in the preceding paragraph shall also be notified. If the application concerns such work as is mentioned in section 93, first paragraph, letter d, the applicant shall notify those who have financial charges on the property, and a declaration that this has been done shall be enclosed with the application.

In the case of a divided application, notice shall be sent to neighbours only in regard to an application covering projects mentioned in section 93, insofar as it applies to division of property, the external frameworks of the project or the activity to be carried on, as well as to changes in these matters.

The Ministry may make further provisions by regulations.

Section 95. Processing of the application by the municipality

1. When the application is complete, the municipality shall deal with it and reach a decision on it as soon as possible and at the latest within twelve weeks.

When the project requires the permission or consent of another authority, or when plans for the project shall be submitted to such an authority, the municipality may nevertheless postpone its decision on the case until a decision or opinion has been received from the authority

49

concerned. The municipality may also grant general permission within its own area of authority, with the reservation that permission to start the project will not be granted until the relationship to other authorities has been settled, cf. subsection 2, second paragraph, and section 95 a.

2. Before permission pursuant to section 93 is granted, the municipality shall, on the basis of the information contained in the application, see to it that the necessary control is effected to ensure that the project will not contravene provisions laid down in or pursuant to this Act. When information is not available, the municipality may demand it. The municipality may to the

degree necessary instruct the developer to submit parts of the design documentation to independent control.

3. When a project pursuant to this Act or other Acts requires the permission or consent of the health authorities, the fire prevention authorities, the Labour Inspectorate, the roads authority, the harbour authority, the pollution control authority, the Civil Defence, the land law authorities, the outdoor recreation authority or the cultural heritage authority, or plans for the project shall be submitted to the authorities mentioned, the municipality shall submit the matter to the authority concerned, if a decision or opinion has not been obtained in advance. By means of regulations this provision may be extended to apply also in relation to other authorities.

Other authorities must make a decision or express their opinion within four weeks of the matter being sent to them. In special cases, the municipality may, upon request, extend the time limit before it expires. If the project is not conditional on the permission or consent of other authorities, failure to comply with the time limit entails that the building authorities may decide the matter without having to take account of opinions that are subsequently received.

4. If a project in regard to a structure other than those projects mentioned in section 87, subsection 1, first paragraph, will in the opinion of the municipality cause a significant increase in the value of the structure, the municipality may prohibit the execution of the project until the municipality has decided whether it will effect an expropriation. If the municipality has not reached a decision within three months of receiving an application for permission, permission must be granted if the conditions for doing so are otherwise fulfilled.

5. The municipality may make it a condition for granting permission that properties having the same owner, which are to be used jointly, be joined in the Land Register, cf. the Act relating to survey, division and registration of real property (The Land Division Act), section 4-3.

When a unit is leased out for more than ten years, the municipality may make it a condition for permission that the leased unit be partitioned off from the property by means of division proceedings pursuant to the provisions of the Land Division Act.

6. The municipality shall immediately give written notification of the decision to the responsible applicant and to adjoining and opposite neighbours and others who have protested. In the case of divided approval, notification to neighbours etc. shall be given only concerning the decisions applying to the external frameworks of the project or those which must otherwise be deemed to affect persons other than the developer.

7. Processing of an application pursuant to sections 95, 95 a and 95 b does not entitle a developer to commence the project before permission is granted.

Section 95 a. Stage by stage processing

1. The municipality may grant general permission in regard to the external and internal frameworks of the project. Such permission is final, and it decides that the project may be carried out within the prescribed frameworks and confers the right to commence preparatory measures.

2. Permission to start the work may not be granted until a complete application pursuant to section 94, subsection 1, first paragraph, has been submitted and subjected to the necessary control, nor

50
until any permissions required from other authorities have been granted. The same applies to approval of the responsible contractor and control method pursuant to section 97. Permission may, however, be granted for starting parts of the project, including permission for excavation.

Section 95 b. Projects requiring simple processing

An application for permission in regard to projects requiring simple processing shall be decided within three weeks if the project complies with provisions made in or pursuant to this Act, and there are no protests from adjoining and opposite neighbours, and if further permission, consent or comment from another authority is not necessary. If the municipality has not made a decision before the expiry of the time limit, permission shall be deemed to have been granted by virtue of such expiry. The time limit for an appeal runs from that date. The municipality's decision concerning the type of matter may not be appealed.

The Ministry may make further provisions by regulations.

Section 96. Lapse of permission

If the project has not been started not later than three years after general permission has been granted, the permission lapses. The same applies if the project is suspended for a period exceeding two years. The foregoing provisions apply correspondingly in regard to dispensation.

If the project is suspended for a period exceeding three months, the municipality may require that scaffolding and fences adjoining a street that is open to public traffic be removed, and that the street and pavement be put in order.

If work remains at a standstill for a period exceeding one year, scaffolding shall be removed and the installation shall be brought into such a state as to cause the least possible unsightliness. If this situation lasts for more than two years, the municipality may require that the installations be removed completely and the ground be cleared. If an alteration project is discontinued, the municipality will decide to what extent the building shall be restored to its original state.

Section 97. Control of projects. Person responsible for control of design and execution

1. The municipality shall ensure that the necessary control is exercised to make sure that projects are executed in accordance with the permission granted and the provisions made in or pursuant to this Act.

The control may be exercised by means of documented self-inspections or by an independent enterprise. The developer, the responsible applicant, the responsible designer and the responsible contractor are obliged to provide such information as is necessary for exercising control.

The responsible applicant shall ensure that a plan of control is drawn up. Such a plan shall appear in the application or be submitted not later than in connection with the processing of the application for permission to start the project. The control shall be exercised in a coherent, planned manner in accordance with a method of control approved by the municipality. The municipality may demand additional information regarding control at any time during the administrative processing of the building permit application. After permission has been granted, the municipality may, by a special administrative decision, demand that the plan of control be amended. There must be documentation to show that the control has been carried out as planned. The provisions of section 93 b, subsection 3, regarding the right to accept responsibility apply correspondingly to enterprises responsible for control.

51

2. The municipality may at any time inspect the project and make sure that the plan of control is being followed. The municipality may in special cases engage professional assistance in order to have the necessary inspection carried out.

Upon discovery of significant lack of control, the municipality may order the project to be stopped until the matter at fault has been put right. In this connection, the municipality may demand another form of control.

3. The municipality may permit the necessary technical tests to be performed at the developer's expense.

4. Any change of developer during the work shall be reported immediately to the municipality, both by the original developer and the new developer. The same applies to change of owner.

Section 98. The responsible contractor

1. Each project to which section 93 applies shall be directed by one or more responsible contractors

who accept responsibility for ensuring that the project is executed in accordance with the permission granted and the provisions made in or pursuant to this Act. The responsible contractor is responsible for ensuring that the provision in section 100 is complied with, and that notification is sent to the responsible applicant when the work is completed, cf. section 99. The same applies to the implementation of the form of control and the plan of control, cf. section 97.

2. The provisions of section 93 b, subsection 3, regarding the right to accept responsibility apply

correspondingly to enterprises acting as the responsible contractor. The enterprise's representative at the building site shall be specified.

Section 98 a. Central approval of persons exercising the right to accept responsibility

Enterprises that are qualified to undertake the task of responsible applicant/designer pursuant to section 93 b, responsible contractor pursuant to section 98, or independent controller or documented self-inspection pursuant to section 97, may be granted central approval. Such approval is granted by an approval body authorized by the Ministry and registered in a central open register.

Approval shall be withdrawn in the event of serious or repeated contraventions of provisions made or permissions granted in or pursuant to this Act, or if the approved enterprise no longer possesses the necessary qualifications. Such withdrawal may be effected for a specified period or until the enterprise can document in a new application that the matter that caused the withdrawal has been remedied and the conditions for approval are otherwise fulfilled. However, when particularly mitigating circumstances apply, the withdrawal of approval may be dispensed with. In the case of less serious contraventions, a warning may be given.

When the question of local approval of the right to accept responsibility arises, central approval shall normally be accepted instead without further consideration, provided that the approval duly covers the assignment in question. When central approval has not been granted, the same criteria shall, nevertheless, be applied in the case of local approval. The municipality shall also consider the qualifications in relation to the project.

The Ministry may by regulations make further provisions concerning requirements for approval, the extent and organization of the system, and concerning fees for approval which may not exceed expenses incurred. The requirements for approval shall relate to the enterprises' ability to satisfy the requirements of this Act, and may be concerned with the enterprises' organization, system for satisfying the requirements, and the competence of the enterprises' professional management, based on education and practice. Different levels of approval may be laid down in relation to the degree of difficulty and the consequences of different classes of project.

52

Section 99. Final inspection and certificate of completion

1. When a project that is subject to the provisions of section 93 has been completed, the controllers shall carry out a final inspection. The final inspection shall also cover outside areas, access and other conditions which may have been imposed in the permission. When this is not subject to doubt, the municipality may decide that the final inspection may be omitted in the case of minor projects.

Permission to operate may be granted in regard to technical installations before they are to be brought into use. Such permission may be granted for a limited period and shall apply to the particular installation.

If it is found that the project has been carried out in accordance with the permission and current provisions, the municipality shall issue a certificate of completion. The project or, as the case may be, the relevant part of it, must not be used before a certificate of completion has been issued.

2. If minor deficiencies are found, provisional permission for use may nevertheless be granted when the municipality finds this unobjectionable. In that case the deficiencies shall be remedied within a time limit stipulated by the municipality. The municipality may require security to be provided to ensure that the deficiencies will be remedied.

3. The municipality may also, after carrying out a final inspection, grant provisional permission to use part of a building or installation, when the municipality finds no objection to the part concerned being used before the entire project has been completed.

CHAPTER XVII. SUNDRY PROVISIONS

Section 100. Safety measures. Construction equipment

No person may carry out building work or demolition, excavation, blasting or filling unless the necessary measures have been taken in advance to safeguard against injury to persons or damage to

property, and to maintain the flow of public traffic.

Machinery, scaffolding and all equipment for construction work shall be properly designed and maintained, and the execution of the work shall be organized in such a way as to avoid any hazard to life or health.

The municipality may issue such orders as it considers necessary to ensure that these provisions are complied with, including orders concerning investigations of ground conditions.

Section 101. Measures on adjoining land

1. If a structure can be exposed to damage due to seepage of water, an avalanche or a slide from adjoining land, the municipality may order the owner of the adjoining land to undertake the necessary preventive measures on his land.

2. The municipality may permit the use of adjoining land to the extent necessary for execution of building and maintenance work - including the provision of access - if the work either cannot be performed in another way, or when this, in the opinion of the municipality, would entail substantially higher costs.

3. Before an order pursuant to subsection 1 or permission pursuant to subsection 2 is issued, the neighbour shall be given an opportunity to express an opinion.

The municipality may make the permission subject to conditions, including the provision in advance of such security as the municipality decides.

Compensation for damage and inconvenience shall be determined by judicial assessment. If the measures mentioned in subsection 1 are necessitated because the neighbour has neglected his

53

obligation to drain away water, he may be ordered by judicial assessment to compensate the owner

for costs, damage and inconvenience.

Section 102. Investigations on real property

For the purpose of implementing this Act, or in accordance with provisions made pursuant thereto, an owner of real property or a holder of rights therein must permit such investigations as are mentioned in section 4 of the Expropriation Act of 23 October 1959, even if the investigation is

not made with a view to possible expropriation. The owner or user may demand notification from the municipality to the effect that it has consented to the investigation. Sections 4 and 19 of the Expropriation Act also apply correspondingly.

Section 103. Fencing

1. In urban areas and in areas where by-laws so require, a lot shall be fenced off from roads when not fully developed right up to the road line. The municipality may also require the lot to be fenced off from the neighbouring lot. When a fence is required pursuant to the second sentence, section 8 of the Act of 5 May 1961 relating to fences between neighbouring properties shall apply with regard to sharing of costs.

The municipality may also require lots to be fenced off from roads outside urban areas.

The municipality may require hedges or other planting instead of fences facing a road.

The Municipal Council may lay down rules concerning the design of fences and other forms of enclosure. Section 74, subsection 2, applies correspondingly.

2. The municipality may grant exemption from the obligation to fence off a lot pursuant to subsection

1. Moreover, the municipality may prohibit fences for blocks of apartments and within common areas and areas belonging to row houses. The exemption from or prohibition against fencing here mentioned does not apply when a roads authority finds that fences are needed pursuant to section 44 of the Public Roads Act of 21 June 1963.

Section 104. Tidiness and use of undeveloped land. Safety measures in connection with structures, etc.

In urban areas, undeveloped land shall be kept tidy and in proper condition. The municipality may prohibit the use of undeveloped land for storage or other purposes, if in the opinion of the municipality such use would be very unsightly or would cause significant inconvenience to other persons. In cases where conditions connected to storage, other use or the terrain in the vicinity of the building may make it dangerous to be present or move about, the municipality may order the owner to implement the necessary safety measures.

Section 105. Lighting and cleaning, etc.

The municipality may lay down provisions concerning lighting and cleaning of yards, passages, stairways, and lighting and ventilation pits, and for the placing and design of house numbers.

Section 106. Technical installations

1. Technical installations shall be built or installed, operated and maintained in such a way that requirements concerning health, the environment, safety and energy-saving are complied with. The owner of the installation shall ensure that inspections are conducted and that the necessary repair and maintenance work is carried out by qualified personnel.

54

2. If, in the opinion of the municipality, any such installation as is mentioned in subsection 1 causes

unnecessary nuisance to the surroundings, the owner is obliged when so ordered by the municipality to take the necessary measures, including increasing the height of a chimney if necessary. When special circumstances make this reasonable, it may be decided by judicial assessment that the costs of such measures shall be paid wholly or in part by the owner of other property that has caused the order to be given.

If a permit has been granted for the installation pursuant to the Pollution Control Act, the provisions of the Pollution Control Act shall apply instead of the provisions of the first paragraph.

3. In the case of a chimney that abuts on a neighbour's property, the neighbour may not object to the chimney being attached to a wall or the roof of his property, or to access across his roof for the purpose of cleaning the chimney.

Any compensation shall be determined by judicial assessment.

Section 106 a. Lifts, escalators and moving pavements

1. Lifts, escalators and moving pavements shall be so designed, and the operation of such installations shall be so safe, that use of the installation cannot cause injury to persons. The owner of the installation is responsible for ensuring that installations that are in use are in proper operating order.

2. The owner of the installation shall ensure that the installation is inspected and controlled for safety and that the necessary maintenance and repairs are carried out by qualified personnel. The municipality shall be informed of the system of inspection and safety control for each individual installation.

The municipality may carry out safety control of the installation when it is in operation. Such control may also be carried out by the Ministry or whomsoever the Ministry so authorizes.

3. A municipality that does not itself employ qualified personnel to deal with applications for an installation permit, to control the installation work or to control installations that are in operation, shall employ professional assistance. The owner of the installation may be required to pay the costs of such assistance.

The provisions of sections 77, 87, 89, 91, and of Chapters XVI, XVIII and XIX shall also apply to the extent they are appropriate.

4. The Ministry may by regulations make further provisions, inter alia, concerning installation, concerning inspection, safety control and repair of installations that are in operation, concerning qualification requirements for responsible applicants/designers, responsible contractors and inspection and control personnel, concerning the duties of the owners of installations and

concerning the tasks of the municipality.

The Ministry may by regulations make provisions

- a. concerning requirements to make the installation safe in order to prevent damage to property
- b. to the effect that buildings or other permanent structures and installations of a special nature or height shall be planned and erected with lifts in order to ensure suitable routes of communication and
- c. to the effect that the provisions applying to lifts, escalators and moving pavements shall wholly or partly also apply to other permanent lift installations.

Section 107. Signs and advertisements

Signs, advertising devices etc. shall be approved by the municipality before they are erected, unless notification of such matters may be given pursuant to section 86 a. When deciding whether to grant approval or whether it shall be required that such notification as mentioned shall be submitted to the municipality as an application pursuant to section 94, cf. section 86 a, first 55

paragraph, letter a, consideration shall be given to whether the sign or advertising device will be unsightly or disturbing in itself or in relation to the surroundings or to traffic.

Unless this is prevented by permission which has been granted for a specific period of time, the municipality may order the removal or alteration of any such device as mentioned in the first paragraph, when, in the opinion of the municipality, it contravenes the above requirement. The municipality may in all cases order the removal of any device that is presumed to entail a hazard.

Section 108. The duty of other authorities to report

If a person carrying out a fire inspection or any other official inspection discovers any matter that contravenes this Act, regulations or by-laws, the person responsible for the proceedings shall report the matter to the municipality without delay.

Section 109. Fees

A scale may be established for fees payable to the municipality for dealing with applications for division of land, permission, inspection, issue of certificates and other work which the municipality

is obliged to carry out pursuant to this Act, regulations or by-laws. The fee may include the cost of any necessary use of professional assistance pursuant to section 97, subsection 2, first paragraph. The developer may himself arrange for the necessary surveys. A scale may also be established for fees for transcripts and certificates from the special courts of assessment. The scales of fees shall be

decided by the Municipal Council itself.

Public services as mentioned in the first paragraph, first and second sentences, may be made subject to the condition that a fee has been paid.

The owner shall pay a fee to the appropriate authority to cover the cost of processing applications for permission for operation and for operational control. A fee for operational control may be covered partly or wholly by an annual fee.

CHAPTER VIII. PENAL LIABILITY

Section 110. Fines may be imposed on any person who wilfully or negligently:

1. designs or carries out a project in contravention of provisions made in or pursuant to this Act which may lead to or has led to injury to persons or significant material damage,
2. carries out a project or has a project carried out without obtaining the required permission pursuant to section 93, cf. section 96, or in contravention of the conditions for such permission, or a project that contravenes provisions made in or pursuant to sections 81, 85, 86 a or 86 b,
3. uses or allows use of a building or part of a building, structure or land without obtaining the necessary permission pursuant to section 93, or in contravention of provisions made in or pursuant to sections 81, 85, 86 a or 86 b, or without being granted dispensation pursuant to section 7 of this Act for a project or use in contravention of the land-use part of the municipal master plan, a zoning plan or a building development plan, or of sections 17-1, 31 or 33 of this Act,

4. designs, carries out a project or has a project carried out without the work being supervised by a responsible designer who has been approved pursuant to section 93 b, or a responsible contractor who has been approved pursuant to section 98,

5. uses or allows use of a building etc. as mentioned in section 99, without obtaining the necessary certificate of completion or provisional permission for use or necessary permission for operation,

56

6. carries out control of a project in contravention of the provisions made for this purpose in or pursuant to this Act.

7. gives incorrect or misleading information to the planning and building authorities or the central approval body.

Section 111. Fines may be imposed on any person who wilfully or negligently:

1. despite a written order fails to comply with the conditions for temporary dispensation pursuant to

section 7,

2. puts a CE-marking on any product without the conditions for doing so being fulfilled, or who otherwise does not provide information or fails to allow the supervisory authority access to any product, premises, land or other area which is deemed necessary in order to carry out the supervision. Any person who aids or abets the sale of such a product shall be liable to the same penalty,

3. despite a written order fails to fulfil the obligation pursuant to section 89, first paragraph, first sentence, to maintain a building or installations in a proper state,

4. fails to comply with a written order issued pursuant to section 91 concerning removal of a building or remains of a building or installation, or concerning clearing the lot,

5. despite a written order fails to fulfil the obligation pursuant to section 100 to take safety measures,

6. fails to comply with a written order issued pursuant to section 106, subsection 2, concerning taking measures to reduce nuisance from technical installations.

Section 112. Fines may be imposed on any person who wilfully or negligently fails to comply with:

1. orders or prohibitions contained in this Act, regulations or by-laws, or

2. any special order or prohibition issued pursuant to any such provision, if the municipality has first notified him in writing that he may become liable to a penalty if the matter is not remedied within a specified time limit, and this time limit is exceeded.

CHAPTER XIX. UNLAWFUL CONSTRUCTION WORK ETC.

Section 113. Stopping unlawful work and cessation of unlawful use. Removal or remedying of unlawfully executed work

In the case of any matter that contravenes provisions made in or pursuant to this Act, the planning and building authorities may order the person responsible to remedy such matter within a time limit and also prohibit the continuation of such activity. If necessary, the planning and building authorities may require assistance from the police to enforce an order to stop the work or to discontinue use. When an order is issued, a time limit shall be set for compliance with it, and notification shall be given that the decision may be followed up by the issue of a writ that may have

the effect of a legally enforceable judgment.

The planning and building authorities may not institute legal proceedings pursuant to this section before a writ pursuant to section 114 is issued.

57

Section 114. Writ concerning the obligation to comply with an order or prohibition

The planning and building authorities may issue a writ against any person who within a fixed

time limit fails to comply with an order or prohibition issued pursuant to this Act. If more than six months have elapsed since the order or prohibition was issued, the person to whom the writ is addressed shall be given an opportunity to express an opinion before the writ is issued. The writ shall provide information concerning the provisions of the second paragraph and shall, as far as possible, be served on the person to whom it is addressed.

The person to whom the writ is addressed may institute legal action against the public authorities in order to have the writ tested in court. If such proceedings have not been instituted within 30 days of service, the writ shall have the same effect as a legally enforceable judgment and

may be executed pursuant to the rules for judgments.

The writ cannot be appealed against.

Section 115. Enforcement

If an order in a legally enforceable judgment or in a writ that is equivalent to such a judgment is not complied with, the planning and building authorities may have the necessary work carried out at the expense of the person at whom the judgment or the writ is directed, without requiring any court order pursuant to section 13-14 of the Enforcement Act.

An order given by the planning and building authorities may be enforced pursuant to the provisions of section 13-14 of the Enforcement Act without requiring a judgment or writ, when it concerns matters entailing a hazard for those frequenting the building or others, if the order is not complied with within a fixed time limit. An order given by the municipality constitutes special grounds for enforcement if the order concerns matters entailing a hazard for those frequenting the building or others and the order is not complied with within a fixed time limit. The same applies when a temporary dispensation pursuant to section 7 is withdrawn, or when the work required to be

carried out as a condition for provisional permission for use pursuant to section 99, subsection 2, has not been done, or an order to remove or remedy signs etc. pursuant to sections 86 a and 107 has

not been complied with within a fixed time limit.

Section 116. Compensation

Any person who pursuant to this Act is ordered to remove or remedy any matter contravening provisions made in or pursuant to this Act has the right to compensation from the public authorities

when the work has been carried out in compliance with permission granted pursuant to section 93, provided that he, and as the case may be anyone who has acted on his behalf, has proceeded in a proper manner and has acted in good faith, and the error was clearly apparent in the application.

Section 116 a. Coercive fine

In the case of any matter that contravenes provisions made in or pursuant to this Act, the planning and building authorities may impose a coercive fine in order to enforce any order or prohibition they have issued within a specific time limit. The coercive fine may be imposed simultaneously with an order to remedy the matter and in that case runs from the expiry of the time

limit for such a remedy. When a coercive fine is not imposed simultaneously with the order, a new

time limit may be fixed if the order is not complied with. It may be determined that the fine shall run as long as the unlawful matter continues, and/or that it shall be paid as a single payment. The coercive fine shall be imposed on the person who is responsible for the offence, and shall accrue to

58

the municipality. Any fine imposed is enforceable by execution. The authority concerned may reduce or waive the fine imposed when there are special reasons for doing so.

116 b. Reasonableness and co-ordination

Any sanctions imposed shall be in reasonable proportion to the offence. If several different

kinds of sanctions are imposed for the same offence, these must be co-ordinated so that the offence

is not penalized in an unreasonable manner. When imposing sanctions, special consideration shall be given to the degree of possible negligence and to the seriousness of and possible gain from the offence.

If the planning and building authorities find that the offence is of trifling significance, they may refrain completely from subjecting it to sanctions. A decision to this effect is not to be regarded as an individual decision.

CHAPTER XX. TRANSITIONAL PROVISIONS

Section 117. (Repealed by the Act of 11 June 1993 No. 85.)

Section 118. Temporary by-law concerning anchoring and mooring of leisure craft etc.

For a period of 10 years from the date this Act comes into force, outside the harbour districts established pursuant to the Act of 8 June 1984 No. 51 concerning harbours and fairways, further provisions may be made by by-laws concerning anchoring, mooring etc. of houseboats or similar contrivances as well as the positioning of private buoys and other private mooring devices along the coast nearer than 100 m from land measured at normal high tide, or in watercourses up to 100 m

from the shoreline measured horizontally at normal flood water level. The provisions may also include a prohibition on anchoring, positioning etc. of the contrivances mentioned in the preceding sentence.

Section 119. Decisions, etc. pursuant to earlier legislation

1. Plans, decisions, by-laws and regulations laid down pursuant to earlier legislation that are repealed by section 123 shall continue to apply insofar as they do not contravene provisions made in or pursuant to this Act. When this Act comes into force, the by-laws concerning general plans passed pursuant to the Building Act, and by-laws under section 82 of the Building Act concerning sports cabins etc. with the exception mentioned in the second paragraph, third sentence, and with the exception of by-laws under section 82 concerning a prohibition on building and division of property, shall cease to have effect. The last mentioned by-laws shall apply until the municipality has adopted the land-use part of the municipal master plan. By-laws passed pursuant to the Building Act concerning agricultural and forestry buildings (section 81), other permanent structures and installations (section 84) and temporary and transportable structures and installations and sheds and storage (section 85) shall also cease to have effect.

A zoning plan that is finally adopted before this Act comes into force shall have the same effect as a zoning plan pursuant to this Act. An approved shore plan/mountain plan pursuant to the Act concerning planning in shore and mountain areas may be implemented after this Act comes into force. The same applies to an approved lay-out plan in accordance with a by-law under section 82 of the Building Act, when implementation of the plan has been started before 59

this Act comes into force. Alteration of an already approved shore plan/mountain plan must take place in accordance with the provisions concerning zoning plans.

In the case of zoning plans that are finally adopted before this Act comes into force, the time limit for expropriation mentioned in section 31, subsection 2, begins to run from the date this Act comes into force.

A road plan that has been approved in accordance with regulations made pursuant to section 12 of the Public Roads Act may be implemented after this paragraph comes into force.

2. - - -

Section 120. Final processing of proposed plans

1. Proposed zoning plans that have been presented for public inspection before this Act comes into force may be finally processed pursuant to the rules that applied when the plans were presented.

The same applies to proposals for renewal decisions put forward by the Municipal Executive Board pursuant to the Act of 28 April 1967 relating to renewal of urban areas and to renewal decisions that have not been finally confirmed when this Act comes into force.

2. In the case of areas where, before this Act comes into force, limits and guidelines for planning have been established pursuant to previous section 7 of the Act of 10 December 1971 No. 103 relating to planning in shore and mountain areas, planning may take place in accordance with section 7 ff. of the previous Act.

3. Private proposals for zoning plans received by the Standing Committee for Planning Matters before this Act comes into force shall be processed as stipulated in section 27, subsection 2, of the Building Act.

4. Proposals for general and detailed plans that were presented for public inspection in accordance with regulations made pursuant to section 12 of the Public Roads Act, may be finally processed in accordance with the provisions of the regulations also after they have been repealed.

Minor alterations to detailed plans and to plans previously adopted pursuant to regulations as mentioned in the first paragraph may, to the extent necessary, be implemented in accordance with the provisions of the regulations concerning alterations to detailed plans, also after the regulations have been repealed.

Section 120a. (Repealed by the Act of 24 September 2004 No. 72.)

Section 121. Further provisions concerning the effects of commencement of this Act

1. This Act and regulations that apply when it comes into force are applicable to all work and projects that are initiated after the Act comes into force.

2. The Act also applies to work and projects initiated before the Act comes into force, if the application of the new rules will not disturb the part of the work or the project that has been carried out. If this is the case, a demand may be made for this issue to be decided by judicial assessment.

CHAPTER XXI. COMMENCEMENT, REPEAL AND AMENDMENT OF OTHER ACTS

Section 122. Commencement

This Act comes into force from the date the King decides.

60

Section 123. Repeal and amendment of other Acts

When this Act comes into force, the following statutes and provisions are repealed or amended:

Annex 3

Law, published 13.03.1981

This document was published 13.03.1981 by Ministry of the Environment

Act of 13 March 1981 No.6 concerning protection against pollution and concerning waste **The Ministry of the Environment**

Chapter 1. Introductory provisions

§ 1. Purpose of the Act

The purpose of this Act is to protect the outdoor environment against pollution and to reduce existing pollution, to reduce the quantity of waste and to promote better waste management.

The Act shall ensure that the quality of the environment is satisfactory, so that pollution and waste do not result in damage to human health or adversely affect welfare, or damage the productivity of the natural environment and its capacity for self-renewal.

§ 2. Guidelines

The Act shall be implemented in accordance with the following guidelines:

1. Efforts shall be made to prevent any occurrence or increase of pollution, and to limit any pollution that does occur. Similarly, efforts shall be made to avoid waste problems. The Act shall be used to achieve a level of environmental quality that is satisfactory on the basis of an overall evaluation of human health and welfare, the natural environment, the costs associated with any measures implemented and economic considerations.
2. The pollution control authorities shall coordinate their activities with the planning authorities in such a way that land-use planning legislation together with this Act is used to avoid and limit pollution and waste problems.
3. Efforts to avoid and limit pollution and waste problems shall be based on the technology that will give the best results in the light of an overall evaluation of current and future use of the environment and economic considerations.
4. Waste shall be managed in such a way as to minimize damage and nuisance. Waste shall be recovered when this is appropriate on the basis of an evaluation of environmental and natural resource considerations and economic factors.
5. The costs of preventing or limiting pollution and waste problems shall be met by the person responsible for the pollution or waste.
6. Pollution and waste problems resulting from activity in Norwegian territory shall be counteracted to the same extent irrespective of whether the damage or nuisance arises within or outside Norway.

§ 3. General provisions relating to the scope of the Act

The Act applies to pollution and waste in the outdoor environment. The Gene Technology Act applies to the release of genetically modified organisms and the disposal of such organisms as waste.

Subject to any restrictions deriving from international law, this Act applies:

1. to sources of pollution and waste and sources of waste within the realm,
2. to any threat of pollution within the realm,
3. to sources of pollution or any threat of pollution within the Economic Zone of Norway if the source of pollution is a Norwegian vessel or installation, or otherwise to the extent decided by the King. The application of the Act to exploration for and production and utilization of natural subsea resources on the Norwegian part of the continental shelf, including decommissioning of facilities, is governed by section 4.

The Act applies to Svalbard, Jan Mayen and the Norwegian dependencies to the extent decided by the King. For these areas, the pollution control authority may lay down any amendments to the Act required by local circumstances.

Special rules apply to liability for pollution damage, cf. section 53.

§ 4. Application of the Act to activity on the continental shelf

The provisions of this Act also apply, subject to any restrictions deriving from international law and from the Act itself (cf. Chapter 8), to exploration for and production and utilization of natural subsea resources on the Norwegian part of the continental shelf, including decommissioning of facilities. The provisions of section 7, first paragraph, cf. Chapter 3, on the duty to obtain a permit and of section 9 on regulations nevertheless apply only to those aspects of such activity that regularly result in pollution. Nor do the provisions of section 7, second paragraph, cf. fourth paragraph, apply to measures to prevent or stop acute pollution.

The pollution control authority may issue further regulations relating to waste from such activity on the continental shelf as is mentioned in the first paragraph. As regards measures to clean up waste, the provisions of section 74, cf. section 7, apply correspondingly instead of section 37.

The pollution control authority may by regulations or individual decisions determine in cases of doubt what is to be regarded as aspects of an activity that regularly result in pollution, and may grant exemptions from the first paragraph.

§ 5. Pollution from transport

For pollution from roads, railways, etc., harbours and airports, this Act applies to the extent decided by the pollution control authority.

For pollution from individual means of transport, the provisions made in or pursuant to the Product Control Act, the Road Traffic Act, the Seaworthiness Act, the Harbour Act, the Aviation Act and the Railways Act apply instead of the provisions of this Act.

Regardless of the provision of the second paragraph, the second and fourth paragraphs of section 7, Chapter 6 and sections 74, 75, 76 and 77 of this Act apply correspondingly unless such pollution must be regarded as permitted pursuant to other legislation. The provisions of Chapter 7, section 74 and Chapter 10 apply to the implementation of these provisions and any contravention of them.

Restrictions on the application of the Act pursuant to this section apply only insofar as it is not otherwise provided in Chapter 8.

Chapter 2. General provisions relating to pollution

§ 6. What is meant by pollution

For the purpose of this Act, pollution means:

1. the introduction of solids, liquids or gases to air, water or ground,
2. noise and vibrations,
3. light and other radiation to the extent decided by the pollution control authority,
4. effects on temperature

which cause or may cause damage or nuisance to the environment.

The term pollution also means anything that may aggravate the damage or nuisance caused by earlier pollution, or that together with environmental impacts such as are mentioned in items 1 to 4 causes or may cause damage or nuisance to the environment.

§ 7. Duty to avoid pollution

No person may possess, do, or initiate anything that may entail a risk of pollution unless this is lawful pursuant to section 8 or 9 or permitted by a decision made pursuant to section 11.

If there is a danger of pollution contrary to this Act or decisions made pursuant thereto, the person responsible for the pollution shall ensure that measures are taken to prevent such pollution from occurring. If pollution has already occurred, the said person shall ensure that measures are taken to stop or remove the pollution or limit its effects. The person responsible also has a duty to take steps to mitigate any damage or nuisance resulting from the pollution or from measures to counteract it. The duty laid down in this paragraph applies to measures that are in reasonable proportion to the damage and nuisance to be avoided.

The provisions of the second paragraph also apply to pollution that is permitted pursuant to section 11 if it is clear that the decision may be reversed pursuant to section 18, first paragraph, item 1 or 2. The same applies if it is clear for the same reasons that pursuant to section 9, third paragraph, exemptions may be granted from regulations permitting pollution.

The pollution control authority may order the person responsible to implement measures pursuant to the second paragraph, first to third sentences, within a specified time limit.

§ 8. Limitations on the duty to avoid pollution

Ordinary pollution from

1. fisheries, agriculture and forestry, etc.,
2. housing, holiday homes, offices, business premises or assembly rooms, schools, hotels and warehouses, and the like,
3. temporary construction activity

is permitted pursuant to this Act insofar as no special regulations have been issued pursuant to section 9. Applications must nevertheless be submitted for permits for discharges of sanitary waste water unless otherwise provided by regulations.

The provisions of the first paragraph apply correspondingly to the activities of the armed forces. The Act applies in full to pollution from permanent installations belonging to the armed forces that are not primarily used for combat purposes.

Pollution that does not involve significant damage or nuisance may take place without a permit pursuant to section 11.

§ 9. Regulations relating to pollution

The pollution control authority may issue regulations laying down:

1. emission limit values for types of pollution that shall be permitted or laying down that pollution shall be prohibited completely or at certain times,
2. threshold limit values for the occurrence of certain substances, noise, vibrations, light and other radiation in the environment, and the measures that shall be taken if these values are exceeded,
3. how permanent and temporary installations shall be set up and how an enterprise shall be managed to prevent pollution,
4. quality requirements for pollution control equipment and a requirement that such equipment must not be sold without being approved by the pollution control authority,
5. that personnel operating an enterprise that may involve pollution shall have specific qualifications.

Regulations issued pursuant to items 1-3 may lay down that the said regulations shall apply wholly or partly and on further conditions instead of permits granted pursuant to section 11. If it is necessary to apply for a permit pursuant to the regulations, the provisions of Chapter 3 apply. The conditions that may be laid down in individual permits, cf. section 16, may instead be laid down in regulations pursuant to this section.

The pollution control authority may in individual cases grant exemptions from regulations that permit pollution if the conditions mentioned in section 18, first paragraph, are fulfilled or if the regulations provide the authority for this.

The scope of regulations issued pursuant to this section may be restricted to specific geographical areas.

§ 10. Relationship to the Neighbouring Properties Act, etc

The provisions of sections 6, 7 and 8 of the Neighbouring Properties Act relating to notification and judicial assessment do not apply to pollution that requires a permit pursuant to section 11. The same condition may be laid down in regulations issued pursuant to section 9, second paragraph.

If pollution is permitted pursuant to section 11 or pursuant to regulations that lay down that sections 6, 7 and 8 of the Neighbouring Properties Act do not apply, no remedy for such pollution may be claimed pursuant to section 10 of the Neighbouring Properties Act. Even if damage or nuisance is permitted pursuant to this Act, such permission does not entail exemption from the duty to pay compensation or the duty to make payments pursuant to the Neighbouring Properties Act.

The Neighbouring Properties Act applies in full to damage or nuisance other than that caused by pollution.

Chapter 3. Permits for any activity that may cause pollution. Environmental impact assessment

§ 11 Special permit for any activity that may cause pollution

The pollution control authority may on application issue a permit for any activity that may lead to pollution. In special cases, the pollution control authority may issue such a permit without the submission of an application, and may in such a permit make orders that replace conditions pursuant to section 16.

The pollution control authority may issue regulations requiring that any person wishing to engage in certain types of activities that by their nature may lead to pollution shall apply for a permit pursuant to this section.

If possible, pollution problems shall be solved for larger areas as a whole on the basis of general plans and local development plans. If an activity will conflict with final plans drawn up pursuant to the Planning and Building Act, the pollution control authority shall only grant a permit pursuant to the Planning and Building Act with the consent of the planning authorities.

When the pollution control authority decides whether a permit is to be granted and lays down conditions pursuant to section 16, it shall pay particular attention to any pollution-related nuisance arising from the project as compared with any other advantages and disadvantages so arising.

§ 12. Content of the application

An application for a permit pursuant to section 11 shall contain any information necessary to evaluate whether a permit should be granted and which conditions should be laid down. The pollution control authority may by regulations or in individual cases lay down which information or investigations must be provided by the applicant.

§ 13. Duty to send notification and carry out environmental impact assessment for any activity that may involve major pollution problems

Any person that is planning any activity which may involve serious pollution at a new site or significant developments of a new character at a site where there is existing activity shall at an early stage of the planning process send notification to the pollution control authority. The pollution control authority will issue further regulations relating to the duty to send notification.

The pollution control authority may decide that any person planning any activity for which notification is mandatory shall carry out an environmental impact assessment to reveal any effects the pollution will have. The environmental impact assessment shall normally include a study of:

1. which types of pollution the activity will generate during normal operations and in the event of all conceivable types of accidents, and the likelihood of such accidents,
2. what short- and long-term effects the pollution may have. If necessary, studies shall be made of natural conditions in the areas that may be affected by pollution. In particular, it shall be **ascertained how pollution will affect people's use of the environment and who will suffer particular nuisance** as a result of pollution,
3. alternative locations, production processes, purification measures and ways of recovering waste that have been evaluated, and reasons for the solutions chosen by the applicant,
4. how the activity will be integrated into the general and local development plans for the area, and if relevant, how it will restrict future planning.

The pollution control authority may decide when the environmental impact statement shall be available and what it shall include.

§ 14. The environmental impact statement is public

When an environmental impact statement pursuant to section 13 is available, any person is entitled to examine it at the premises of the person who has a duty to provide notification or the competent pollution control authority. The pollution control authority may decide that parts of the statement shall be made public before the whole statement is available.

If the pollution control authority has a duty of secrecy pursuant to section 13 ff of the Public Administration Act concerning certain information, such information may also be withheld by the person who has a duty to provide notification. The same applies to information that comes within the scope of section 6, item 1 of the Freedom of Information Act.

The provisions of section 8 of the Freedom of Information Act on how a document is to be made known and of section 9 on appeals against decisions not to make a document available apply both when an application for an environmental impact statement to be made public is made to the pollution control authority and when it is made to the person who has a duty to provide notification. Appeals against decisions made by the person who has a duty to provide notification should be addressed to the pollution control authority.

§ 15. Public hearing on an activity that may result in major pollution problems

When an environmental impact statement pursuant to section 13 is available, the pollution control authority, in cooperation with the applicant, shall hold a public hearing to discuss the possible impact of

the activity as regards pollution. The hearing shall be held well before a decision is made regarding the application, and shall be announced locally. At the hearing, the applicant and the pollution control authority shall give an account of the project and its possible impact as regards pollution.

The pollution control authority may dispense with a hearing as mentioned in the first paragraph if the project as planned will not result in serious pollution. The same applies if the matter has been adequately reviewed by means of a public hearing held in connection with the evaluation of the project pursuant to other legislation, or if a public hearing is considered to be unnecessary for other reasons.

§ 16. Conditions laid down in a permit

Further conditions may be laid down in a permit issued in accordance with this Act or regulations pursuant thereto, to prevent pollution from resulting in damage or nuisance, and to promote efficient use of energy used in or generated by an installation. This includes conditions relating to protection and clean-up measures, waste recovery and the period of validity of the permit.

If pollution from an activity will constantly preclude or impede use of the environment for a particular purpose, a condition may be imposed that measures shall be taken to promote this purpose, or that financial support shall be provided towards such measures. A condition may also be imposed requiring the polluter, by agreement or expropriation, to acquire areas that become heavily polluted or reserve them for special purposes.

§ 17. Purchase of real property, etc.

If the owner so requires, the pollution control authority may determine that the person responsible for the pollution shall, in return for compensation payable in accordance with an official assessment, purchase real property if the pollution will make the property unsuitable for the purpose for which it is used.

The provision of the first paragraph applies correspondingly in the case of leases, agricultural leases or other special rights of use relating to real property. Purchase orders may apply to part of a property or rights to real property.

Orders pursuant to the first and second paragraphs may also be made after a permit has been granted in respect of pollution. When the amount of the compensation is determined, the provisions of the Compensation for Expropriation of Real Property Act of 6 April 1984 No. 17 apply correspondingly. In assessing the amount, deductions shall be made for damage and nuisance that the owner or other holder of rights must accept without compensation pursuant to section 2 of the Neighbouring Properties Act. The costs of the official assessment shall be borne by the person responsible for the pollution. The same applies in the event of re-assessment unless the court on special grounds decides otherwise.

§ 18. Alteration and withdrawal of a permit

The pollution control authority may rescind or alter the conditions attached to a permit issued in accordance with this Act or regulations pursuant thereto, or impose new conditions, and if necessary withdraw the permit, if

1. the damage or nuisance caused by the pollution proves to be significantly greater than or different from that anticipated when the permit was issued,
2. the damage or nuisance can be reduced without unreasonable cost to the polluter,
3. new technology makes substantial reduction of the pollution possible,
4. the conditions laid down in the permit are not necessary for the purpose of counteracting pollution,
5. the advantages to the polluter or others of relaxing or rescinding conditions will be substantially greater than the damage or nuisance to the environment that will result, or
6. this otherwise follows from the rules for reversing decisions that are currently in force.

A permit may in any case be withdrawn or altered if it is more than 10 years since it was issued.

In making decisions pursuant to this section, the costs that alteration or reversal will involve for the polluter, and any other advantages and disadvantages the alteration or reversal will involve, shall be taken into account.

§ 19. Duty to provide notification when equipment is replaced or pollution increases

Any person that holds a permit pursuant to section 11 and plans major replacement of equipment that will make it technically possible to prevent pollution in a significantly better manner than when the permit was issued shall give advance notification to the pollution control authority.

The pollution control authority may issue further regulations relating to the duty to provide notification pursuant to the first paragraph.

§ 20. Closure and stoppage of operations

If a facility is closed or an operations are stopped, the owner or user shall take the action necessary at any given time to prevent pollution. If the facility or operations may result in pollution after closure or stoppage, the pollution control authority shall be given reasonable prior notice of this.

The pollution control authority may further determine which measures are necessary to prevent pollution. The authority may order the owner or user to provide a guarantee for payment of future expenses and any liability for damages that may arise.

Any person that wishes to start up an enterprise which has a permit pursuant to section 11 after a closure or stoppage of more than two years must give the pollution control authority notification of this. The authority will decide if whether an application for a new permit must be submitted before the enterprise is started up again.

The pollution control authority may issue further regulations relating to the duty to provide notification pursuant to the first and third paragraphs.

Chapter 4. Special provisions relating to waste water treatment installations, etc.

§ 21. Definitions

For the purpose of this Act, the term waste water treatment installation means an installation for the transport and treatment of waste water.

The term waste water means both sanitary and industrial waste water and storm water runoff.

§ 22. Requirements for the design of waste water treatment installations

The pollution control authority may by regulations or in individual cases lay down further requirements for sewers, including whether they shall be closed and watertight. The pollution control authority may decide whether all waste water shall be transported in a common sewer or whether separate sewers shall be required for different types of waste water.

When sewers are relaid or renovated, the pollution control authority may require the owners of connected service pipes to undertake corresponding relaying or renovation. The pollution control authority may also require the relaying or renovation of service pipes in other cases if special reasons so indicate.

A discharge permit for a waste water treatment installation may include the condition that the installation shall be constructed so that it can receive waste water from another municipality or another property. The extra costs this involves shall be paid by those who have the opportunity to be connected to the installation. If no agreement exists, the extra costs and their apportionment shall be determined by official assessment. The costs of the initial assessment shall be divided proportionally between the parties to the assessment who have the opportunity to be connected to the installation.

§ 23. Right and duty to be connected to existing waste water treatment installations

The pollution control authority may decide that waste water may be conducted through a waste water treatment installation belonging to another person.

The provisions of the Planning and Building Act apply to the duty to be connected up to existing sewers. However, decisions pursuant to the Planning and Building Act may be made by the pollution control authority.

If the connection is to a municipal sewer, a connection fee is payable pursuant to the Act of 31 May 1974 No. 17 relating to municipal water and sewage fees. If the connection is to a private waste water treatment installation, the owner of the installation may require the person in question to undertake or pay for any extensions of or alterations to the installation made necessary by the connection, or that security be provided for this purpose. The owner may also require the reimbursement of construction costs in accordance with the Planning and Building Act. The costs of the initial assessment shall be borne by the person that is connected to the installation.

§ 24. Operation and maintenance of waste water treatment installations

The municipality is responsible for the operation and maintenance of waste water treatment installations that are wholly or partly owned by the municipality. In the case of private waste water treatment

installations, the owner of the property for which the installation was originally built is responsible for operation and maintenance.

The pollution control authority may decide that persons other than those mentioned in the first paragraph shall be responsible for operation and maintenance, for instance that the municipality shall be responsible for private installations.

The pollution control authority may issue further regulations on the construction, operation and maintenance of waste water treatment facilities, including requirements relating to personnel.

§ 25. Costs relating to the construction, operation and maintenance of waste water treatment installations

Costs relating to the construction, operation and maintenance of waste water treatment installations operated by the municipality shall be borne by the municipality. The municipality may require its costs to be met in full or in part by collecting a fee in accordance with the Act of 31 May 1974 No. 17 relating to municipal water and sewage fees. The municipality may notwithstanding the second sentence claim refunds pursuant to Chapter VI of the Planning and Building Act.

§ 26. Municipal emptying of sludge from sludge separators (septic tanks), privies, etc.

The municipality shall arrange for the emptying of small waste water treatment plants such as sludge separators and sedimentation tanks for removal of sludge from sanitary waste water and storm water runoff. The same applies to collecting tanks for untreated sanitary waste water.

The municipality shall also provide the necessary facilities for emptying waste water from campers, leisure craft, etc.

The municipality shall arrange for the emptying of privies in built-up areas, and outside built-up areas to the extent decided by the municipality.

The provisions of section 30 on municipal waste collection and section 34 on waste management fees apply correspondingly to the emptying of sludge separators, privies, etc. The duties of the municipality pursuant to the first paragraph shall nevertheless apply both within and outside built-up areas.

If sanitary waste water is led through a sludge separator to a waste water treatment plant, the pollution control authority may require the sludge separator to be disconnected.

Chapter 5. On waste

§ 27. Definitions

For the purpose of this Act, the term waste means discarded objects of personal property or substances. Surplus objects and substances from service industries, manufacturing industries and treatment plants, etc., are also considered to be waste. Waste water and exhaust gases are not considered to be waste.

Household waste means waste from private households, including large objects such as furniture, etc.

Industrial waste means waste from public and private enterprises and institutions.

Special waste means waste that cannot appropriately be treated together with other household waste or industrial waste because of its size, and hazardous waste, i.e. waste that may cause serious pollution or involve a risk of injury to people and animals.

§ 28. Prohibition against littering

No person may empty, leave, store or transport waste in such a way that it is unsightly or may cause damage or nuisance to the environment. The provision of the first sentence also applies to wrecked ships and aircraft and other similar large objects.

The first paragraph does not preclude waste from being dealt with at waste storage sites or at waste treatment and disposal plants with permits pursuant to section 29, nor does it preclude waste from being delivered to such facilities.

Any person that has contravened the prohibition of the first paragraph shall arrange for the necessary clean-up measures.

§ 29. Requirements for waste treatment and disposal plants

Any person that operates a waste storage site or waste treatment and disposal plant that may result in pollution or be unsightly must have a permit pursuant to the provisions of Chapter 3. Conditions may be imposed in the permit, for instance as regards transport, treatment, recovery and storage of waste and measures to prevent the facility from becoming unsightly.

Section 10 of this Act applies correspondingly to waste storage sites and waste treatment and disposal plants that require a permit pursuant to the first paragraph above.

The municipality shall have waste storage sites or waste treatment and disposal plants for household waste and sewage sludge and has a duty to receive such waste and sludge. The pollution control authority may by regulations or in individual cases determine that the municipality shall also have facilities for special waste and industrial waste, and a duty to receive such waste. The pollution control authority may also lay down further conditions for such facilities.

§ 30. Municipal collection of household waste, etc.

The municipality shall make arrangements for the collection of household waste. The pollution control authority may by regulations or in individual cases order the municipality to introduce schemes for sorting waste. Such an order must be based on an overall evaluation of the costs that will be incurred and the environmental benefits that will be gained.

The municipality may issue regulations requiring that municipal waste collection shall apply only in built-up areas, that certain types of household waste shall be excluded from municipal waste collection, and that certain types of waste shall be kept separate. The municipality may on application exempt certain properties from the requirement for municipal waste collection.

The municipality may issue the regulations necessary to ensure appropriate and hygienic storage, collection and transport of household waste. No person may collect household waste without the consent of the municipality. In special cases, the pollution control authority may by regulations or in individual cases decide that the consent of the municipality is not necessary.

§ 31. Management of special waste

The pollution control authority may by regulations or in individual cases order a municipality to collect special waste, and may determine that each person has a duty to deliver special waste to the municipality or another waste recipient.

The pollution control authority may in individual cases or by regulations make decisions in order to ensure appropriate and proper storage, collection, transport and treatment of special waste, including a decision that no person may collect such waste without the consent of the pollution control authority.

§ 32. Management of industrial waste

Industrial waste shall be delivered to a lawful waste treatment and disposal plant unless it can be recovered or used in another way. The pollution control authority may consent to other forms of waste disposal on further conditions.

The pollution control authority may by regulations or in individual cases order the manufacturer to deliver industrial waste to a municipal waste treatment facility. The provision of section 31, second paragraph, applies correspondingly.

§ 33. Waste recovery and other treatment of waste

To solve or avoid waste and pollution problems, the pollution control authority may by regulations or in individual cases lay down that waste shall be recovered or treated in another way.

The pollution control authority may for example make decisions concerning:

- a. re-use,
- b. material recovery (recycling),
- c. energy recovery,
- d. destruction,
- e. collection, storage, sorting, etc.,
- f. binding goals for re-use, recovery, etc.

In making such decisions, due consideration shall be given to whether the overall environmental benefits are in reasonable proportion to the costs incurred, and to the costs of other methods of dealing with the waste.

Decisions such as are mentioned in the first paragraph may apply to any person that manufactures, imports, markets or uses products that generate waste and to any person that collects or possesses waste.

If no voluntary agreement is reached between the parties, a decision such as is mentioned in the first paragraph may also apply to any person that can use or treat waste from others if:

1. this is necessary to ensure satisfactory treatment of waste that may result in serious pollution or injury to health, or
2. such a decision is necessary to achieve satisfactory implementation of an organized system for the collection and treatment of waste.

Any person that delivers waste to another who pursuant to the fourth paragraph has a duty to receive it, shall indemnify the recipient and deliver the waste on terms that ensure the recipient reasonable remuneration for his work. If the value of the waste exceeds this amount, the recipient shall pay a reasonable sum for the waste. The parties may require the question of payment to be settled by arbitration pursuant to the Act of 13 August 1915 relating to judicial procedure in civil cases.

§ 34. Waste management fee

The municipality shall determine a fee to cover the costs associated with the waste sector, including collection, transport, reception, storage, treatment, control, etc. The costs shall be fully covered by the fee. The term costs includes both capital and operating costs. For waste which the municipality has a duty to collect, receive and/or treat pursuant to section 29, 30 or 31, the fee must not exceed the costs incurred by the municipality.

The municipalities should differentiate waste management fees in cases where this may contribute to waste reduction and promote recovery. The pollution control authority may issue regulations concerning the calculation of fees.

This provision does not apply to waste management pursuant to section 35.

The fee shall be paid by the owner of a property to which a waste collection scheme or scheme for emptying sludge separators, privies, etc. pursuant to this Act applies. However, if a property is leased for 30 years or more, the lessee shall pay the fee unless otherwise agreed. The same applies if the lessee is entitled to an extension of the lease, so that the total period of the lease exceeds 30 years.

Waste management fees with accrued interest and costs are secured by a statutory charge pursuant to section 6-1 of the Mortgages and Pledges Act. As regards the duty to pay interest on late payments, and the repayment and recovery of waste management fees, the provisions of sections 26 and 27 of the Act of 6 June 1975 No. 29 relating to municipal property tax apply correspondingly.

§ 35. Waste generated in connection with sales outlets, tourist facilities, excursion spots, etc.

Any person that runs a general store, petrol station, kiosk or similar sales outlet shall ensure that waste receptacles are provided near the sales outlet and that they are emptied. Any person that runs a camp site or other tourist facility also has a duty to provide waste receptacles. Any person that runs a facility such as is mentioned in the first and second sentences shall also undertake any necessary clearing up in the area.

The municipality shall provide waste receptacles at excursion spots and other heavily visited areas where waste is likely to be discarded, and shall arrange for them to be emptied. The area shall be cleared up to a reasonable extent in connection with emptying of the receptacles. The duty of the municipality pursuant to this paragraph does not apply if another person has duties pursuant to the first paragraph or to section 36.

The organizer of a meeting or other arrangement shall arrange for the area to be cleared up as necessary afterwards insofar as this is not the duty of a person that runs facilities such as are mentioned in the first paragraph.

The municipality may in individual cases issue the orders necessary for implementation of the provisions of the first and third paragraphs.

§ 36. Waste along public roads, etc

The public roads authorities shall provide waste receptacles along public roads outside built-up areas where road users are known to discard waste, and shall arrange for them to be emptied. The receptacles shall be placed in a way that is consistent with road safety. In connection with emptying of the receptacles, the public roads authorities shall undertake the necessary clearing up within the road boundaries insofar as this is not the duty of any person pursuant to the first and third paragraphs of section 35.

The pollution control authority may by regulations or in individual cases lay down that the owner of the road shall provide public toilets for road users if unsatisfactory conditions are otherwise liable to arise.

§ 37. Orders to clear up waste, etc., or to pay for it to be cleared up

The municipality may order any person that has discarded, emptied or stored waste in contravention of section 28 to remove it, clear it up within a specified time limit, or pay reasonable costs incurred by others in removing or clearing up the waste. Such an order may also be issued to any person that has contravened the first or third paragraphs of section 35 if this has resulted in the spread of waste.

The pollution control authority may also issue an order to any person that was the owner of a motor vehicle, ship, aircraft or other similar large object when it was discarded in contravention of section 28, or to any person that is the owner when the order is issued, to clear up and remove the said object.

If any person has asked the municipality to issue an order to clear up or pay costs pursuant to the first or second paragraph, the municipality's decision is considered to be an individual decision even if no such order is issued.

Chapter 6. Acute pollution

§ 38. Acute pollution

For the purpose of this Act, acute pollution means significant pollution that occurs suddenly and that is not permitted in accordance with provisions set out in or issued pursuant to this Act.

§ 39. Duty to provide notification

In the event of acute pollution or a danger of acute pollution, the nearest police authority shall be notified immediately.

The duty to provide notification pursuant to the first paragraph rests with the person responsible for the pollution. Other persons also have a duty to provide notification unless this is clearly unnecessary.

The pollution control authority may lay down further provisions relating to the notification of acute pollution by regulations or by approval of a contingency plan pursuant to section 41. These may for example lay down that other authorities than the police shall be notified, and that the notification rules shall apply to Norwegian vessels regardless of where they are.

§ 40. Duty to have an emergency response system

Any person engaged in any activity which may result in acute pollution shall provide the necessary emergency response system to prevent, detect, stop, remove and limit the impact of the pollution. The emergency response system shall be in reasonable proportion to the probability of acute pollution and the extent of the damage and nuisance that may arise.

The pollution control authority may by regulations or individual decision lay down further requirements relating to emergency response systems pursuant to the first paragraph. The emergency response system shall to the extent decided by the pollution control authority be adapted to the municipal and state emergency response systems for acute pollution.

§ 41. Contingency plans

The pollution control authority may by regulations or individual decision lay down that contingency plans shall be submitted for approval for any activity that may result in acute pollution. The plan shall provide guidelines for the action to be taken in the event of acute pollution and shall be updated as necessary.

The pollution control authority may lay down further conditions for approval of contingency plans. These may include a requirement for a contingency plan to be coordinated with plans for the response to emergencies other than acute pollution. The pollution control authority may issue orders concerning changes to approved contingency plans and if necessary withdraw its approval.

§ 42. Cooperation with regard to private emergency response systems

The pollution control authority may order any person engaged in any activity that may result in acute pollution to cooperate in the provision of an emergency response system. Such orders may include a requirement to draw up a joint contingency plan pursuant to section 41 and to maintain emergency equipment jointly.

The pollution control authority may require agreements on the establishment of separate emergency response organizations and other agreements on emergency response systems to be submitted for approval. If there is no agreement, the pollution control authority may make decisions concerning the organization of cooperation on emergency response systems and the distribution of the costs associated with such cooperation.

§ 43. Municipal and state emergency response systems

Municipalities shall provide for the necessary emergency response system to deal with minor incidents of acute pollution that may occur or cause damage within the municipality, and that are not covered by private emergency response systems pursuant to sections 40, 41 and 42.

The state shall provide for the necessary emergency response system to deal with major incidents of acute pollution that are not covered by municipal emergency response systems pursuant to the first paragraph above or by private emergency response systems pursuant to sections 40, 41 and 42.

The pollution control authority shall as far as possible ensure that private, municipal and state emergency response systems are coordinated in a national emergency response system.

§ 44. Municipal and intermunicipal contingency plans

The pollution control authority may require the submission of municipal contingency plans for approval and may by regulations or individual decision lay down further requirements for municipal emergency response systems.

The pollution control authority may by regulations or individual decision order municipalities to cooperate in the provision of emergency response systems for acute pollution, and may make decisions concerning intermunicipal contingency plans and on how the costs shall be split between municipalities.

§ 45. Governmental action control group to deal with major accidents

The King may appoint an action control group to deal with major accidents that may result in acute pollution. The group consists of representatives of the authorities involved and other persons appointed, and its task is to coordinate the efforts of the various authorities to deal with accidents. The group shall evaluate the measures taken by those responsible for dealing with an accident and if necessary wholly or partly assume command of the operation.

The King will lay down provisions relating to the composition of the governmental action control group, how it is to be convened, its authority and its activities.

§ 46. Operations to deal with acute pollution

In the event of acute pollution or a risk of acute pollution, the person responsible shall in accordance with section 7 initiate measures to avoid or limit damage and nuisance.

If the person responsible does not take adequate measures, the municipality concerned shall take steps to deal with the accident. The municipality shall notify the state pollution control authority, which will provide the necessary assistance.

In the event of major incidents involving acute pollution or a risk of acute pollution, the state pollution control authority may wholly or partly assume command of efforts to deal with the accident.

If there is extensive acute pollution or a risk of such pollution, the pollution control authority shall convene the governmental action control group pursuant to section 45.

§ 47. Duty to provide assistance

During municipal operations pursuant to this chapter, any person that pursuant to section 40 has a duty to provide an emergency response system shall, if so ordered by the municipality, place at the disposal of the municipality equipment and personnel belonging to the private emergency response system pursuant to sections 40, 41 and 42. On request, other municipalities shall provide assistance to the extent possible.

During state-run operations, any person that pursuant to section 40 has a duty to provide an emergency response system and any municipality shall, if so ordered by the pollution control authority, place at its disposal equipment and personnel belonging to emergency response systems pursuant to sections 40, 41, 42, 43 and 44. If there is a risk of very serious pollution damage, any person may be ordered to provide materiel or personnel for the purpose of dealing with the accident.

The provision of the second paragraph also applies to operations outside the borders of the realm. In such cases, the pollution control authority may also determine that equipment and personnel shall be placed at the disposal of the authorities of any other state to the extent otherwise provided by the second paragraph.

Any public authority shall to the extent that it is compatible with its other tasks provide assistance in the event of extensive incidents involving acute pollution.

Any person that has provided assistance pursuant to this section is entitled to remuneration in accordance with the provisions of the second paragraph of section 75.

Chapter 7. Inspection and control measures relating to pollution and waste

§ 48. The responsibilities of the pollution control authority

The pollution control authority shall be responsible for monitoring the general pollution situation and pollution from individual sources. The pollution control authority shall also be responsible for monitoring waste management.

The pollution control authority shall by means of advice, guidance and information seek to counteract pollution and waste problems and shall ensure compliance with the provisions of this Act and of decisions made pursuant thereto.

§ 49. Duty to provide information

On orders from the pollution control authority, any person that possesses, does, or initiates anything that may generate pollution or result in waste problems has a duty, notwithstanding any duty of secrecy, to provide the pollution control authority or other public bodies with any information necessary to enable them to carry out their tasks pursuant to this Act. If special reasons so indicate, the pollution control authority may require that information shall be provided by any person who works for the person that is subject to the duty to provide information pursuant to the first sentence.

Information as mentioned in the first paragraph may also be required from other public authorities, notwithstanding any duty of secrecy that otherwise applies.

Decisions made pursuant to the first or second paragraphs may be made by regulations or by individual decision.

§ 50. Right of inspection

The pollution control authority shall be given unimpeded access to property where pollution may occur or has occurred, or which is or may be exposed to pollution, if this is necessary for the exercise of its duties pursuant to this Act. The same applies to any enterprise that has resulted or may result in waste problems.

The pollution control authority may require documents and other material that may be of importance for the exercise of its duties pursuant to the Act to be submitted for its inspection.

Before inspection of an enterprise, the pollution control authority shall contact representatives of the management.

§ 51. Orders to carry out investigations

The pollution control authority may order any person that possesses, does, or initiates anything that results in or that there is reason to believe may result in pollution to arrange or pay for any investigations or similar measures that may reasonably be required in order to:

- a. determine whether and to what extent the activity results in or may result in pollution,
- b. ascertain the cause of or impact of pollution that has occurred,
- c. ascertain how the pollution is to be combated.

The provision of the first paragraph applies correspondingly to any activity that result in or may result in waste problems.

Orders pursuant to the first and second paragraphs may be laid down by regulations or in individual cases.

§ 52. Approval of laboratories and analytical methods

The pollution control authority may by regulations or individual decision lay down that investigations and analyses carried out in accordance with decisions made pursuant to this Act shall be carried out in the way decided by the pollution control authority or must be carried out by a person approved by the pollution control authority.

§ 52a. Fees

The pollution control authority may issue regulations relating to fees for dealing with applications for permits pursuant to this Act or regulations issued pursuant thereto, and for control measures that are carried out to ensure compliance with this Act or decisions pursuant thereto. The amount of the fees shall be such that the total fees do not exceed the costs incurred by the pollution control authority in connection with administrative proceedings or control measures.

Payment of such fees is enforceable by execution.

§ 52b. Internal control

The pollution control authority may issue regulations relating to internal control and internal control systems to ensure compliance with requirements laid down in or pursuant to this Act.

§ 52c. The EMAS scheme

The pollution control authority or the instance thereby authorised may issue regulations implementing the provisions of the EEA Agreement relating to voluntary participation by companies in the industrial sector in a Community eco-management and audit scheme (the EMAS scheme).

Decisions by the Brønnøysund Register Centre as to whether an organisation shall be registered or deleted from the register pursuant to Article 6 of the Council Regulation, and decisions by the Norwegian Metrology Service to grant accreditation of environmental verifiers, extend the scope of accreditation, or withhold, suspend or terminate accreditation pursuant to Article 4, paragraphs 4 and 5, may be appealed to the pollution control authority.

The appeals board shall have three members. The members and their personal deputies shall be appointed by the Ministry.

The pollution control authority may by regulations issue further provisions relating to the implementation of this section. As regards the handling of appeals against decisions made pursuant to the second paragraph, exemptions from section 33, second to fourth paragraphs, of the Public Administration Act may be laid down by regulations.

Chapter 8. Compensation for pollution damage

§ 53. Substantive scope

This chapter applies to the duty to pay compensation for pollution damage insofar as the question of liability is not separately regulated by other legislation or a contract.

The term pollution damage means damage, nuisance or loss caused by pollution (cf. section 6). Irrespective of what is decided pursuant to section 6, light or other radiation that causes or may cause damage, loss or nuisance to the environment is also regarded as pollution for the purpose of this chapter.

The provisions of this chapter apply correspondingly to damage, nuisance or loss caused by waste (cf. section 27).

Regardless of the provisions of or laid down pursuant to section 5, this chapter also applies to pollution and waste from permanent transport installations and from individual means of transport, cf. section 5, fourth paragraph.

§ 54. Geographical scope and choice of law

The provisions of this chapter apply to pollution damage that:

1. occurs in Norway or the Economic Zone of Norway,
2. occurs outside the areas mentioned in litra (a), if the damage is caused by an incident or activity within Norwegian sea or land territory.

Damage that does not come within the geographical scope set out in the first paragraph nevertheless comes within the scope of this chapter to the extent that the Norwegian law of damages shall be applied pursuant to the choice-of-law rules otherwise applicable.

In the case of measures to prevent or limit pollution damage, it is sufficient that damage may occur in an area to which this chapter applies.

The injured party may require the issue of compensation for pollution damage to be decided pursuant to the provisions applicable in the state where the polluting incident or activity took place.

Section 3, third paragraph, applies correspondingly.

§ 55. Person liable and basis of liability to pay compensation

The owner of real property, an object, an installation or an enterprise that causes pollution damage is liable to pay compensation pursuant to this chapter regardless of any fault on his part if the owner also operates, uses or occupies the property, etc. Otherwise, such liability rests solely with the person that actually operates, uses or occupies the property, etc, insofar as the damage is not due to matters for which the owner is also liable pursuant to compensation rules otherwise applicable.

Any person that by supplying goods and services, carrying out control or supervisory measures or similar means has indirectly contributed to pollution damage is liable only if he has done so intentionally or negligently. In evaluating fault, it shall be taken into account whether the claims the injured party may reasonably make in regard to the activity or service have been disregarded. However, this provision does not in any way restrict the liability that follows from the compensation rules otherwise applicable.

§ 56. Tolerance limits

Compensation for pollution that is permitted may only be claimed to the extent that the pollution is unreasonable or unnecessary pursuant to the provisions of section 2, second to fourth paragraphs, of the Act of 16 June 1961 No. 15 relating to the legal relationship between neighbouring properties.

Even if pollution damage in itself does not provide grounds for compensation pursuant to this chapter, it may be taken into consideration in the event of a claim for compensation pursuant to the Neighbouring Properties Act.

§ 57. Extent of liability

Liability pursuant to this chapter includes

1. compensation for financial losses resulting from pollution damage such as is mentioned in section 53,

2. compensation for damage, losses, nuisance or expenses incurred as a result of taking reasonable measures to prevent, limit, remove or mitigate pollution damage. Compensation may nevertheless not be claimed for expenses connected with measures against pollution that was permitted insofar as such compensation would clearly exceed the compensation that could have been claimed if the measures had not been implemented,
3. compensation for damage, loss or nuisance resulting from the fact that the pollution prevents or impedes the exercising of rights of common for commercial purposes,
4. compensation for damage, nuisance or losses in regard to other exercising of rights of common pursuant to the provisions of section 58,
5. compensation for loss suffered by an employee because the pollution results in work stoppages or curtailment of operations in an enterprise in which he is employed. Nevertheless, this does not apply if the enterprise as such cannot claim compensation for its loss because the loss is too remote and unforeseeable a consequence of the pollution.

§ 58. Restitutionary compensation to the general public in the case of damage that affects the exercising of rights of common for non-commercial purposes, etc.

Compensation may be claimed pursuant to this section for pollution that is not permitted and that hinders, impedes or limits the benefit of exercising rights of common for non-commercial purposes, provided that this applies to reasonable costs of restoring the environment so that rights of common can as far as possible be exercised as before.

Claims for compensation pursuant to the first paragraph shall be made by the municipal pollution control authority pursuant to section 81, first paragraph, litra c, if the pollution damage is restricted to the municipality. If compensation is claimed from the municipality, or damage has been caused in several municipalities, the claim shall be made by the county pollution control authority pursuant to section 81, first paragraph, litra b. If compensation is claimed from the county municipality, or damage has been caused in several counties, the claim shall be made by the state pollution control authority pursuant to section 81, first paragraph, litra a. The Ministry may lay down rules concerning which of the pollution control authorities mentioned in section 81, first paragraph, litra a and b, may put forward the claim for compensation.

A claim for compensation pursuant to the first paragraph may, irrespective of whether the claim is put forward by the pollution control authority, also be made by a private organization or an association with a legal interest in the matter.

If a party such as is mentioned in the third paragraph puts forward a claim pursuant to this section, the compensation awarded shall nevertheless accrue to the pollution control authority according to the provisions of the second paragraph.

The pollution control authority will make further decisions on how the compensation awarded is to be used. Claims may be submitted for necessary costs incurred by a private organization or the like to be covered from the amount awarded.

§ 59. Several possible causes of damage

Any person that causes pollution that alone or in combination with other causes of damage may have caused the pollution damage is regarded as having caused such damage unless it is established that another cause is more likely.

Any persons that cause pollution incidents which individually or together are sufficient to cause the pollution damage are jointly and severally liable pursuant to section 5-3 of the Damages Act.

If it can be established that other causes of damage have predominantly contributed to the pollution damage, liability for a less significant cause of damage may cease or be proportionately reduced to the extent this is reasonable. In evaluating this, the contribution of the person causing such damage to the pollution damage, the type and extent of the said person's activities and other circumstances shall be taken into account.

§ 60. Lump sum payment or payment by instalments

The provisions of section 16 of the Neighbouring Properties Act on lump sum payments or payment by instalments apply correspondingly to compensation payable pursuant to this chapter.

§ 61. Modification of liability

If the question of modification of the liability to pay compensation for damage done to real property or objects arises, the evaluation pursuant to section 5-2 of the Damages Act may take into account the fact that the property or object is particularly vulnerable.

§ 62. Use of compensation awarded for housing rented out for residential purposes

Compensation for pollution damage to an apartment rented out for residential purposes shall be used for protection against the pollution. To the extent that this is of little benefit to the tenants, the compensation may be used for other purposes that raise the standard of living or otherwise benefit the tenants.

The Ministry will issue further provisions relating to the implementation of the first paragraph, including the necessary rules of procedure.

§ 63. Duty to provide security, etc.

A permit granted in accordance with this Act or regulations issued pursuant thereto may include the condition that security shall be provided in respect of possible liability to pay compensation pursuant to this chapter.

The pollution control authority will decide what security shall be required.

The pollution control authority may issue regulations relating to the duty to provide security for specified types of activities.

The King may issue provisions concerning the establishment of separate compensation arrangements to cover claims of the type to which this chapter applies, including financing, the duty to make financial contributions, the right to bring civil action and the settlement of claims.

§ 64. Venue in the case of consolidation of actions

Actions for compensation or other claims as mentioned in section 22, third paragraph, of the Civil Procedure Act may be brought jointly in any judicial district that is a venue for one of the claims, provided that the basis for the claims is the same or essentially of a similar nature. On the same conditions, claims may be brought jointly by several injured parties or jointly against several persons who have caused damage.

Chapter 9. Implementation of the Act and decisions made pursuant thereto.

Remuneration and payment of costs for measures against pollution

§ 73. Pollution fine in the case of contravention of the Act

To ensure compliance with the provisions of this Act or decisions made pursuant thereto, the pollution control authority may impose a pollution fine payable to the state.

A pollution fine may be imposed when contravention of the Act or decisions pursuant thereto are discovered. The pollution fine becomes effective if the person responsible fails to meet the deadline for remedying the matter set by the pollution control authority. A pollution fine may also be imposed in advance and in such cases becomes effective from the date when any contravention starts. It may be decided that the pollution fine shall continue to be effective for as long as the unlawful situation persists, or that it is payable each time contravention takes place.

The pollution fine is imposed on the person responsible for the contravention. If the contravention has occurred on behalf of a company or other association, a foundation, a municipality, a county municipality or another public body, the pollution fine shall normally be imposed on the enterprise as such. If the contravention has occurred on behalf of an emergency response organization established pursuant to section 42, the pollution fine may be imposed on the companies involved.

Payment of a fine is enforceable by execution. The pollution control authority may waive a fine that has been imposed.

§ 74. Immediate implementation by the pollution control authority

If the pollution control authority has issued orders pursuant to section 7, fourth paragraph, or section 37, first or second paragraph, and these are not carried out by the person responsible, the pollution control authority may arrange for the measures to be implemented.

The pollution control authority may also arrange for the measures to be implemented if such orders may result in a delay in implementing the measures or if it is uncertain who is responsible.

When implementing measures pursuant to the first and second paragraphs, the pollution control authority may make use of and if necessary cause damage to the property of the person responsible.

The pollution control authority may issue further regulations on the implementation of measures pursuant to the first and second paragraphs.

Intervention against acute pollution or the risk of acute pollution on the open sea and in outer Norwegian territorial waters shall take place in accordance with international agreements to which Norway is a party. The pollution control authority may issue regulations on such intervention and on the implementation of such agreements in Norwegian law.

§ 75. Use of another person's property to deal with pollution and waste problems and remuneration for assistance

When implementing measures pursuant to sections 7, 37, 46 and 74, the pollution control authority may decide that the use of or damage to another person's property is permissible in return for remuneration, provided that the benefit obtained is substantially greater than the damage or nuisance caused.

Any person that has provided assistance pursuant to section 47, first to third paragraphs, and who is not responsible for the pollution is also entitled to remuneration.

The pollution control authority is responsible for remuneration pursuant to the first and second paragraphs. The State will act as guarantor for the claim.

Municipalities that have incurred substantial costs in dealing with acute pollution may receive remuneration from the state according to further provisions laid down by the pollution control authority.

§ 76. Payment of the costs of measures to deal with pollution and waste problems

The costs, damage or losses pursuant to section 74 incurred by the public authorities may be claimed from the person responsible for the pollution or waste problems. The same applies to the costs incurred by the public authorities for remuneration pursuant to section 75. If the person responsible cannot pay or it is not known who is responsible, the costs may also be claimed from the injured party or the person whose interests were served by the measures.

If the person responsible has not implemented the measures required within a reasonable time limit, or if measures are urgently required, any person that has implemented measures to protect his property or avoid damage to it may claim the costs incurred from the person responsible insofar as the measures were implemented with due care.

The competent administrative authority may partially or wholly waive its claim for costs pursuant to the first paragraph if this will otherwise impede the claims of other injured parties or it would be unreasonable to make the claim. Section 5-2 of the Damages Act applies correspondingly as regards modification of liability pursuant to the first and second paragraphs.

§ 77. Limited right to claim payment of costs before measures have been implemented

Payment to which the public authorities are entitled pursuant to section 76, first paragraph, may be required irrespective of any agreement, judgment or settlement between the person responsible and other injured parties.

If parties other than the public authorities submit claims for the costs of measures to combat pollution of real property, and the measures have not been implemented, payment by the person responsible may only be required if

- a. it is obvious that the measures are not of importance for the general public, or
- b. the pollution control authority consents. Conditions may be attached to such consent to ensure that the compensation is used for the appropriate purpose.

In the case of sums paid in accordance with the second paragraph, litra a) or b), the person responsible is relieved of his responsibility to the public authorities pursuant to section 76, first paragraph.

Chapter 10. Penal measures

§ 78. Criminal liability for pollution

Fines or imprisonment for a term not exceeding three months or both will be imposed on any person that wilfully or through negligence

- a. possesses, does, or initiates anything that may cause pollution contrary to this Act or regulations issued pursuant thereto,
- b. fails to take measures he has a duty to take pursuant to sections 7 and 40, regulations issued pursuant to the Act, conditions laid down in individual permits pursuant to section 11, conditions laid down in contingency plans approved pursuant to section 41, or separate orders issued pursuant to this Act,
- c. fails to provide notification pursuant to section 19 or 20 or to submit a contingency plan pursuant to section 41,
- d. fails to comply with orders issued by the pollution control authority pursuant to sections 49, 50 and 51,
- e. is accessory to such contravention as is mentioned in litras a to d.

If the contravention has resulted in a risk of great damage or serious nuisance, or there are otherwise especially aggravating circumstances, imprisonment for a term not exceeding two years may be imposed, but for a term not exceeding five years if the contravention resulted in a risk to human life or health.

If the contravention only resulted in insignificant pollution or an insignificant risk of pollution, public prosecution will only take place if the pollution control authority applies for this.

§ 79. Criminal liability for unlawful waste management

Fines or imprisonment for a term not exceeding three months or both will be imposed on any person that wilfully or through negligence

- a. discards or empties waste that has been collected, large discarded objects or special waste in such a way that that it may be unsightly or cause damage or nuisance to the environment,

- b. fails to comply with orders to implement measures against waste issued pursuant to section 37,
- c. is accessory to such contravention as is mentioned in litras a and b.

Regulations issued pursuant to sections 30, 31, 32 and 33 may lay down that any person that contravenes the regulations shall be liable to fines.

If the contravention of the first paragraph has only resulted in insignificant damage or nuisance, public prosecution will only take place if the pollution control authority applies for this.

§ 80. (repealed by Act of 20 July 1991 No. 66)

Chapter 11. Administrative provisions. Relationship to the Public Administration Act

§ 81. The pollution control authorities

The pollution control authorities are as follows:

- a. at national level: the King, the Ministry and the Norwegian Pollution Control Authority,
- b. at county level: the county municipality and the county governor or the person thereby authorized by the Ministry,
- c. at municipal level: the municipality.

The King will determine which pollution control authority may make decisions pursuant to the Act. The Ministry may further determine that decisions pursuant to the Act may be made by persons other than the pollution control authorities, including private legal persons.

The King will order the other pollution control authorities to carry out tasks pursuant to this Act. Instructions may also be issued on the exercise of authority and on the delegation of authority pursuant to sections 83 and 84.

§ 82. (Repealed by Act of 14 June 1991 No. 30)

§ 83. Delegation of the authority assigned to the municipality or county municipality

The Local Government Act applies to the right of the municipality and county municipality to delegate authority.

If special reasons so indicate, the municipal council or county council may delegate the authority to make individual decisions to municipal/intermunicipal and county-municipal/intercounty-municipal companies respectively.

§ 84. (Repealed by Act of 21 June 1996 No. 36)

§ 85. Relationship to the Public Administration Act

The Public Administration Act applies to administrative procedure for handling cases pursuant to this Act.

The Ministry is the appeals instance for decisions made by the Norwegian Pollution Control Authority. The Norwegian Pollution Control Authority is the appeals instance for decisions made by the county governor. For decisions made by the municipality, section 28, second paragraph, of the Public Administration Act is applicable, except in the case of decisions made pursuant to section 47, where the county governor is the appeals instance. The Ministry may designate another appeals instance than that provided by this paragraph, and may designate an appeals instance for decisions made by a private legal person.

The pollution control authority may issue supplementary regulations concerning administrative procedure for applications pursuant to section 11, including the instances to which the application shall be submitted, the publication of applications and permits and payment for such publication.

Chapter 12. Final provisions

§ 86. Relationship to previous activities

This Act also applies to any activity that started before the Act entered into force. The provision of section 37 concerning the duty to clear up and remove waste, etc., also applies when the commission of the act described in section 28 took place before the Act entered into force.

It is nevertheless not necessary to apply for a new permit pursuant to section 11 for pollution for which permission has been granted pursuant to sections 48 and 49 of the Water Resources Act of 15 March 1940, section 19 of the Neighbouring Properties Act of 16 June 1961 No. 15 or section 6 or 10 of the Water Pollution Act [†]This Act has since been repealed. of 26 June 1970 No. 75.

Activity that had already begun when this Act entered into force and that did not require a permit pursuant to the provisions mentioned in the second paragraph may continue without a permit pursuant to section 11, cf. sections 7 and 29. The same applies to activity that is permitted by judicial assessment that was held pursuant to sections 7 and 8 of the Neighbouring Properties Act before this Act entered into force. The pollution control authority may nevertheless by regulations or individual decision decide that such activity as is mentioned in the first and second sentences is unlawful after a specified time limit unless such activity has a permit pursuant to section 11.

§ 87. Relationship to decisions made pursuant to older legislation

Regulations or individual decisions made pursuant to provisions that are repealed by section 90 remain in force until they are amended or repealed pursuant to this Act.

§ 88. Provisions on implementation

The Ministry may lay down provisions to supplement and implement this Act, including provisions on cooperation between the pollution control authorities and other authorities.

§ 89. Entry into force

This Act enters into force from the date decided by the King. Parts of the Act may be put into force at different times, and also in different counties and municipalities. In connection with the entry into force of the Act, or at a later date, the King may set a time limit for all or certain municipalities to implement

the duties the Act imposes on municipalities. The same applies to the public road authorities with respect to section 36.

§ 90. Repeal and amendment to other Acts

When this Act enters into force, the following amendments shall be made to other legislation:

²This Act has since been repealed.

External link:

[Text of the law \(in Norwegian\)](#)

ASSOCIATED REGULATION

- Regulations relating to pollution control (Pollution regulations)
- Regulations relating to the recycling of waste (Waste Regulations)

-
-
-
-
-
-
-
-
-
-
-
-

ACT NO. 63 OF 19 JUNE 1970 RELATING TO NATURE CONSERVATION (THE NATURE CONSERVATION ACT), as subsequently amended, most recently by Act No. 59 of 25 August 1995

CHAPTER I. OBJECTIVES AND GENERAL PROVISIONS

Section 1.

Natural habitats and the wild flora and fauna (the natural environment) are national assets that must be protected.

Nature conservation means the management of natural resources on the basis of the close interdependence between mankind and nature, and the need to maintain the qualities of the natural environment for posterity.

Every person must show consideration and care in his contact with the natural environment.

Any disturbance of or intervention in the natural environment should only take place on the basis of long-term, all-round management of natural resources, which takes into account the preservation of the natural environment in the future as the basis for human activity, health and well-being.

Section 2.

Any person who is planning major works, construction or activities that will involve substantial changes in the character of the landscape or appreciable damage to the natural environment otherwise shall, before such activities are initiated, submit the matter to the competent authority pursuant to this Act for consideration. If development, construction or other activities will entail damage to the landscape or the natural environment otherwise, measures must be implemented to limit or counteract the damage to a reasonable extent.

The King will lay down further regulations governing the implementation of these provisions, including rules concerning the works, construction and activities to which the provisions apply, and time limits within which the competent authority must express an opinion. The regulations may include prohibitions against initiating such works, construction or activities as are mentioned above before the competent authority has expressed an opinion.

If it is presumed that such works, construction or activities as are mentioned in the first paragraph will involve substantial damage to assets of scientific importance, the King may prescribe that scientific studies shall be undertaken within a specified time limit before such works, construction or activities begin, and that the cost of such studies shall to a reasonable extent be met by the developer or by the person responsible for the activity.

CHAPTER II. CONSERVATION OF PARTICULAR AREAS OF NATURAL HABITAT AND NATURAL FEATURES

National parks

Section 3

In order to preserve large areas of natural habitat that are undisturbed or largely undisturbed, distinctive or beautiful, areas of land owned by the state may be designated as national parks. Land of the same type which is not state-owned but which lies within or adjacent to such areas as are mentioned in the first sentence may be designated as national parks together with state-owned land.

In national parks, the natural environment shall be protected. The landscape and the flora, fauna, natural features and archaeological and architectural monuments and sites shall be protected against development, construction, pollution and other disturbance.

Section 4.

The decision to designate an area as a national park will be taken by the King, who will issue further provisions concerning the area and its management, including the protection of the flora and fauna.

Protected landscapes

Section 5.

In order to preserve distinctive or beautiful areas of natural or cultural landscape, areas may be designated as protected landscapes. In a protected landscape, no measures may be initiated which may substantially alter the nature or character of the landscape. In cases of doubt, the county governor will decide whether a measure may be considered likely to alter the nature or character of the landscape significantly.

Section 6.

The decision to designate an area as a protected landscape will be taken by the King, who may lay down further provisions concerning the area, its management and its use.

Section 7.

The provisions of sections 5 and 6 do not apply to areas included in local development plans pursuant to the Planning and Building Act.

Nature reserves

Section 8.

Areas where the natural environment is undisturbed or largely undisturbed or of a special type, and which are of special scientific or educational interest or which stand out because of their distinctive character, may be protected and preserved as nature reserves. An area may be totally protected or protected for specific purposes as a forest reserve, mire reserve, bird reserve or the like.

Section 9.

In areas of particular importance for plants or animals which are protected and preserved pursuant to section 13 or 14, development, construction, pollution and other disturbance may be prohibited to preserve their habitat.

The same applies to plant or animal habitats which are or will be protected by or pursuant to other legislation.

Section 10.

Decisions pursuant to sections 8 and 9 will be made by the King, who may lay down further provisions concerning such areas and their management.

Natural monuments

Section 11.

Geological formations and botanical or zoological features which are of scientific or historical interest or distinctive may be protected and preserved as natural monuments.

The area around such a formation or feature may be designated as part of the natural monument if this is considered necessary for its protection.

The provisions of the first and second paragraphs apply correspondingly to waterfalls and other parts of river systems.

Section 12.

Decisions pursuant to section 11 will be made by the King, who will lay down further provisions concerning the implementation of protection and preservation measures and the management of the natural monument.

CHAPTER III. SEPARATE PROVISIONS RELATING TO THE PROTECTION AND PRESERVATION OF PLANTS AND ANIMALS

Section 13.

The King may prescribe that wild plant species or plant communities which are rare or in danger of disappearing shall be protected and preserved throughout the country or in specific areas.

Section 14.

The King may prescribe that animal species or animal communities which are rare or in danger of disappearing shall be protected and preserved throughout the country or in specific areas.

In an area of particular importance as a habitat for a number of species, mammals and birds may be protected and preserved.

Decisions made pursuant to the first and second paragraphs also apply to the lairs, nests and eggs of such species.

Protection may be limited in time.

CHAPTER IV. PROTECTION OF THE LANDSCAPE AND NATURAL ENVIRONMENT

Section 15.

Free-standing advertizing signs or devices, or inscriptions, drawings or devices affixed on buildings, trees, rocks, stones etc for the purpose of advertisement, may not be placed outside built-up areas. In special cases, the county governor may subject to further conditions grant exemptions from this provision after obtaining a statement from the municipality in question. In cases of doubt, the county governor will determine what is to be considered a built-up area.

This prohibition does not apply to signs, etc which specify the name and type of an enterprise, or to advertisements for goods supplied by an enterprise and which are erected on its own property.

Section 16.

(Repealed by Act No. 6 of 13 March 1981.)

CHAPTER V. THE STATE COUNCIL FOR THE CONSERVATION OF NATURE

Section 17

(Repealed by Act No. 16 of 8 June 1990)

CHAPTER VI. CERTAIN RULES OF ADMINISTRATIVE PROCEDURE

Section 18

1. When protection measures pursuant to this Act are initiated, the counties and municipalities affected shall be contacted to discuss delimitation of the area concerned, the substance of the protection provisions and any other issues of importance for municipal and county planning.

The nature conservation authorities shall publish a notice, as a general rule in at least two newspapers that are widely read locally, in which they give an account of the planned protection measure and the consequences it is expected to have. As far as possible, landowners and other holders of rights should be informed by letter and be given a reasonable time limit for submitting comments before a proposal is drawn up.

At an early stage in the preparations, steps shall be taken to ensure cooperation with any public authorities, organizations, etc which have a special interest in the protection measures in question.

2. When a proposal for protection measures has been drawn up, notification that such proposal has been deposited for public perusal shall be published in the Norwegian Gazette and in at least two newspapers that are widely read locally. The announcement shall describe the area

to which the proposal applies and shall give a reasonable time limit for submitting comment, which must not be less than six weeks from the time when the notice is published. As far as possible, landowners and other holders of rights should be informed by letter.

In connection with the announcement, the matter shall be submitted to the county authorities and to any government agencies involved for comment.

3. Before a decision on protection measures is taken, the proposal shall be submitted to the municipal council. A time limit may be set for the municipal council to submit any comments.

4. The Ministry may make a prior decision to give temporary protection to the area until the matter is finally decided.

Section 19.

Decisions made pursuant to Chapters II and III and to subsection 3 of section 18 shall be published in *Norsk Lovtidend* (the Norwegian Law Gazette) and in one or more newspapers in the district.

The decision shall be communicated to the owner and user and to the municipalities in question.

If the decision concerns one or more specified properties, it shall be judicially registered in respect of the property in question. In other cases, a note of the decision shall at the request of the ministry concerned be made in the land register for those properties which there is reason to believe will be significantly affected by the decision.

CHAPTER VII. COMPENSATION AND REDEMPTION

Section 20.

The owners and holders of rights to properties which are protected pursuant to sections 8, 9 and 11 are, in accordance with the provisions of the second and third paragraphs, entitled to compensation from the state for financial losses resulting from the decision.

The amount of the compensation shall be determined in accordance with the provisions of Act No. 17 of 6 April 1984 relating to compensation for expropriation of real property. When applying section 10 of the said Act, the date from which protection is effective shall be used.

If foreseeable changes in the future use of the property are taken into account when calculating the amount of the compensation, public grants that would in such cases be provided for changes of use shall not be taken into consideration in determining the amount of the compensation.

Section 20a.

Claims for compensation arising from decisions pursuant to sections 8, 9 and 11 must be submitted to the county governor in writing within one year of the announcement of the

decision. The Ministry may extend this time limit, and may also allow the claim to be reinstated in the case of failure to observe the time limit. In such cases, the provisions of sections 153 - 158 of the Courts of Justice Act apply insofar as they are appropriate. The submission of a claim interrupts the course of statutory limitation pursuant to Act No. 18 of 18 May 1979.

If the parties fail to agree on the amount of the compensation to be provided, the question shall be settled by judicial assessment. The state will apply for such assessment. This shall be done at the latest six months after the time limit set out in the first paragraph has expired. The third paragraph of section 54 of Act No. 1 of 1 June 1917 relating to judicial assessment in expropriation cases applies correspondingly.

Section 20b.

In accordance with general legal principles, claims may be submitted for compensation from the state for financial losses resulting from decisions pursuant to sections 3 and 5 and to the third paragraph of section 18 of this Act. Unless otherwise agreed, the question will be decided by judicial assessment on application by one of the parties within one year of the date on which the decision is announced. The Ministry may extend this time limit. In such cases, the provisions of sections 153 - 158 of the Courts of Justice Act apply insofar as they are appropriate.

Section 20c.

If all or part of a property is affected by a decision pursuant to this Act in such a way that it can no longer be used in a profitable manner, the owner may submit a claim for the state to redeem such property. Unless otherwise agreed, the question of whether the conditions for redemption are fulfilled will be decided during the judicial assessment when the amount of the compensation is determined. An application for judicial assessment must be submitted within one year of the date on which the decision to protect the area is announced. The third and fourth sentences of section 20b apply correspondingly.

CHAPTER VIII. MISCELLANEOUS PROVISIONS

Section 21.

The King will issue provisions relating to signs, etc to indicate protection pursuant to Chapters II and III and relating to the measures necessary to protect the area, species, formation or feature in question.

Section 22.

In protected landscapes, nature reserves, natural monuments and areas to which prohibitions pursuant to section 9 apply, the King may prohibit any passage or traffic throughout the year or for part of the year if this is considered to be necessary to preserve the flora or fauna or geological formations.

In national parks, the King may in the same way prohibit motor traffic and may also, within further delimited areas, regulate any other passage or traffic if so required in the interests of the natural environment and the factors mentioned in the first paragraph.

These provisions do not apply to any passage or traffic during the course of police, fire brigade or ambulance operations or for safety purposes.

Section 23.

The King may grant exemptions from decisions concerning protection and preservation provisions for specific institutions or specific persons for the purposes of scientific studies or work or measures of importance to the public interest, or if the objective of the protection measure so requires.

Section 24

Any person who wilfully or negligently contravenes any prohibition issued pursuant to this Act, or to section 15, or who is accessory thereto, is liable to a fine or imprisonment for a term not exceeding one year. Under particularly aggravating circumstances, imprisonment for a term not exceeding two years may be imposed.

Any contravention is to be regarded as a misdemeanour.

Any attempt at contravention is a criminal offence.

Section 25.

This Act enters into force on 1 July 1970, though section 2 shall not enter into force until the King so prescribes.

From the same date, the Act of 1 December 1954 relating to nature conservation is repealed.

Decisions made pursuant to the Act of 1 December 1954 relating to nature conservation shall continue to apply insofar as they are not in conflict with provisions of or pursuant to this Act.

Annex 5

Unofficial translation

Act No. 51 of 8 June 1984 relating to Harbours and Fairways¹ (The Harbour Act)

Chapter I General Provisions

§ 1 (Purpose)

The purpose of this Act is to facilitate the best possible planning, development and operation of harbours, and to safeguard traffic.

§ 2 (Scope)

This Act applies to Norwegian internal waters and Norwegian sea territory in general. The applicability of this Act on land is defined in Section 14.

This Act also applies to watercourses as far upstream as they are navigable by vessels from the sea. The Ministry² may determine what is meant by navigability by individual decision or by regulation. The Ministry may render the provisions of this Act wholly or partly applicable to rivers and lakes above and beyond the provisions of this paragraph.

¹As subsequently amended, most recently by Act No. 85 of 1 June 1993.

²At present, the Ministry of Fisheries

Error! Bookmark not defined.

The King³ will determine to what extent this Act applies to Svalbard. The King will determine such amendments to this Act as are required by local conditions.

The King may direct that land or sea areas, or work or construction or other measures related to defence purposes shall be exempt from this Act and may otherwise direct that all powers pursuant to this Act be transferred to central government authorities in the event of contingency measures or war.

§ 3 (Definition of vessel)

For the purpose of this Act, "vessel" shall mean any floating object that may be used as a means of transport or conveyance, or as a place of sojourn, production or storage, including all kinds of underwater vessels. The Ministry may determine what is meant by vessel by individual decision or regulation.

Chapter II.

(The organs,duties and authority of the State)

§ 4 (The National Coastal Administration)

The Ministry's duties shall be carried out through the National Coastal Administration, which includes the Coast Directorate, the Coastal District Offices and subordinate organs having the Coast Directorate as their central authority. The King will lay down regulations for the National Coastal Administration.

§ 5 (The authority of the State and delegation of powers)

The Ministry is responsible for the supervision and control of harbours and fairways, including the State Harbour Service, the State Lighthouse Service and the State Pilotage Service.

³The King in Council

Error! Bookmark not defined.

Outside a harbour district the Ministry exercises the authority and rights conferred on the municipality pursuant to this Act.

The King or the Ministry may delegate powers to the municipalities. Powers pursuant to Section 6 third paragraph may however only be delegated by the Ministry to municipalities in relation to permits for measures of minor importance to the traffic in the area. Unless otherwise decided by the Ministry, the National Coastal Administration may delegate powers to District Offices of the National Coastal Administration or to municipalities. Powers delegated to the Coast Directorate pursuant to Section 6 third paragraph may nevertheless not be delegated to a municipality.

When State authority is delegated, it may be prescribed that individual decisions shall be made by the municipal council itself. In accordance with regulations issued by State authorities pursuant to this Act, the municipality, an organ for intermunicipal harbour cooperation or a harbour board appointed in accordance with a decision by the Ministry may be empowered to lay down supplementary provisions.

In matters pertaining to Act No. 68 of 14 June 1985 relating to the farming of fish, shellfish etc, the Ministry may delegate powers pursuant to this Act to Chiefs of Fisheries. Powers may only be delegated in this way for matters which may be considered straightforward.

§ 6 (Regulation of fairways, etc.)

In the interests of national security, the flow of traffic, or general environmental considerations, the King may lay down regulations or make individual decisions concerning the use of, or prohibition against the use of certain waters, or concerning permission to use the same on specific conditions.

The Ministry may lay down regulations or make individual decisions concerning the regulation of traffic, including traffic separation and maximum speed limits for vessels, and concerning the authority of the municipality to make such decisions within the harbour district.

Error! Bookmark not defined.

Any measures which may alter the course of a river or fairway, or the flow of the current, or may restrict the waters in depth, breadth or height in such a way as to impede traffic, require the permission of the Ministry.

§ 7 (Beacons and navigation marks etc)

The Ministry is responsible for the supervision, construction and operation of beacons, navigation marks and other aids to navigation, and for any fairway where the municipal council is not responsible pursuant to Section 16.

The Coast Directorate may lay down regulations or make individual decisions concerning the location or design of or technical requirements for beacons or marks or fairway signs to regulate traffic. The Ministry may lay down regulations or make individual decisions concerning other installations or facilities to aid navigation.

The Coast Directorate may grant permission to set up beacons, navigation marks, fairway signs and facilities for supervising traffic. Such installations and facilities must not be used for mooring or be removed, moved, altered or obstructed etc. without special permission from the Coast Directorate. The Ministry may grant permission to establish other installations or facilities to aid navigation. No one may without permission from the Ministry use such installations or facilities for other purpose than intended, or take any action which may impede or complicate their intended functions.

The provisions of this section also apply to the shore above the highest ordinary spring high-water line.

§ 8 (Construction and other measures)

The Coast Directorate may lay down regulations and take individual decisions concerning the technical requirements for wharfs and other installations and harbour facilities, and concerning which tasks may be carried out at such installations and facilities.

Error! Bookmark not defined.

Any construction or other measures which may be of importance to installations, facilities or activities of the Defence Forces or the National Coastal Administration require the permission of the Ministry. If there is any doubt whether or not the constructions or measures are of such a nature, the matter shall be referred to the Ministry and the defence authority concerned.

The King may determine that the construction of wharfs or other facilities or installations in the harbour which are essential to traffic at sea or to the seaward approaches requires the permission of the Ministry after the County Council has expressed its opinion. The Ministry will lay down provisions for the procedure to be followed pursuant to this paragraph.

§ 9 (Conditions on which permission may be granted)

Conditions may be laid down in respect of any permission granted or other decisions made in accordance with the provisions of this chapter. The conditions may include investigations, implementation, dimensioning, equipment, maintenance or use, or any other necessary measures. The terms may state that disputes concerning compliance with the conditions shall be settled by a committee and may include the composition of such committee and procedures to be followed. Such a decision by the committee is an individual decision according to the normal rules of administrative law, and may as such be appealed to the administrative body which laid down the conditions. These provisions do not restrict the parties' right to bring the committee's decision before the court. It may be decided that the party who is granted permission, or the party in whose interest a decision is made, shall cover the expenses incurred by compliance with the conditions as described in the second sentence.

Permission may also be made contingent on the right to close down or remove the installation or parts of it at the expense of the owner and/or user should the conditions not be complied with. Permission may be granted for a limited period of time.

§ 10 (Ministerial supervision of municipal decisions etc.)

The Ministry shall approve municipal regulations if their violation is punishable, or if the regulations restrict the right of free passage through or the free use of waters and harbours in the harbour district. Municipal regulations on harbour dues are exempted from the provisions in the first sentence.

The Ministry may decide that a synopsis shall be drawn up of current provisions and of other information of importance to those using or staying in the harbour.

§ 11 (Decisions by the Ministry)

The Ministry may lay down regulations or make individual decisions concerning:

1. the obligation of masters, owners, consignees, consignors or others to report vessels, vehicles or cargoes to the harbour authorities,
2. restrictions on the right of the municipality to regulate the use of waters outside the base lines or in main fairways or important secondary fairways within the harbour district, for instance in the interests of fishing or other activities in or on the sea,
3. the unloading, loading, storage and transport of hazardous substances and goods within the harbour district,
4. the laying of cables and pipelines in the sea, dumping of substances or objects, and the use of beacons or other facilities or devices to aid navigation,
5. measures to prevent pollution from anchored and moored vessels, including the screening of light and abatement of noise,
6. the right of State or municipal officials to have access to vessels, installations and facilities in the course of their duties,
7. the laying-up of vessels. Environmental problems or inconvenience to the fishing industry which may be caused by laid-up vessels shall be taken into consideration,

Error! Bookmark not defined.

8. the fact that fishing vessels have priority to use wharfs or harbour installations built or purchased for fishery purposes. This also applies to the use of sea areas in connection with such installations.

Chapter III.

Special steering bodies for harbours and fairways

§ 12 (Municipal steering body for harbours and fairways)

If the importance of a harbour for trade and transport extends beyond the municipality in which it is located, or if a harbour is of particular importance from a military or contingency point of view, the Ministry may prescribe that a harbour board shall be appointed and lay down specific provisions concerning the appointment and composition of the harbour board. If the harbour administration is organized as a municipal concern, the Ministry may also lay down such provisions for the board and the other organs of the concern.

Two or more municipalities may establish intermunicipal cooperation and organs for such cooperation for entire municipalities or parts of municipalities to deal with matters pursuant to this Act. If the municipalities fail to agree on voluntary intermunicipal harbour cooperation in areas where this would be particularly appropriate, the King may issue an order concerning intermunicipal harbour cooperation and the establishment of organs for such cooperation to deal with matters pursuant to this Act. Unless otherwise provided in the statutes for intermunicipal harbour cooperation, the intermunicipal cooperation organ shall have the same authority as the municipalities pursuant to this Act to take individual decisions and adopt regulations. Otherwise, the provisions of the Local Government Act concerning intermunicipal cooperation apply in so far as they are appropriate.

§ 13 (Harbour administration)

(Repealed by Act No. 85 of 11 June 1993.)

Error! Bookmark not defined.

Chapter IV.

The geographical boundaries of the municipal council's authority

§ 14 (Harbour district)

The authority vested in the municipal board pursuant to this Act may only be exercised within the boundaries of the harbour district.

The Ministry will establish, alter or repeal harbour districts outside the highest ordinary spring high-water line after the municipal council itself has expressed its opinion, subject, however, to the King determining the boundaries outside the base lines. The King will also determine how the boundaries shall be drawn in the sea between municipalities. As a general principle, boundaries in the sea shall not extend further than the distance at which there is a reasonable connection between activities ashore and at sea.

The municipal council itself will establish boundaries for the harbour district on land. Areas which are designated as harbour areas in a binding zoning plan pursuant to Section 25, cf. Section 29, of Act No. 77 of 14 June 1985 relating to Building and Planning, shall be included in the harbour district.

§ 15 (Areas subject to dues)

The municipal council may establish one or more areas which are subject to harbour dues.

Chapter V.

The duties and authority of the municipality

§ 16 (The responsibility and authority of the municipality)

The municipality is responsible for the planning, development and operation of its own wharfs and harbour installations.

Error! Bookmark not defined.

The municipality shall ensure that wharfs and other facilities and harbour installations and the surrounding areas are in good repair and that traffic at sea or on land is not obstructed or impeded. Within a harbour district the municipality is responsible for fairways and the necessary beacons and navigation marks, and for signs informing of decisions made pursuant to this Act. The Ministry will lay down exemptions from the municipal responsibility pursuant to this section for fairways, beacons, navigation marks, and signs which are part of the main fairway or important secondary fairways used for general traffic. If the harbour board has been appointed pursuant to a decision of the Ministry or in connection with intermunicipal harbour cooperation arrangements, the harbour board will assume the municipal responsibility pursuant to this paragraph.

Should the municipality make use of breakwaters, wharfs or other harbour installations owned by the State, the Ministry may require the municipality to assume responsibility for their operation and maintenance.

Unless otherwise provided pursuant to this Act, the municipality may lay down regulations concerning order in and use of the harbour and competing uses of waters in the harbour district, including rules relating to the placement of buoys or other mooring devices, to dumping areas, to icebreaking or measures to prevent ice from forming, to fixed installations in the sea, and if required for reasons of maritime safety, to the control of persons, luggage or cargo in the harbour district. In such regulations, the municipal council may give a permanent committee or the harbour board the authority to issue supplementary provisions.

§ 17 (The duties of the harbour board, delegation of powers etc)

For the purposes of this section, the term harbour board means a harbour board appointed in accordance with a decision by the Ministry or, unless otherwise prescribed, an intermunicipal harbour cooperation organ.

The harbour board shall prepare matters concerning harbours and fairways and submit proposals to the municipal council. The harbour board

shall express its opinion where a decision may be of importance to such matters.

The harbour board shall take individual municipal decisions pursuant to this Act unless the municipal council determines that it shall decide on such matters itself, or unless it is determined pursuant to the penultimate paragraph of Section 5 that the municipal council itself shall take decisions. The municipal council may not delegate such powers to another municipal board unless the latter serves as a harbour board.

The harbour board may not take final decisions that are at variance with adopted plans or in matters requiring additional allocations.

Unless otherwise decided by the municipal council, the harbour board has such authority in budgeting cases as may be delegated to it according to the budget regulations in force at any given time.

If the Ministry makes a decision on the appointment of a harbour board, it may also prescribe:

- that the harbour board is to lay down such regulations as the municipality is authorized to lay down pursuant to this Act
- that the municipal council may not restrict the authority of the harbour board pursuant to the third and fifth paragraphs, and
- that the harbour board has the authority to take decisions in matters requiring additional allocations, cf. the fourth paragraph.

Nevertheless, allocations may not exceed the funds which shall be used for harbour purposes pursuant to the last paragraph of Section 23. When a decision is taken pursuant to this paragraph, the harbour board will determine how the funds of the harbour treasury are to be administered.

§ 18 (The authority of the harbour board)

If a harbour board has been appointed in connection with intermunicipal harbour cooperation arrangements or in accordance with a decision by the Ministry, the harbour board will assume the municipality's authority pursuant to this section.

Error! Bookmark not defined.

The permission of the municipality is required for any work or construction in areas outside the scope of the Building and Planning Act. Within the scope of the Building and Planning Act, such permission is required for measures referred to in Section 84 of the same Act. Prior to giving its permission, the municipality shall ensure that such work etc will not contravene provisions in or pursuant to this Act. Conditions may be laid down in accordance with Section 9. Should the provisions of Section 6 of the Act apply to the work etc., the permission of the Ministry instead of the municipality is required.

If a vessel, motor vehicle or other object or installation may constitute a hazard or cause damage, the municipality may prohibit its further use, or construction work, or prescribe other necessary measures to be taken within a certain time limit. This also applies to the removal of wrecks or objects which sink or strand, or are left or abandoned. The person who was the owner of such vessel or object when it sank or stranded, or was left or abandoned, is responsible for its removal as specified in the previous sentence. In the interests of traffic at sea, injunctions concerning the screening of lights or prohibitions against the use of lights ashore may be laid down, independent of the restrictions specified in Section 14.

§ 19 (The harbour board's power to delegate authority)

(Repealed by Act No. 85 of 11 June 1993.)

§ 20 (Implementation of the Act by the municipalities)

It is the duty of all persons to comply with any injunctions issued by the municipality or the harbour board pursuant to this Act. Should immediate action be required and an injunction which has been issued is not obeyed, or if there is no time or opportunity to find a person to whom an injunction may be issued, an official may, after giving advance notice, close off areas at sea and on shore, and if necessary salvage, remove or take in custody vehicles, vessels,

Error! Bookmark not defined.

goods or other objects. The previous sentence also applies to wrecks or objects that have sunk or stranded, or been left or abandoned.

Chapter VI.

Harbour dues.

§ 21 (Harbour dues on vessels and goods)

The municipality may stipulate harbour dues and shall ensure that these are collected, on vessels that call at port or stay in or pass through areas subject to dues and on goods loaded, unloaded, stored, or towed or floated into, within or from such areas.

§ 22 (What the harbour dues shall cover)

The King will lay down regulations concerning the expenses which shall be covered by the various dues. In the regulations the Ministry may be empowered to deviate from these in special cases. It is not permitted to stipulate or collect fees for services if the cost is already covered by the dues.

§ 23 (Kinds of harbour dues)

To cover the expenses etc. specified in regulations issued in accordance with Section 22, the following dues may be stipulated pursuant to Section 21:

- a. harbour dues
which are imposed on a vessel and shall constitute the vessel's payment for its use of sea areas and installations and measures which may facilitate its passage.
- b. wharfage dues
which are imposed on a vessel on mooring and shall constitute the vessel's payment for the use of municipal wharfs or mooring facilities,
- c. traffic dues
which are imposed on goods imported through the harbour
- d. dues on goods

which are imposed on goods and shall constitute payment for the use of municipal wharfs and areas and installations connected with these.

To the extent that ice conditions involve expenses or the harbour incurs expenses for passenger facilities, dues may be collected from vessels and goods according to rules laid down by the Ministry.

The King may decide that harbours which derive most of their income from a particular trade or from specific goods may collect one or more dues pursuant to the former Act.

Dues collected by the municipality in pursuance of this Act shall be used exclusively for harbour purposes. If a harbour board has been appointed in accordance with a decision by the municipality itself, in connection with intermunicipal harbour cooperation arrangements or in accordance with a decision by the Ministry, the harbour board shall express its views on the administration of the dues collected, which shall be kept separately in a harbour treasury. The same applies to payment for the use and rental of the municipality's special harbour installations in the harbour district. The Ministry may, by individual decision or regulations, define what is meant by harbour purposes and special harbour installations.

§ 24 (Ministry decisions)

The Ministry may lay down regulations concerning:

1. the scheduling of tariffs, including calculation, collection and remission,
2. registration of the municipality's expenses as a basis for stipulating dues,
3. discount schemes based on expenses,
4. information which is to be provided by the municipality, harbour users or private wharf owners, and on the obligation of the municipality to record statistics,
5. payment for the laying-up of vessels, including the inconveniences in addition to expenses for which compensation may be required,
6. payment for the use of fairways where there is vessel movement control etc,

Error! Bookmark not defined.

7. agreements on payment and other conditions for the use of wharfs and facilities etc in lieu of paying dues pursuant to Section 23.

§ 25 (Liability for payment, collection)

The shipowner is liable for payment of harbour dues pursuant to Section 23, first paragraph a and b, and ice-breaking dues pursuant to the second paragraph. The vessel may be detained until any dues owed have been paid or a guarantee is provided. Section 247, second paragraph of the Maritime Act shall apply correspondingly. Customs clearance shall be refused when harbour dues are not paid. For harbour dues on goods according to Section 23, first paragraph c and d, and ice-breaking dues according to the second paragraph, the consignee is liable for incoming goods and the consignor for outgoing goods.

With regard to unpaid harbour dues on goods under Section 23 first paragraph c and d, and ice-breaking dues according to the second paragraph, Section 251 ff. of the Maritime Act shall apply correspondingly.

Any dues owed on vessels or goods may be collected by distraint.

Should harbour dues not be paid within the time stipulated, interest is to be paid according to the provisions of the Act relating to Interest on Overdue Payments.

Chapter VII

Harbour planning

§ 26 (Municipal and county planning)

Harbour planning shall be incorporated into municipal and county planning and shall be carried out within the framework of Section 8.

§ 27

(Repealed by Act No. 77 of 14 June 1985.)

Chapter VIII

Miscellaneous provisions

I.

§ 28 (Criminal liability)

Fines will be imposed on anyone who wilfully or through negligence

- a. performs or allows labour to be performed or allows action to be taken without the requisite permit according to Section 6, Section 7 second and third paragraphs, Section 8 second and third paragraphs, or Section 18 first paragraph, or fails to comply with conditions specified pursuant to Section 9.
- b. infringes specific injunctions imposed by the public authorities pursuant to Section 18 second paragraph, provided that he is notified in writing that failure to comply with the injunction may involve criminal liability.
- c. infringes local regulations pursuant to Section 16 or Section 17, sixth paragraph, cf. Section 10 first paragraph, provided that the provision is included in the synopsis mentioned in Section 10, second paragraph.
- d. infringes decisions made pursuant to Chapter II.
- e. evades payment of valid harbour dues.

Anyone who wilfully or through negligence hinders an official in the exercise of the authority vested in him pursuant to Section 20, or who refuses to obey an injunction given in that connection, will be liable to fines, or to imprisonment for a term not exceeding three months, or both.

If a punishable offence such as is referred to in the first or second paragraphs has been committed by someone on behalf of a company or other association, or a foundation or public enterprise, except the State as such, fines may be imposed on the enterprise as such. When determining the penalty in accordance with this paragraph, particular importance shall be attached to whether the offence was committed for the purpose of promoting the interests of the enterprise, and whether the enterprise has benefited from the offence.

Error! Bookmark not defined.

These provisions shall apply unless the offence is subject to a more severe penalty.

§ 29 (The stopping of illegal construction and the cessation of illegal use.)

If work is carried out or use made without a permit or in contravention of the provisions of this Act, the municipality or the harbour board, or any person authorized thereby, may require that the construction work be stopped or that the use cease. If necessary the police may be called upon for assistance.

§ 30 (Writ to comply with injunctions or prohibitions.)

If work has in any essential respect been carried out in contravention of this Act or any regulations issued pursuant to the Act, the municipality or the harbour board may issue a writ giving the option of a fine to the owner or holder of rights instructing him to remove or rectify the work which has been carried out illegally within a period of time to be stipulated in the writ. A writ may also be issued to any person who otherwise fails to comply with injunctions or prohibitions issued pursuant to this Act.

If possible the writ shall be served on the owner or holder of rights in person. The person to whom a writ is directed may bring legal action against the municipality to have the writ tried. If such legal action is not brought within 30 days of the date on which the decree is served, the writ has the same effect as a final judgement, and may be executed in accordance with the rules which apply to judgements.

The writ shall provide information concerning the provisions of the second and third sentences of the second paragraph. Before a writ is issued, the person to whom the writ is directed shall be given an opportunity to make a statement.

The provisions of Section 33 concerning appeals in respect of individual decisions do not apply when a writ has been issued.

§ 31 (Enforcement)

Error! Bookmark not defined.

In the event of failure to comply with injunctions contained in a final judgement or a writ with equal force, the municipality or the harbour board itself may have the work done at the expense of the owner or ship owner.

As regards the procedures to be followed during enforcement through the enforcement authorities, see Chapter 13 of Act No. 86 of 26 June 1992 relating to the Enforcement of Claims.

§ 32 (Compensation etc.)

The municipality has a lien on objects as mentioned in Section 20, and which are removed, kept in custody or salvaged for the expenses incurred, with priority over all other claims or provisions concerning maritime liens as prescribed in the Maritime Act. If full compensation for the expenses incurred is not received, the owner or shipowner is liable for the balance, subject to the restrictions prescribed in Chapter 10 of the Maritime Act concerning vessels. This also applies to enforcement pursuant to Section 20.

§ 33 (Relation to the Public Administration Act)

Individual decisions made by the municipal council, the harbour board or another municipal administration organ pursuant to this Act may be appealed directly to the Coast Directorate after the appeal has been drawn up by the organ that took the decision which is being appealed. The King may appoint another appeals instance.

II. Other legislation

- - -

III. Entry into force. Transitional provisions

This Act shall enter into force from the date stipulated by the King. From the same date, the following Acts are repealed.....

Error! Bookmark not defined.

Regulations and individual decisions issued by any authority in pursuance of earlier harbour legislation, and which are in force at the time of entry into force of this Act, shall continue to apply until otherwise decided in pursuance of this Act. Until the municipal council concerned defines the boundaries of harbour districts on land according to this Act, the provisions of Section 19, last paragraph, first and second sentences in Act No. 8 of 24 June 1983 relating to Harbour Administration apply. Harbour district boundaries in accordance with the repealed Acts under 1-33 shall apply as ministerial decisions. Section 2, second paragraph, second sentence of Act No. 8 of 24 June 1933 relating to Harbour Administration shall also apply as a ministerial decision.

The King may issue any transitional regulations considered necessary in connection with the entry into force of this Act. Until otherwise decided by the King, the following provisions shall apply:

The municipal council may lay down regulations stating that a vessel of at least 70 tonnage units gross shall use a harbour pilot in the harbour district, and may charge a fee for this. Such regulations are not valid until approved by the Ministry.

Annex 6

FOR 2004-12-22 no. 1785: Regulations relating to Operation of Aquaculture Establishments (Aquaculture Operation Regulations).

Use of the database requires that you consent to the conditions of the terms of use agreement .

DATE:	REG-2004-12-22-1785
MINISTRY:	FKD (Ministry of Fisheries and Coastal Affairs)
DEP/DIR:	Department for Aquaculture, Seafood and Markets
PUBLISHED:	In 2004 booklet 16
ENTRY INTO FORCE:	2005-01-01, 2006-01-01, 2010-01-01
LAST AMENDED:	REG-2005-03-04-199
AMENDS:	REG-1998-12-18-1409, REG-2000-12-20-1397, REG-2004-01-15-278, REG-1991-07-04-509
APPLIES TO:	Norway
STATUTORY BASIS:	ACT-1985-06-14-68-§1 , ACT-1985-06-14-68-§3 , ACT-1985-06-14-68-§4 , ACT-1985-06-14-68-§5 , ACT-1985-06-14-68-§9 , ACT-1985-06-14-68-§10 , ACT-1985-06-14-68-§11 , ACT-1985-06-14-68-§13 , ACT-1985-06-14-68-§14 , ACT-1985-06-14-68-§17 , ACT-2003-12-19-124-§7 , ACT-2003-12-19-124-§8 , ACT-2003-12-19-124-§14 , ACT-2003-12-19-124-§15 , ACT-2003-12-19-124-§19 , ACT-2003-12-19-124-§23 , ACT-2003-12-19-124-§24 , ACT-2003-12-19-124-§25 , ACT-2003-12-19-124-§26 , ACT-2003-12-19-124-§28 , ACT-2003-12-19-124-§32 , ACT-2003-12-19-1790 , ACT-1974-12-20-73-§30 , ACT-1974-12-20-73-§2 , ACT-1974-12-20-73-§4 , ACT-1974-12-20-73-§5 , ACT-1974-12-20-73-§5a , ACT-1974-12-20-73-§9 , ACT-1974-12-20-73-§31

1. CONTENTS

Regulations relating to Operation of Aquaculture Establishments (Aquaculture Operation Regulations).

Chapter 1. Purpose, scope and definitions

- § 1. Purpose
- § 2. Geographic and personnel scope of the Regulations
- § 3. Substantive scope of the Regulations
- § 4. Definitions

Chapter 2. General requirements

- § 5. General requirements for sound operation
- § 6. Competence etc.

- § 7. Contingency plan
- § 8. Location, marking and mooring of installation
- § 9. Hygiene
- § 10. Own supervision of aquaculture animals and installations
- § 11. Health checks
- § 12. Content of health check
- § 13. Use of pharmaceuticals and chemicals
- § 14. Slaughtering and handling of dead aquaculture animals
- § 15. Clearance

Chapter 3. Special requirements for the production of fish

- § 16. Installations and production units
- § 17. Methods and technical appliances
- § 18. Alarm system
- § 19. Water quality in general
- § 20. Water quality in aquaculture establishments in the sea
- § 21. Water quality in land-based aquaculture establishments
- § 22. Tests and release in seawater
- § 23. Feeding
- § 24. Handling and care of fish
- § 25. Predators, algae and jellyfish
- § 26. Ban on operating and removing body parts
- § 27. Chemical substances and hormones
- § 28. Destruction of fish
- § 29. Environmental monitoring
- § 30. Measures in the event of unacceptable environmental conditions
- § 31. Escape etc.
- § 32. Duty to report escapes
- § 33. Recapture of escaped fish
- § 34. Production lights

Chapter 4. Further requirements for the production of brood fish and on-growing fish

- § 35. Operating plan and fallowing
- § 36. Journal keeping
- § 37. Journal keeping at the locality/site level
- § 38. Journal keeping at the production unit level
- § 39. Additional journal keeping requirements for brood fish
- § 40. Reporting and notification
- § 41. Density
- § 42. Biomass
- § 43. Use of seawater
- § 44. Health checks of brood fish and on-growing fish
- § 45. Breeding and reproduction

Chapter 5. Further requirements for the production of hatchery-reared fish and for fish for cultivation

- § 46. Weight restriction
- § 47. Production restriction per segregated unit
- § 48. Journal keeping
- § 49. Notification
- § 50. Water intake and water source
- § 51. Use of seawater

§ 52. Density

§ 53. Other fish in aquaculture establishments for hatchery-reared fish and fish for cultivation

§ 54. Health checks of brood fish and on-growing fish

§ 55. Vaccination

Chapter 6. Special requirements for the production of molluscs, crustaceans and echinoderms

§ 56. Journal keeping

§ 57. Notification

§ 58. Health checks of molluscs, crustaceans and echinoderms

Chapter 7. Administrative provisions, measures and penalties

§ 59. Supervisions and decisions

§ 60. Dispensation

§ 61. Orders and coercive fines etc.

§ 62. Penalties

§ 63. Entry into force and repeal of regulations

2. Regulations relating to Operation of Aquaculture establishments (Aquaculture Operation Regulations).

Stipulated by the Ministry of Fisheries and Coastal Affairs 22 December 2004 pursuant to Sections 1, 3, 4, 5, 9, 10, 11, 13, 14 and 17 of Act no. 68 of 14 June 1985 relating to Aquaculture, Sections 7, 8, 14, 15, 19, 23, 24, 25, 26, 28 and 32 of Act no. 124 of 19 December 2003 relating to Food Production and Food Safety etc. (Food Act), cf. delegation of authority decision no. 1790 of 19 December 2003 and Section 30, cf. Sections 2, 4, 5, 5a, 9 and 31 of Act no. 73 of 20 December 1974 relating to Animal Welfare. Amended 4 March 2005 no. 199.

3. Chapter 1. Purpose, scope and definitions

§ 1. Purpose

The purpose of these Regulations is to contribute to the sustainable development of the aquaculture industry and to its development as a profitable, competitive and viable coastal industry.

The purpose is also to ensure the health of aquaculture animals and protect the welfare of fish.

§ 2. Geographic and personnel scope of the Regulations

The regulations apply to Norwegian land territory and territorial waters, and in Norway's economic zone.

The regulations are directed at anyone who has or is required to be licensed pursuant to Sections 3, 6, 7 and 8 of Act no. 68 of 14 June 1985 relating to Aquaculture, or, where adequate, approval pursuant to Section 5 of Regulation no. 279 of 16 January 2004 relating to the Approval of Establishing and Expanding Aquaculture Establishments and Registration of Ornamental Ponds.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 3. Substantive scope of the Regulations

The regulations apply to the operation of aquaculture establishments.

Chapters 1, 2, 3, 4 and 7 apply to production of on-growing fish and brood fish.

Chapters 1, 2, 3, 5 and 7 apply to production of hatchery-reared fish.

Chapters 1 and 7 apply to production of fish for cultivation. In addition, the following provisions apply: Section 9, Section 10 except for third paragraph, Sections 11, 12, 14, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28 and 44, Section 48 except for second paragraph littera b, Sections 49, 50, 51, 52, 53 and 54.

Chapters 1, 2, 6 and 7 apply to production of molluscs, crustaceans and echinoderms.

Chapters 1 and 7 apply to the keeping of on-growing fish in slaughter pens at slaughterhouses. In addition, the following provisions apply: Sections 5, 6, 7, 8, Section 9 first paragraph, Section 10, Section 11 second paragraph, Sections 14, 15, 16, 17, 19, 20, 24, 31, 32, 33 and 36, Section 37 littera c, Section 38 first paragraph littera a and second paragraph litterae a and c, and Sections 42 and 43.

Chapters 1 and 7 apply to the keeping of wrasse. In addition, the following provisions apply: Sections 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 23, 24, 26, 27, 28, 31 and 32, Section 38 first paragraph litterae a and c, second paragraph litterae a and c and Section 42.

Chapters 1, 2 and 7 apply to production other than that following from the previous paragraphs. Chapter 3 also applies if the production concerns fish.

§ 4. Definitions

For the purpose of these regulations:

- a) *Aquaculture animals means*: aquatic animals, including sexual products, resting and reproductive stages, with the exception of sea mammals, originating from or destined for an aquaculture establishment.
- b) *Aquaculture establishment*: one or more installations in a locality/site with aquaculture operations and appurtenant land base.
- c) *Aquaculture operations means*: production of aquaculture animals with appurtenant activities. Production means any and all measures to influence the weight, size, number, characteristics or quality of aquaculture animals.
- d) *Anadromous fish means*: fish migrating between seawater and freshwater and which depend on freshwater to reproduce.
- e) *Biomass means*: the biomass of live fish (measured in kg or tonnes) in existence at the locality/site or licence.
- f) *Molluscs means*: shellfish (chitons, snails, mussels, octopuses, squids, and tusk shells).
- g) *Freshwater fish means*: fish that live their entire life in freshwater.
- h) *Installation means*: facility where aquaculture animals are fed, treated, or kept, including moorings. An installation may consist of several production units.
- i) *Licence means*: permit issued pursuant to the Aquaculture Act to engage in aquaculture operations at one or more localities/sites.
- j) *Crustaceans means*: all crustaceans, including lobsters and crabs.
- k) *Fish for cultivation means*: anadromous fish or freshwater fish produced with the aim of later release into the wild with the exception of sea ranching.
- l) *Locality/site means*: geographically limited area either on land or in the water for aquaculture operations.
- m) *Marine fish means*: fish that live their entire life in seawater or brackish water.
- n) *On-growing fish means*: fish produced with the aim of slaughtering them for consumption and that do not come under the definitions of fingerlings or brood fish.

- o) *Echinoderms*: sea lilies, starfish, brittle stars, sea urchins and sea cucumbers.
- p) *Production unit*: net, tank, pond, cage, bags, enclosures and the like.
- q) *Hatchery-reared fish means*: roe, larvae, juveniles or smolts produced with the aim of transfer to other localities/sites.
- r) *Brood fish means*: fish that are to be stripped or reproduced in another manner.
- s) *Watercourse means*: all stagnant or flowing surface water where the flow of water is ensured year round, with appurtenant bottom and banks up to highest floodwater mark, including main and tributary watercourses with appurtenant catchment area.
- t) *Water quality means*: the suitability of the water environment based on the needs of the fish, including the water's chemical (oxygen, carbon dioxide, ammonia, iron, aluminium etc.), physical (temperature, turbidity, salinity and current speed and distribution) and hygienic (contaminants such as residual feed, faeces and fouling) quality.

4. Chapter 2. General requirements

§ 5. General requirements for sound operation

Operations shall be technically, biologically and environmentally sound.

§ 6. Competence etc.

At the aquaculture establishment there shall be one person responsible for daily operations who has the necessary professional qualifications, including the necessary knowledge of how to prevent, discover and limit the escape of fish.

There shall also be sufficient personnel with the necessary competence to protect the welfare of the fish.

Necessary competence pursuant to paragraph two shall be documented through practical and theoretical training. The training, which shall be approved by the Norwegian Food Safety Authority, shall be repeated every fifth year.

The third paragraph enters into force on 1 January 2010.

§ 7. Contingency plan

An updated contingency plan shall be in existence at all times.

The contingency plan shall serve to ensure hygienic sanitary conditions and protect the welfare of the fish in emergency situations. It shall provide an overview of sanitary and animal welfare-related measures that are relevant to implement to prevent and, if applicable, handle acute breakouts of contagious disease and mass death, including lifting, treatment, transport, maximum time fish can stay in pipe systems in the event of system failure, slaughtering and destruction of sick and dead animals.

Furthermore, the contingency plan shall provide an overview of measures to prevent and, if applicable, handle mortality in the event of harmful algae and jellyfish infestations, harmful water temperatures, and acute pollution.

The contingency plan shall also contain an overview over how escapes can be discovered and limited and recapture carried out efficiently, including precautions for towing pens and handling fish and pens during loading and unloading.

§ 8. Location, marking and mooring of installations

Installations must be established in conformity with the descriptions, drawings and maps referred to in the licence.

Installations shall be marked with a locality/site number and the name of the licence holder(s) with production in the aquaculture establishment. The marking shall be in the form of signs clearly visible from the sea and other natural approachways.

In places where two or more licence holders have production in the same aquaculture establishment, each production unit shall be marked with the name of the licence holder who owns the aquaculture animals in the production unit.

Floating installations shall be moored at all times and marked in accordance with requirements laid down in or pursuant to the Harbour Act.

§ 9. Hygiene

Operations shall be sound with respect to sanitation and hygiene. Necessary cleaning of installations and production units shall be undertaken regularly. Steps shall be taken to ensure that personnel, work clothes, equipment, objects, used packaging etc. do not spread infection. Used seines, objects, equipment etc. shall be cleaned and disinfected before they are moved to another aquaculture establishment.

If necessary, production units shall be covered to protect against infection.

Systematic steps shall be taken to prevent the spread of infection by roe and milk. Newly fertilised roe of salmonids shall be disinfected before placement in incubator.

§ 10. Own supervision of aquaculture animals and installations

The person responsible for daily operations shall ensure that risk-based supervision be carried out of factors of significance for the environment, health and welfare of aquaculture animals, including supervision of installations, technical appliances and production equipment. Supervision of fish farms shall be done at least once daily insofar as weather conditions permit. Supervision of farms with molluscs, crustaceans and echinoderms shall be carried out at least once a week.

Supervision shall be carried out in a manner that disturbs the fish as little as possible.

In the event bad weather is predicted, a special inspection shall be done to ensure that installations are properly secured. The installations shall be inspected immediately after the storm.

Faults and defects in the installations, technical appliances and equipment shall be repaired immediately.

Alarms on land-based aquaculture establishments shall be inspected as needed, and at least once a week.

§ 11. Health checks

Risk-based health checks shall be made of aquaculture animals to prevent and treat disease and injury.

In the event of increased mortality or suspicion of contagious or non-contagious disease in one or more production units, a veterinarian or fish health biologist shall be notified immediately and a health check shall be carried out to determine the cause.

In the event of persistent increased mortality, a new health check shall be carried out within 14 days, unless the cause is unambiguous and determined.

When aquaculture animals are taken into an aquaculture establishment, at least one health check shall be carried out before aquaculture animals are taken out of the aquaculture establishment.

§ 12. *Content of health check*

The health check shall be performed by veterinarians or fish health biologists. With the permission of the Norwegian Food Safety Authority, other personnel with equivalent competence may be used.

The operating journal shall be reviewed during each health check. On the basis of a risk evaluation, a representative sample of the production units shall be inspected. A representative sample of newly dead animals or animals exhibiting abnormal behaviour shall be examined and relevant tests shall be performed.

In addition, all production units shall be inspected in the event of increased mortality or suspicion of contagious or non-contagious disease. Specimens shall be taken and tests performed to establish the cause.

§ 13. *Use of pharmaceuticals and chemicals*

When using pharmaceuticals and chemicals, great care shall be exercised to avoid their release into the surrounding environment.

If aquaculture animals are being given pharmaceuticals that entail a duty to retain the animals (retention period), due notification shall be given on a sign placed beside the locality/site sign. The sign must be clearly visible from the sea and other natural approachways. The duty of notification applies from the commencement of treatment until the retention period has expired for the medication that was used.

§ 14. *Slaughtering and handling of dead aquaculture animals*

The slaughter of aquaculture animals at aquaculture establishments is not permitted.

As far as possible, dead aquaculture animals shall be removed daily from the production unit.

Dead aquaculture animals and parts or trimmings of such shall be treated as animal waste and stored in containers or other facilities with no outlet for drainage. Dead fish and other waste from fish shall be immediately ground and ensilaged to a pH under 4.

For aquaculture establishments with over 130 tonnes of biomass, the capacity of the container or facility in accordance with the third paragraph shall not be less than 5 m³ per farm.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 15. *Clearance*

Aquaculture establishments shall be kept tidy at all times. Installations may only be kept at a locality/site to the extent it takes place as part of operations.

In the event operations at a locality/site are permanently closed, the site shall be completely cleared, including removal of installations above and under water. Complete clearance shall be completed no later than 6 months after closure.

5. Chapter 3. Special requirements for the production of fish

§ 16. *Installations and production units*

Installations and production units shall:

- a) be such that the fish have adequate space for movement and other natural behaviour, and if applicable have a suitable substrate for support and shelter,
- b) not have sharp edges and protrusions that may cause the fish discomfort.
- c) entail minimal risk of injury to the fish, including during stocking and capture,
- d) be such that it is simple to undertake an inspection of the fish,
- e) be such that it is possible to give the fish good care and treatment,
- f) facilitate cleanliness, and
- g) be well suited, with respect to weather conditions etc., to the site where they are to be used.

§ 17. *Methods and technical appliances*

Methods, technical appliances and equipment used for fish, including relocation equipment, pipe systems and automatic vaccination equipment, shall be suitable with respect to the welfare of the fish.

New methods and technical solutions shall be tested and found to be in order before they are put into service.

If operations depend on electricity to meet the needs of the fish in a proper manner, there shall be access to sufficient electricity and access to an emergency generator or emergency oxygen with the necessary capacity.

§ 18. *Alarm system*

Land-based aquaculture establishments shall have alarm systems that provide an alert in the event of power failure, low level of oxygen and other system failures of significance for the welfare of the fish so that steps can be taken as soon as possible.

Enters into force 1 January 2006.

§ 19. *Water quality in general*

Fish shall have access to sufficient amounts of water of a certain quality so that the fish have good living conditions and are not in danger of undue suffering or injury being inflicted on them.

The water quality and the interaction of the various water parameters shall be monitored as needed. Effective measures shall be implemented if there is a danger of unnecessary suffering or injury.

The quantity of metabolic waste products in the water shall be within justifiable limits.

§ 20. *Water quality in aquaculture establishments in the sea*

Installations in the sea shall be designed and maintained in a manner that ensures good throughflow of clean water.

Oxygen saturation and temperature shall be measured as needed.

§ 21. *Water quality in land-based aquaculture establishments*

The intake and sewage system in land-based aquaculture establishments shall be designed and maintained in a manner that ensures sufficient throughflow of water.

The establishment shall have a backup system that upon failure of the system can meet the fundamental physiological needs of the fish with respect to oxygen and metabolites.

Systematic measurements of O₂, pH, salinity and temperature of the facility shall be taken. The salinity measurement requirement does not apply when the water stems exclusively from a freshwater source. Measuring of pH does not apply when the water stems exclusively from the sea.

§ 22. *Tests and release in seawater*

Tests that subject fish to considerable stress shall not be used. Fish shall not be exposed to water with a salinity higher than 35 ppt.

Before placing anadromous fish in seawater, suitable tests shall be performed to prove that the fish are sufficiently smoltified.

§ 23. *Feeding*

The amount of feed shall be sufficient and of a composition that promotes good welfare. The feed shall be adapted to species, age, development stage, weight, physiological and behavioural needs.

Fish shall normally be fed daily unless this is not practical for the species or development stage in question. They shall be fed in such a manner that all of the fish have easy access to feed without being injured while feeding.

Fish shall not be fed when feeding is disadvantageous out of consideration for the welfare, hygiene or quality of the fish.

§ 24. *Handling and care of fish*

Fish shall be kept in an environment that fosters good welfare based on species-specific needs and affords the best protection against undue stress, pain and suffering.

Fish shall be sorted and placed according to size where necessary to protect the welfare of the fish and not be in conflict with health considerations.

Fish shall not be handled unnecessarily. Handling, including crowding and pumping, shall take place in a sensitive manner and at a proper tempo to avoid inflicting undue injury or stress on the fish. Fish shall be taken out of the water as little as possible.

If fish exhibit signs of considerable discomfort or behavioural changes beyond what is normal during handling, necessary measures shall be implemented immediately to ensure the welfare of the fish.

§ 25. *Predators, algae and jellyfish*

Measures ensuring proper care and keeping of fish shall be implemented when there is danger of considerable stress and pain due to predators, algae or jellyfish.

§ 26. *Ban on operating and removing body parts*

Performing operations on and removing body parts from live fish is prohibited.

The provision in the first paragraph does not prevent tagging that does not entail considerable discomfort, or prevent veterinarians or fish health biologists from performing operations for animal health reasons.

§ 27. *Chemical substances and hormones*

Fish shall not be given any form of chemical substances, including salt, or be treated with hormones, should this have a negative impact on fish welfare. Use of chemical substances and hormones are permitted should this be necessary for animal health reasons.

§ 28. *Destruction of fish*

If continuing to live subjects a fish to unnecessary or considerable suffering, it shall be properly anaesthetised and destroyed as soon as possible.

Fish shall be anaesthetised before destruction and be anaesthetised when death occurs. The method of anaesthesia/stunning shall not inflict considerable stress or pain on the fish. Anaesthetising/stunning shall be accomplished by a blow to the head, use of suitable medication or other suitable method.

Fish shall die as the result of bleeding and subsequent loss of blood from the brain, medicinal overdose or other suitable method. It shall be ensured that the fish are dead before further treatment. All serum, other parts or trimmings of fish shall be collected and treated as animal waste, cf. § 14.

Destroying large quantities of fish in aquaculture establishments with floating installations is not permitted. The Norwegian Food Safety Authority may grant permission for such destruction should this be necessary for compelling fish health or welfare reasons.

§ 29. *Environmental monitoring*

Environmental monitoring of seawater localities/sites where fish are produced shall be undertaken. Trend monitoring of the bottom conditions underneath the farm shall be undertaken in accordance with NS 9410 - Environmental monitoring of marine on-growing farms or similar international standard/recognised norm of a competent body. A competent body shall document relevant professional competencies to clients and be independent of client.

The first environmental examination for raising salmon, trout and rainbow trout shall be carried out at a time in the production cycle where there is the greatest burden on or biomass in the locality/site. The first environmental examination for raising fish species other than salmon, trout and rainbow trout shall be carried out when more than 1/3 of the permitted licensed biomass has been produced. Environmental examinations shall subsequently be performed according to the frequencies ensuing from NS 9410 or similar international standards/recognised norms. The examinations shall preferably be performed at the time of the production cycle when there is the greatest burden on or biomass in the locality/site.

At localities/sites where it is difficult to implement the examinations according to NS 9410 or similar international standard/recognised norms due to depths or localities/sites with loose or solid rock bottom, the Directorate of Fisheries' regional office, in consultation with the County Department of Environmental Affairs, may order an alternative monitoring programme.

A report shall be made to the Directorate of Fisheries' regional office after the examination is completed.

§ 30. *Measures in the event of unacceptable environmental conditions*

If the trend monitoring of the bottom conditions underneath the farm (the B-examination) shows unacceptable environmental conditions (according to NS 9410 condition 4), a large number of samples shall be taken underneath the farm (extended B-examination). In consultation with the County Department of Environmental Affairs, the Directorate of Fisheries' regional office may also require an examination of the bottom conditions underneath the farm (the local zone) and beyond in the recipient (the distant zone) (called the C examination in NS 9410) in accordance with NS 9410 cf. 9423 or similar international

standard/norm, which in case shall be carried out by a body accredited for performing the task.

Should examinations according to the first paragraph still show unacceptable environmental conditions, the Directorate of Fisheries' regional office, in consultation with the County Department of Environmental Affairs, may order the fallowing of the locality/site. A fallowing order may not be lifted before a new environmental examination shows that the environmental state is in the highest categories (condition 1 or 2).

§ 31. *Escape etc.*

Special attention shall be paid to prevent fish from escaping. Furthermore, steps shall be taken to ensure that any escapes are discovered as quickly as possible and that the escape is limited to the greatest possible extent.

Risk assessment shall be carried out with a view to minimising the risk of escape. The risk assessment shall form the basis for systematic measures.

Land-based aquaculture establishments shall have suitable fittings to prevent fish from escaping through the sewage systems or in another manner.

Releasing fish from the farm is prohibited.

§ 32. *Duty to report escapes*

Notification shall be made immediately on the set form to the Directorate of Fisheries' regional office if it is known that fish are escaping, or when there is suspicion of escape, regardless of whether the fish have escaped from one's own or others' production units or aquaculture establishments. Further reporting requirements shall be stipulated on forms for reporting escapes.

§ 33. *Recapture of escaped fish*

Recapture of escaped fish shall be undertaken immediately. The duty to recapture is limited to the sea area up to 500 metres from installations and ceases when it is obvious that the escaped fish are no longer in this area.

When warranted by the possibility of recapturing fish, the Directorate of Fisheries' regional office, in cooperation with the County Department of Environmental Affairs, may extend or restrict the scope of the duty to recapture with respect to time and geographic extent.

Both start-up and conclusion of the fish recapture must be reported to the Directorate of Fisheries' regional offices and the County Department of Environmental Affairs.

Establishments must accept their own fish that have been legally fished by others in an area defined by Directorate of Fisheries' regional office in consultation with the County Department of Environmental Affairs.

The Directorate of Fisheries' regional office can waive the duty to recapture in the event wild-caught fish and hatchery-reared fish have escaped.

§ 34. *Production lights*

Production lights shall be fitted so that they are not a hazard to normal traffic on the sea.

6. Chapter 4. Further requirements for the production of brood fish and on-growing fish

§ 35. *Operating plan and fallowing*

There must be an operating plan at all times for aquaculture establishments in seawater.

For the next two calendar years, the operating plan shall at a minimum list:

- a) the aquaculture establishments where there are plans to stock fish, the stocking date and number of fish. For localities/sites where several licences have production the plan shall state which licences the stocking applies to, and
- b) date of fallowing or possible moving of fish to other localities/sites.

Aquaculture establishments in seawater with salmon, trout and rainbow trout on-growing fish and brood fish shall be emptied and fallowed for a minimum of two months after each production cycle. Where warranted by fish health concerns, the Norwegian Food Safety Authority may order longer fallowing periods for individual farms and coordinated fallowing of an area.

Operation and fallowing shall take place in such manner that all localities/sites in an area are efficiently utilised to achieve greater creation of value.

Operating plans for the next two calendar years for salmon, trout and rainbow trout on-growing fish and brood fish shall be submitted to the Directorate of Fisheries' regional office for approval before 1 October.

In consultation with the Norwegian Food Safety Authority, the Directorate of Fisheries' regional office shall approve the portion of the plan applying to the first year. The Norwegian Food Safety Authority may deny approval should concern for fish health in the individual aquaculture establishment or in an area warrant it.

In the event of substantial changes to the approved portion of the plan, an application for approval of the changes shall be submitted immediately to the Directorate of Fisheries' regional office.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 36. *Journal keeping*

An operating journal shall be kept at the aquaculture establishment for at least 3 years.

§ 37. *Journal keeping at the locality/site level*

At a minimum, an operating journal at the locality/site level shall contain updated information on:

- a) number of the production unit associated with the licence number and licence holder,
- b) date of fallowing,
- c) escapes: cause of escape, date of escape, species, number of escaped fish and their average weight and state of health, and that the escape has been reported to the Directorate of Fisheries' regional office and the report date,
- d) catches during re-catching operations: number of fish, size distribution, aggregate weight and distribution of species,
- e) consumption of chemicals: type of chemical, product name, quantity and consumption period,
- f) consumption of pharmaceuticals: pharmaceutical type, product name, quantity, consumption period and retention period,
- g) delivery of dead fish: quantity delivered, delivery date and recipient, and
- h) results of environmental examinations undertaken: map (1:5000), the topographical floor

map, farm map where the sample taking sites are marked and the form for summarising the examination.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 38. *Journal keeping at the production unit level*

At a minimum, an operating journal at the production unit level shall contain updated information on:

- a) stocking of fish: date, species, number of fish, cohort and origination,
- b) slaughtered quantity: date, species, number of fish, slaughter weight and slaughter condition,
- c) removal of live fish: date, species, number and quantity. If fish are moved a journal entry shall be made of the aquaculture establishments to which the fish have been moved,
- d) real volume,
- e) health and welfare status of the fish: number of health checks, number of autopsied fish, sampling, examinations, diagnoses, injuries, treatments, and known or probable causes of injuries and production diseases,
- f) relevant parameters for water quality and water quality measures,
- g) attacks by predators, algae or jellyfish and any countermeasures taken.

The following information shall be logged daily at the production unit level:

- a) stocks of fish: species, number of fish and cohort,
- b) biomass and basis for calculating biomass,
- c) losses: species, number of fish, quantity and cause, and
- d) feed consumption in kilos and type of feed.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 39. *Additional journal keeping requirements for brood fish*

At a minimum, the operating journal for aquaculture establishments with brood fish shall also contain information at the locality/site level on:

- a) number of litres of roe produced,
- b) biological genetics and origin, and
- c) delivery of roe internally and externally: date for delivery, name of recipient and number of litres of roe.

The journal keeping requirement in littera a of this paragraph only applies to temporary brood fish licences.

§ 40. *Reporting and notification*

Seawater aquaculture establishments with salmon, trout and rainbow trout shall submit monthly reports to the Directorate of Fisheries regarding the following data for each locality/site.

Seawater aquaculture establishments with salmon, trout and rainbow trout shall submit monthly reports to the Directorate of Fisheries with the following information for each production unit in operation:

- a) number of the production unit of the licence holder,

- b) stocking of fish: species, number of fish and cohort,
- c) stocks of fish: species, number of individuals and cohort,
- d) biomass,
- e) slaughtered quantity: species, number of fish, slaughter weight and slaughter condition,
- f) removal of live fish: species, number and quantity, when moving fish it shall be reported to which aquaculture establishment the fish have been moved to,
- g) losses: species, number of fish, quantity and cause,
- h) feed consumption in kilos and type of feed, and
- i) real volume.

Deadline for submission of monthly calendar information according to the first and second paragraphs shall be the 7th of the following month.

From aquaculture establishments on land or in freshwater, and from aquaculture establishments with fish species other than salmon, trout and rainbow trout, a report shall be made to the Directorate of Fisheries' regional office when:

- a) an aquaculture establishment is put into service and the species that is stocked,
- b) an aquaculture establishment is empty of animals, and
- c) there is substantially higher mortality or substantial danger to the fish.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 41. *Density*

Fish density shall be adapted to water quality, the behavioural needs of the fish, operating structure and feed technology. The fish density per production unit with salmon and rainbow trout brood fish and on-growing fish shall not exceed 25 kg/m³. The real volume in which the fish can move shall serve as the basis for calculating fish density.

§ 42. *Biomass*

The biomass per licence shall not exceed the maximum permitted biomass stipulated in the licence issued pursuant to the Aquaculture Act.

The total of the biomass in licences issued within the same species and belonging to the same licence holder within one of the Directorate of Fisheries' regions constitutes a biomass ceiling. The biomass ceiling shall serve as the calculation basis when inspecting the maximum permitted biomass of the individual licence holders.

The biomass at a locality/site shall not exceed the maximum permitted biomass approved for the locality according to the licence.

Fish belonging to various licence holders shall not be in the same production unit.

Various licence holders operating jointly located sites are jointly and severally liable for exceeding the locality/site biomass.

In the event of a suspected violation of the maximum permitted biomass stipulated in the licence, the Directorate of Fisheries may require the weighing of the biomass, or other physical measurement of the biomass, at the proprietor's expense. A representative of the Directorate of Fisheries shall be given the opportunity to be present during the weighing.

§ 43. *Use of seawater*

Aquaculture establishments with anadromous fish that use seawater or parts of such establishments shall use disinfected seawater in the production if the fish are to be moved.

The first paragraph does not apply to direct transfer to slaughterhouses or processing plants, or local moving ensuing from approved operating plan.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 44. *Health checks of brood fish and on-growing fish*

Brood fish in aquaculture establishments with fewer than 50 brood fish shall have at least 6 routine health checks per year. These shall be scheduled so that the maximum time between each health check is 3 months.

Brood fish in aquaculture establishments with more than 50 brood fish shall have at least 12 routine health checks per year. These shall be scheduled so that the maximum time between each health check is 8 weeks.

On-growing fish in aquaculture establishments with more than 3,000 and fewer than 50,000 on-growing fish shall have at least 4 routine health checks per year. These shall be scheduled so that the maximum time between each health check is 4 months.

On-growing fish in aquaculture establishments with more than 50,000 on-growing fish shall have at least 6 routine health checks per year. These shall be scheduled so that the maximum time between each health check is 3 months.

In the final 9 months before stripping or other form of reproduction, all brood fish that die or exhibit abnormal behaviour clearly not caused by technical accidents or other non-disease related causes, shall be autopsied and relevant examinations shall be carried out.

When stripping salmon, rainbow trout, wild-caught salmon and wild fish for admission of roe into living gene banks:

- a) all female fish shall be autopsied after stripping,
- b) all male fish shall be autopsied after they are used for the last time, and
- c) relevant examinations shall be carried out.

Salmon that are hatched and raised as brood fish in living gene banks are exempt from the provision in paragraph five.

All wild-caught anadromous fish that are stripped shall be tested for bacterial kidney disease (BKD) and furunculosis. Wild fish that are stripped for admission of roe into living gene banks shall also be tested for infectious pancreatic necrosis (IPN) virus.

At least 30 salmon or rainbow trout on-growing fish in freshwater shall be examined for *Gyrodactylus salaris* each year.

§ 45. *Breeding and reproduction*

In breeding work emphasis shall be placed on producing healthy and strong fish. Domesticating fish shall be emphasised. This does not apply to fish for cultivation.

Natural or artificial fertilisation procedures that cause, or that probably will cause, suffering or injury shall not be used.

If living fish are to be stripped, an anaesthetic or sedative shall be used to the extent it is necessary for the species in question.

Any fish whose gonads are to be removed shall be killed before they are removed.

7. Chapter 5. Further requirements for the production of hatchery-reared fish and for fish for cultivation

§ 46. *Weight restriction*

Hatchery-reared salmon, rainbow trout and trout shall not have an individual weight exceeding 250 grams.

§ 47. *Production restriction per hygienically segregated unit*

The number of hatchery-reared fish per hygienically segregated unit shall not exceed 2,500,000.

§ 48. *Journal keeping*

An operating journal shall be kept at an aquaculture establishment for at least 3 years.

At a minimum, an operating journal shall contain updated information on:

- a) stocks of fish: number of fish, number of purchased/delivered fish,
- b) escapes: cause of escape, date of escape, number of escaped fish, size, state of health, and that the escape has been reported to the Directorate of Fisheries' regional office and the report date,
- c) consumption of chemicals: type of chemical, product name, quantity and consumption period,
- d) consumption of pharmaceuticals: type of pharmaceutical, product name, quantity and consumption period,
- e) health and welfare of fish: number of health checks, number of autopsied fish, sampling, examinations, diagnoses, injuries, treatments, and known or probable causes of injuries and production diseases,
- f) relevant parameters for water quality and water quality measures, and
- g) treatment and delivery of dead fish: manner of treatment, delivery date and recipient.

A daily log of the number of dead fish per production unit shall be kept.

§ 49. *Notification*

The local Norwegian Food Safety Authority shall be notified when;

- a) an aquaculture establishment is put into service and the species stocked,
- b) an aquaculture establishment is emptied of animals, and
- c) there is significantly higher mortality among or considerable danger to the fish.

§ 50. *Water intake and water source*

Water intake for hatchery-reared fish and fish for cultivation shall be protected against the intake of wild fish.

The water source for hatchery-reared fish and fish for cultivation of anadromous fish or freshwater fish shall be absent of the migratory populations of anadromous fish, and free of other aquaculture-related operations, or effluent from such activities.

Dispensation may be granted from the second paragraph for farms established before 1 January 2001.

§ 51. *Use of seawater*

Water intake from the sea for hatchery-reared fish and fish for cultivation, with the exception of marine fish, shall be treated and inspected according to requirements laid out in Regulations of 20 February 1997 no. 192 relating to the disinfection of intake water to and effluent from aquaculture-related activities.

§ 52. Density

Fish density shall be justifiable and adapted to water quality, the behavioural needs of the fish, operating structure and feed technology.

§ 53. Other fish in aquaculture establishments for hatchery-reared fish and fish for cultivation

If brood fish or wild-caught fish are taken into an aquaculture establishment for hatchery-reared fish or fish for cultivation, the fish that are taken in shall be held in a department hygienically segregated from hatchery-reared fish or fish for cultivation. The department used for broodfish or wild-caught fish shall be cleaned and disinfected before the fish are taken in and before it can re-enter service for hatchery-reared fish or fish for cultivation.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 54. Health checks of hatchery-reared fish and fish for cultivation

Hatchery-reared fish and fish for cultivation of anadromous fish that are to be released into several watercourses shall have at least 12 routine health checks per year. These shall be scheduled so that the maximum time between each health check is 8 weeks.

Fish for cultivation of freshwater fish that are to be released into several watercourses, and fish for cultivation that are kept over winter and released into a single watercourse shall have at least 4 routine health checks per year.

Fish for cultivation that are not kept over winter and are to be released into a single watercourse shall have at least 2 routine health checks before release.

At each health check of hatchery-reared fish and anadromous fish for cultivation that are to be released into several watercourses, a representative sample of at least 30 newly dead or moribund fish shall be autopsied and relevant examinations shall be carried out. If the number of dead or moribund fish is under 30, all the dead or moribund fish shall be autopsied.

The final health check before live hatchery-reared and fish for cultivation are removed from an aquaculture establishment shall be performed at the earliest 3 weeks prior to delivery.

At least 30 fish shall be examined for *Gyrodactylus salaris* over the course of the final three months before live hatchery-reared and fish for cultivation are removed from an aquaculture establishment containing salmon or rainbow trout.

§ 55. Vaccination

Before it is put into service, automatic vaccination equipment shall be tested and found to be in order with regard to the welfare of fish.

The utmost care shall be taken to ensure that the vaccination method is correctly performed. Any malfunctions that are discovered shall be corrected immediately.

8. Chapter 6. Special requirements for the production of molluscs, crustaceans and echinoderms

§ 56. Journal keeping

An operating journal shall be kept at an aquaculture establishment for at least 3 years.

At a minimum, an operating journal shall contain at any given time information on:

- a) the date the aquaculture establishment is put into service and the species stocked,
- b) the date the aquaculture establishment is emptied of aquaculture animals,
- c) the number of own inspections per month of the installation and aquaculture animals, and
- d) health status: the number of health checks, samplings, examinations, diagnoses and treatments carried out.

§ 57. Notification

The Directorate of Fisheries' regional office shall be notified when:

- a) an aquaculture establishment is put into service and the species stocked, and
- b) an aquaculture establishment is emptied of aquaculture animals.

§ 58. Health checks of molluscs, crustaceans and echinoderms

Crustaceans, molluscs and echinoderms that are to be reproduced, as well as their larvae, shall have at least 6 routine health checks per year. These shall be scheduled so that the maximum time between each health check is 3 months.

Except for sea ranching and aquaculture establishments with natural additions, other stages of crustaceans, molluscs and echinoderms spending their entire growing period in the same aquaculture establishment shall have at least 4 routine health checks per year. These shall be scheduled so that the maximum time between each health check is 4 months.

9. Chapter 7. Administrative provisions, measures and punishment

§ 59. Supervision and decisions

The Directorate of Fisheries shall supervise and order the implementation of the provisions laid out in Section 5, Section 6 first paragraph, Section 7 first, third and fourth paragraphs, Section 8, Section 10 first, third and fourth paragraphs, Sections 13, 15, 29, 30, 31, 32, 33 and 34, Section 35 with the exception of the third paragraph, Section 36, Section 37 litterae a-f and h, Section 38 first paragraph litterae a, b, c and g and second paragraph, Sections 39, 40, 42, and 46, Section 48 first paragraph and second paragraph litterae a through d, Section 56 with the exception of second paragraph littera d and Section 57.

The Norwegian Food Safety Authority shall supervise and order the implementation of the provisions laid out in Section 6 second and third paragraphs, Section 7 first and second paragraphs, Section 9, Section 10 with the exception of the third paragraph, Sections 11, 12, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 and 28, Section 35 with the exception of the fourth paragraph, Section 36, Section 37 litterae a, b, e, f and g, Section 38 first paragraph and second paragraph litterae a, b and c, Section 39 litterae b and c, Section 40 first paragraph and second paragraph with the exception of littera h, Section 41, Section 42 third paragraph, Sections 43, 44, 45 and 47, Section 48 with the exception of second paragraph littera b, Sections 49, 50, 51, 52, 53, 54, 55, 56, 57 and 58.

0 Amended by Regulations of 4 March 2005 no. 199.

§ 60. Dispensation

In special cases, the Directorate of Fisheries may grant dispensation from the provisions mentioned in Section 59 first paragraph.

In special cases, the Norwegian Food Safety Authority may grant dispensation from the provisions mentioned in Section 59 first paragraph.

A requirement for dispensation under the first or second paragraph is that it does not conflict with Norway's international obligations, including the EEA Agreement.

§ 61. *Orders and coercive fines etc.*

The agency so authorised under Section 59 may order the implementation of provisions laid out or pursuant to these regulations.

Orders may be issued pursuant to:

- a) Act no. 124 of 19 December 2003 relating to Food Production and Food Safety etc., Section 23 on supervision and decisions, Sections 24-26 on special eradication of infection, closing and quarantining of operations and coercive fines,
- b) Act no. 68 of 14 June 1985 relating to Aquaculture, Section 21 order to implement measures, Section 22 on coercive fines, Section 24 on withdrawal of licences, and
- c) Regulations of 12 July 1989 no. 551 relating to coercive means under Chapter IV of the Aquaculture Act,
- d) Act no. 73 of 20 December 1974 relating to Animal Welfare, Section 23 supervisory authorities, cf. Section 24 on animal welfare boards, Section 26 on temporary custody, Section 26a on destruction and Section 27 on coercive fines etc.

When necessary for meeting the deadline, the imposition of a coercive fine may be imposed simultaneously in connection with imposition of the order.

In those cases where violations of Section 42, first, second and third paragraphs, are discovered, and the rules regarding coercive fines pursuant to second paragraph littera c do not apply, the coercive fine is imposed for each contravention. The amount of the coercive fine is NOK 75,000 per commenced 10 tonnes of biomass above the permitted maximum.

§ 62. *Penalties*

Deliberate or negligent violation of these regulation or orders issued pursuant to it, are punishable pursuant to Section 28 of Act no. 124 of 19 December 2003 relating to Food Production and Food Safety etc., Section 31 of Act no. 73 of 20 December 1974 relating to Animal Welfare and Section 25 of Act no. 68 of 14 June 1985 relating to Aquaculture.

§ 63. *Entry into force and repeal of regulations*

These regulations enter into force on 1 January 2005. Section 6, third paragraph on documentation of competencies enters into force on 1 January 2010. Section 18 enters into force on 1 January 2006.

The following regulations shall be repealed on 1 January 2005:

- a) Regulations of 18 December 1998 no. 1409 relating to the establishment and operation of fish farms, and measures to prevent disease at fish farms (Operating and Disease Prevention Regulations)
 - b) Regulations of 20 December 2000 no. 1397 relating to licence, establishment, operation and disease preventative measures in hatcheries for salmonid and other freshwater fish (Hatchery Regulations)
 - c) Regulations of 15 January 2004 no. 278 relating to health checks of aquaculture animals
 - d) Regulations of 4 July 1991 no. 509 relating to prevention, control and eradication of diseases in aquatic organisms, Sections 5, 6, 7, 9 and 12 and Section 13 second paragraph.
-



FISKERI- OG KYSTDEPARTEMENTET

Norwegian Ministry of Fisheries and Coastal Affairs

Technical requirements for fish farming installations

NYTEK



FISKERIDIREKTORATET



standard
norge



Table of Contents

1.	NYTEK Shall Prevent the Escape of Fish	4
2.	Fish Farmers	7
3.	Suppliers of Fish Farming Installations and Mooring Solutions	10
4.	Accredited certification bodies.....	11
5.	Accredited inspection bodies	12
6.	Competent bodies	13
7.	Norwegian Accreditation	14
8.	Ministry of Fisheries and Coastal Affairs and Directorate of Fisheries	16
9.	Want More Information?.....	17

1. NYTEK Shall Prevent the Escape of Fish

One of the greatest environmental challenges that the fish farming industry has faced and faces is the escape of farmed fish. There are many causes of escape – ranging from poor operating routines, boat collisions and attacks by predators to technical installation failures.

The authorities and the industry have worked on determining what technical requirements should be placed on floating fish farming installations to prevent escape and how this should be regulated since the mid-1980s. This work was difficult, because floating fish farming installations are one of the

most complicated marine constructions in existence.

The solution to this problem was the development of a Norwegian standard that places technical requirements on the dimensioning, design, installation and operation of floating fish farming installations – NS 9415:2003.

This standard, which is the first of its kind internationally, was developed by Standards Norway in cooperation with representatives from the industry, research institutions and authorities. Standards Norway is currently working on internationalization of the standard through ISO.



*Photo: Per Eide,
Norwegian Seafood Export Council*

To ensure that the standard is observed by the fish farmers, the Ministry of Fisheries and Coastal Affairs has laid down regulations no. 1490 of 11 December 2003 on the technical standard of installations that are used in fish farming activities (the NYTEK Regulations).

The regulations stipulate that fish farmers can only use new installations and main components that are certified in accordance with NS 9415

and that such certification shall be performed by accredited certification body.

Existing installations are required to have a capability certificate stating that the installation meets the operational requirements in NS 9415 by 1 January 2006 in accordance with the regulations. Capability certificates may only be issued by accredited inspection bodies.

NS 9415 Floating fish farming installations – design, dimensioning, construction, installation and operational requirements

This standard contains requirements for the physical design of the installation and the associated documentation. This includes calculation and design rules, as well as installation, operating and maintenance requirements.

There are, for example, requirements for the physical design of all the main components in an installation, functionality after assembly, and how the installation shall be operated to prevent escape.

The standard stipulates what parameters shall be used to determine the natural conditions at a given locality and the procedure for classification of localities.

What is a standard?

A standard is a voluntary contract document that describes a product, service and/or work process. The purpose of standardization is to ensure uniformity, order and simplification, and to contribute to efficient operations and increase profitability. Standards provide equal competition terms and make the rules of the game known.

International standards shall contribute to the elimination of technical trade barriers and safeguard health, safety and environmental requirements.

Standardization work is based on the following main principles:

- Openness
- Voluntarism
- Consensus (which entails a process and negotiations)



2. Fish Farmers

Section 31 of the Regulations for Operating Aquaculture places a general ban on releasing fish from fish farming installations.

Fish farmers also have a general obligation to prevent the escape of fish and to ensure that any escape is detected as quickly as possible so that the escape can be limited. The fish farmers shall assess the risk factors associated with the escape of fish and implement systematic measures to prevent the escape of fish.

Before a fish farmer can purchase new installations or receive a capability certificate for existing installations, he must have the locality classified based on the local wind, current and wave conditions in accordance with

the NYTEK Regulations. This classification shall be performed by a competent body.

Fish farmers are obligated to purchase installations and components that are certified by an accredited certification body for the purchase of any new installations or main components.

For mooring, a special certification scheme for suppliers of mooring solutions has been established. Certification of the entire installation at a locality is not required. However, it is very important that the main components fit together. The capabilities and limitations of the main components shall be stated in the user handbook.

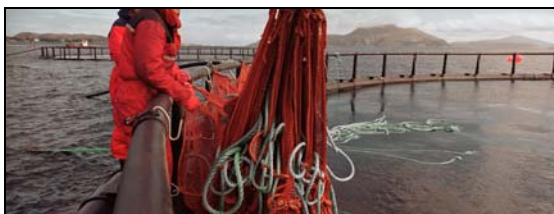


Photo: Jean Gaumy, Norwegian Seafood Export Council

When a fish farmer receives an installation or main component, it shall be accompanied by a user handbook that shall be certified together with the product.

The fish farmer is obligated to install or assemble the installation or main component as described in the user handbook, and he is also obligated to observe the maintenance requirements stated in the user handbook.

For existing installations, the fish farmers must obtain a capability certificate from an accredited inspection body by 1 January 2006. The fish farmers are obligated to maintain installations for which a capability certificate has been issued so that their technical standard is not reduced significantly in relation to the standard at the

time prior to when the certificate was issued.

The NYTEK Regulations and Section 31 of the Operating Regulations for Aquaculture apply complementarily. This means that a fish farmer must assess the technical aspects of his installation in accordance with the risk assessment pursuant to Section 31 of the Operating Regulations for Aquaculture, regardless of whether the installation is certified or has a capability certificate.

If a fish farmer finds, for example, that an installation with a capability certificate has been moored poorly, he must immediately implement measures and not wait until an inspection body inspects the installation again for the issuance of a new capability certificate.

About the Ministry of Fisheries and Coastal Affairs and the Directorate of Fisheries

The Ministry of Fisheries and Coastal Affairs (FKD) is responsible for:

- Fisheries industry
- Aquaculture industry
- Seafood safety, fish health and welfare
- Harbours, infrastructure for sea transport and preparedness for acute pollution.

The Directorate of Fisheries is a specialist agency under the Ministry of Fisheries and Coastal Affairs that is responsible for the fish farming industry. The Directorate of Fisheries is both an advisory and executive agency with respect to the preparation of draft regulations, supervision and control.



3. Suppliers of Fish Farming Installations and Mooring Solutions

Manufacturers of fish farming installations, including floating collars, rafts, barges and nets, must have their products certified by an accredited certification body if they want to deliver their products to Norwegian fish farms. They must also provide a user handbook for the installation or main component. This user handbook shall be in

accordance with the requirements in NS 9415.

Suppliers of chains, rope, etc. for the mooring of fish farming installations do not require certification.

However, anyone who is responsible for the dimensioning of mooring solutions for the specific localities must be certified.

Who is Standards Norway?



Standards Norway (SN) is a neutral and independent member organization that develops standards required by the market. The standards are developed in cooperation with the users, who provide expertise and financing. These users may include companies, industry organizations, the Norwegian authorities, research and educational institutions, accreditation and certification bodies, and other interested parties.

SN started its operations in 2003, and it is a continuation of the work performed earlier by the Norwegian General Standardizing Body (NAS), Norwegian Council for Building Standardization (NBR), Norwegian Standards Association (NSF) and Norwegian Technology Centre (NTS). Most of the standardization takes place internationally. SN is the Norwegian member of the ISO (International Organization for Standardization) and CEN (European Committee for Standardization). SN has exclusive rights to the development and publication of Norwegian Standards, and it participates in the development of international standards and publishes these in Norway.

4. Accredited certification bodies

The NYTEK Regulations stipulate that all fish farmers shall purchase new installations that are product certified by an accredited certification body.

The main components include floating collars, rafts, barges, nets and moorings. For product certification, the certification body reviews the quality system of the production operations and ensures that the product that is produced is in accordance with the requirements in NS 9415. It shall be possible to trace faults and identify any products that risk having the same fault in the event of any discrepancies.

A special scheme has been established for mooring. This is because each mooring must be adapted to the individual locality and general product certification is thus not a suitable measure for ensuring that fish farming facilities are moored in a secure manner. Instead of product certification of the actual mooring (chains, ropes, etc.), suppliers of mooring solutions

must be certified. This means the enterprise or person that dimensions the moorings for the individual locality, must be certified.

A list of all the accredited certification bodies is available on the Norwegian Accreditation website (www.akkreditert.no).

What is certification?

Certification is the issuance of documentation (certificate) from an independent third party (a certification body) confirming that a product or a management system is in accordance with specific requirements.

The requirements may, for example, be based on a standard. A certification body is accredited by an accreditation body. A certificate will accompany the delivery of a certified product.

5. Accredited inspection bodies

It might be difficult to product certify existing fish farming installations, because it may be difficult to obtain the documentation on the installation that is required to determine whether all the detailed requirements in NS 9415 have been met.

The NYTEK Regulations contain therefore a transitional scheme for installations that were established prior to the regulations entered into force. All existing installations must obtain a capability certificate prior to 1 January 2006. The conditions for obtaining a capability certificate entail that all the operational requirements in NS 9415 must be met. However, the same documentation requirements and level of detail for the analysis of the installation do not apply.

Only accredited inspection bodies can issue capability certificates. A capability certificate is valid for three years or until a significant change is made to the installation. A new capability

certificate must be obtained after that. All fish farming installations shall be certified by 1 January 2012.

Inspection bodies are accredited in accordance with NS-EN ISO/IEC 17020. Fish farming companies may also be accredited as an inspection body under certain conditions.

The standard states that it is expected that the inspection bodies participate in the exchange of experience with other inspection bodies and participate in standardization processes whenever relevant.



A list of all the accredited inspection bodies is available on the Norwegian Accreditation website (www.akkreditert.no).

6. Competent bodies

Before a fish farmer can purchase equipment or receive a capability certificate for an installation, he must have the locality he is using or will use classified based on the local wind, current and wave conditions. This is because the locality's classification governs what dimensions the various main components shall have.

The procedure and criteria for classification are stated in NS 9415. Such classification shall be performed by a competent body, but it may also be

performed by an accredited inspection body.

A competent body is a body that can present the relevant professional qualifications to the client and be independent of the client. There is no requirement that the competent body shall be accredited or certified.

It will be the fish farmers who hire a competent body to classify the locality, and thus the fish farmers must ensure that the body in question meets the conditions for being a competent body.

7. Norwegian Accreditation

Norwegian Accreditation shall accredit certification and inspection bodies, and it shall ensure that the bodies that perform inspections and certifications in accordance with the NYTEK Regulations are qualified to perform these tasks.

Norwegian Accreditation bases the accreditation of certification bodies on NS-EN 45011 – General requirements for bodies having systems for product certification, and assesses the quality system, qualifications and capability of the applicants in relation to the certification of floating fish farming installations in accordance with NS 9415.

What is accreditation?

Accreditation is governmental quality control. Laboratories, certification bodies and inspection bodies may be subject to accreditation. The accreditation process entails a review of the quality system, qualifications and capability of the body that is to be accredited.

An accredited organization has proven its qualifications through a neutral assessment by the accreditation body. Organizations acquire accreditation to document their quality in relation to customers, requirements they place on themselves, or to fulfil requirements from the authorities.



Norwegian Accreditation bases the accreditation of inspection bodies on NS-EN ISO/IEC 17020:2004 General operating requirements for various types of agencies that perform inspections. NS-EN ISO/IEC 17020 has replaced NS-EN 45004, which is the standard mentioned in the regulations.

This standard stipulates general requirements concerning qualifications and an independent position. To determine what qualification requirements shall apply, Norwegian Accreditation compares the requirements in NS-EN ISO/IEC 17020 with the requirements in NS 9415. The key subject of evaluation is what qualifications are required to assess a floating fish farming installation according to the requirements in NS 9415.

An accreditation is valid for five years. In addition, Norwegian Accreditation annually controls the bodies that are accredited.

Who is Norwegian Accreditation?

Norwegian Accreditation is the government body that controls quality and quality control in Norway.



Organizationally, the accreditation body is under the Ministry of Trade and Industry.

Professionally, Norwegian Accreditation is bound by several international agreements. In order to participate in these agreements, Norwegian Accreditation are regularly being controlled by a group of corresponding agencies in other countries. A common understanding of quality assurance is ensured in this manner.

Norwegian Accreditation is a member of the European Co-operation for Accreditation (EA). This membership ensures that Norwegian Accreditation has the same quality control as corresponding bodies in the EU.

8. Ministry of Fisheries and Coastal Affairs and Directorate of Fisheries

The NYTEK Regulations are issued by the Ministry of Fisheries and Coastal Affairs, which is the ministry that is responsible for making any amendments to the regulations.



The Directorate of Fisheries is responsible for the enforcement of the regulations. The Directorate of Fisheries is mainly responsible for three tasks in this context:

- Supervising that the requirements in the NYTEK Regulations are observed. This is performed primarily through system audits based on internal control.
- Answering questions concerning the interpretation of the regulations from industry, participants and others.
- Deciding on applications for exemption from requirements in the regulations.



9. Want More Information?

Ministry of Fisheries and Coastal Affairs

Address: P.O. Box 8118 Dep, 0032 Oslo

Visiting address: Grubbegata 1

Tel.: (+47) 22 24 90 90

Fax: (+47) 22 24 95 85

E-mail: postmottak@fkd.dep.no

Website: www.fkd.dep.no

Directorate of Fisheries

Address: P.O. Box 2009 Nordnes, 5817 Bergen

Visiting address: Strandgaten 229

Tel.: (+47) 55 23 80 00

Fax: (+47) 55 23 80 90

E-mail: postmottak@fiskeridir.no

Website: www.fiskeridirektoratet.no

Standards Norway

Address: P.O. Box 242, 1326 Lysaker

Visiting address: Strandveien 18, Lysaker

Tel.: (+47) 67 83 86 00

Fax: (+47) 67 83 86 01

E-mail: info@standard.no

Website: www.standard.no

Norwegian Accreditation

Fetveien 99

2007 Kjeller

Tel.: (+47) 64 84 86 00

Fax: (+47) 64 84 86 01

E-mail: akkreditert@akkreditert.no

Website: www.akkreditert.no

ENVIRONMENTAL OBJECTIVES FOR NORWEGIAN AQUACULTURE

Prepared by: The Directorate for Nature Management
The Directorate of Fisheries
The Norwegian Pollution Control Authority
The Norwegian Board of Health
The Norwegian Medicines Control Authority
The Ministry of Agriculture, Department of
Veterinary Services.

CONTENTS

Preface.....	3
1 Introduction.....	4
2 Political objectives and international obligations	5
2.1 Overriding objectives.....	5
2.2 "Staying upright"	5
2.3 International obligations... ..	5
3 Goals and situational descriptions of priority areas	7
3.1 Escapes of cultivated fish	7
3.2 Diseases	9
3.3 Medicines	11
3.4 Chemicals	13
3.5 Organic matter	15
4 References.....	16

PREFACE

In the spring of 1993, the Directorate for Nature Management (DN) and the Norwegian Pollution Control Authority (SFT) suggested to Norway's fisheries, veterinary and health authorities that a set of joint environmental objectives for the aquaculture industry should be drawn up. The idea behind this initiative was that the environmental authorities wish to move in the direction of a division of responsibility and work which would mean that the authorities would provide general guidance by issuing environmental objectives and subsequently checking that these objectives were being met (a auditing process), while the sectoral authorities would be responsible for identifying means and measures that would ensure that the objectives were in fact met. In the course of a series of meetings in June and July 1993, the sectoral and environmental authorities agreed to draw up such a set of joint objectives. A working group was appointed to draw up proposals for joint environmental objectives, to be submitted to the relevant authorities for approval.

This document is a presentation of the sectoral and environmental authorities' joint environmental objectives for the aquaculture industry. Both long-term environmental objectives and result objectives have been defined in five problem areas. A description of the situation in each of these areas is also provided. In this way, the authorities wished to stand united, and thus better able to reduce the environmental problems caused by the aquaculture industry.

In addition to defining objectives for each problem area, the areas have also been allocated priorities. The priority of the problems appears to be as follows: escapes, diseases, medicines, chemicals and organic matter.

If necessary, the interim result objectives can be revised annually and new specified sub-goals can be defined until the long-term objectives have been met. The authorities will follow developments in aquaculture with the aim of being able to identify any new environmental problems, and if necessary, to set environmental objectives that have not been currently dealt with in this document.

The working group has consisted of the following persons:

Nils Ole Baalsrud, Ministry of Agriculture

Kari Grave, Norwegian Board of Health

Tonje Høy, Norwegian Medicines Control Authority

Terje Jahnsen, Directorate of Fisheries

Tone Kaasa, Norwegian Pollution Control Authority

Janne Sollie, Norwegian Pollution Control Authority

Øyvind Walsø, Directorate for Nature Management.

SFT has been secretary to the group and the directorates have shared the chairmanship of the group and of its meetings. At a later point in time, the working group will also present proposals regarding a division of roles and responsibilities among the authorities in the task of achieving its aims.

Trondheim/Oslo/Bergen, 1993

Viggo Jan Olsen (sign.)
Director General of Fisheries

Gudbrand Bakken (sign.)
Director of Veterinary Services

Anne Alvik (sign.)
Director General of Health

Ola Westbye (sign.)
Director, Norwegian Medicines Control Authority

Peter Johan Schei (sign.)
Director General, Directorate for Nature
Management

Harald Rensvik (sign.)
Director General, Norwegian Pollution Control
Authority

1. Introduction

Aquaculture is an important primary industry in rural and coastal districts of Norway. The Norwegian Association of Fish Farmers estimates that in 1992, nearly 13,000 persons were directly or indirectly employed in the industry. In that year, Norwegian aquaculture produced 148,400 tons of cultivated salmon and rainbow trout, most of which was exported to Europe and Japan, producing revenues of around NOK 6 billion.

Traditional sea-cage aquaculture demonstrates the genius of simplicity. In record time, a powerful export industry with rapidly rising production volume has developed. Between 1970 and 1990, Norwegian salmon farming demonstrated an annual rate of growth of more than 40%. Even a well-developed and already well organised industry would have experienced serious problems in tackling such high growth rates. The size of the industry and the importance of environmental problems mean that decisive emphasis must be laid on such problems in the authorities' relationships with the aquaculture industry. In order to reduce the scope of environmental problems in Norwegian aquaculture, the various authorities involved have initiated a number of different measures. The Norwegian Association of Fish Farmers itself has attempted to reduce environmental problems by disseminating information and by motivating fish farmers to operate in tune with nature. The complexity of environmental effects, however, is of such a character that it is not realistic to expect to be able to deal with the whole spectrum of problems in the course of a few years.

Frequent outbreaks of disease and large-scale escapes, as well as high rates of consumption of medicines, chemicals and feedstuffs also represent considerable financial outlays for the Norwegian aquaculture industry. Improvements in the way that fish farms are run would reduce the scope of environmental problems while producing financial benefits at both company and national level. More environmentally friendly operation would also improve the public face of the industry and raise its marketing potential.

The Atlantic salmon, *Salmo salar* is a native of Norwegian waters. Norway is an international leader in the environmental area, and is bound by formal obligations derived from the convention for preservation of Atlantic salmon strains. For this reason, any further degradation of our wild salmon strains would be highly regrettable.

2. Political objectives and international obligations

2.1 Overriding objectives

In Report to the Storting no. 46, "Environment and Development" (Norway's follow-up of the Report of the Global Commission on the Environment, 1988 - 89), the Norwegian Government place considerable emphasis on the importance of consideration to sustainable development being included in sector policies. The industry and the fisheries authorities are given responsibility for ensuring that developments and planning within the sector are in line with sustainable development, and that measures are designed in such a way that existing environmental problems are reduced while new problems are prevented from arising.

The Government's principal objective for the Norwegian fishing industry is to implement long-term, ecologically balanced management of living marine resources, so that generations to come will also be able to harvest them. The Report lists the environmental problems associated with aquaculture and particularly emphasises that in the future, farms should be located in such a way as to reduce their environmental consequences as far as possible. The use of more environmentally friendly technology is also emphasised. Examples mentioned include methods of reducing foodstuff waste, closed, escape-proof farms and more efficient, environmentally friendly means of combating disease.

2.2 "Staying Upright"

Report to the Storting no. 32 "Staying Upright" (On the Development Potential of the Coast, 1990 - 1991), makes it clear that the Government's aim as far as Norwegian aquaculture is concerned is to develop a sustainable aquaculture industry based on the precautionary principle and on respect for nature's thresholds of toleration. In order to increase the ability of the authorities to keep an eye on the industry, 24 short-term positions in aquaculture management were funded in 1991 (Proposition to the Storting no. 82, "Repriorities and Additional Funding in the State Budget, 1991). Active control of aquaculture via these positions will help to reduce the industry's environmental problems. The fisheries authorities are running a large-scale aquaculture offensive. In the course of this effort, a manual on health and environment for improved logging routines and measures to raise standards of competence are being introduced. The expensive task of introducing a certification system for floating aquaculture plants has also been carried out. The total costs of the aquaculture offensive between 1991 and 1993 are estimated to have been around NOK 18.4 million. The Norwegian environmental authorities expect these efforts to pay off in environmental terms in the future.

2.3 International obligations

NASCO

As the pace of urbanisation and industrialization increased in the previous century, the distribution of the Atlantic salmon grew less and less, with the result that Norway is now a core area of the range of this species. Norway has ratified the Convention of March 2nd, 1982 on the conservation of salmon in the North Atlantic (Proposition to the Storting no. 31 (1982 - 83)). The Convention mandates the establishment of the "North Atlantic Salmon Conservation Organisation" - NASCO. This organisation will employ counselling and co-

operation to conserve, rebuild, increase and rationally manage strains of salmon in the North Atlantic. Apart from the polar bear, the Atlantic salmon is the only species of Norwegian fauna that is protected by its own international convention.

DECLARATION OF THE HAGUE

Norway and the other North Sea countries have signed three ministerial declarations concerning protection of the North Sea, most recently in the Hague in March 1990. The Declaration declares as an objective that emissions of copper and dichlorvos should be reduced by 50% by 1995, taking 1985 as the reference year. It is also a national objective to reduce releases of copper to water by 70% in the course of the same period. The ministerial declarations stress the political obligation to follow up at national level.

THE CONVENTION ON BIOLOGICAL DIVERSITY

Norway has signed the Convention on Biological Diversity (Report to the Storting no. 13, 1992 - 1993, "On the UN Conference on Environment and Development in Rio de Janeiro"). In the conservation obligations of the Convention, national processes are proposed, as part of which the parties themselves are obliged to develop national strategies for the conservation and sustainable exploitation of biological diversity. In Report to the Storting no. 13 (1992 - 1993), it is made quite clear that Norwegian salmon strains are in an extremely serious situation, and that this is a clear example of the loss of diversity within a species. In addition to being an important national resource, Norwegian salmon strains are important in an international context because they make up a considerable proportion of the remaining diversity of the Atlantic salmon in global terms.

In connection with the Biodiversity Convention, the Norwegian authorities have plans to prepare a legal basis for prevention of the dissemination of foreign organisms in the environment.

3. GOALS AND SITUATIONAL DESCRIPTIONS OF PRIORITY AREAS

3.1 ESCAPES OF CULTIVATED FISH

- | | |
|--|---|
| Short-term result goals
(by the end of 1994): | 3.1.1 In order to reduce the proportion of cultivated fish among wild strains, the number of fish escaping from fish farms should be reduced by at least 75%, taking the mean level of escapes from 1988 to 1992 as a basis, i.e. the number of escapees must not exceed 400,000 a year. * |
| Long-term
environmental
objectives: | 3.1.2 The number of fish that escape from fish farms should not represent a threat to the maintenance of Norwegian strains of wild salmon. |

* It is realised that extreme conditions (such as hurricanes) may make it difficult to meet this objective in certain years.

Description of the situation

Norwegian fisheries authorities estimate that some 1.6 million cultivated fish escaped from fish farms between 1988 and 1992. In 1992, the authorities introduced a system of logging escapes and reporting logged data to the fisheries authorities. These reports showed that about 1.47 million salmon and 0.12 million trout escaped; their total weight was 2,413 tons. Of these fish, about 30% were so big that they would probably have become sexually mature in the course of the year (mean weight 2.6 kg). In terms of weight, the escapees made up some 1.6% of production (quantity sold) that year.

Studies of our wild fish populations have revealed large proportions of cultivated fish. Between 1989 and 1992 this proportion has varied from between 45 - 49% in outer coastal districts to 10 - 21% in fjord areas (Økland et al. 1993). Studies of growth areas in the ocean from February 1990 until April 1992 have provided evidence of an average of 37% cultivated salmon in longline fisheries off the Faeroes (Jacobsen et al. 1992). Checks of autumn fisheries in Norwegian salmon rivers have revealed a mean proportion of 24 - 38% cultivated fish in the period 1989 - 1991 (Økland 1993). This has given rise to concern in the International Council for the Exploration of the Sea (ICES).

Methods of operation which incorporate a high degree of risk of escape and damage to fish-farm plants are not compatible with the objective of continuing to maintain and reinforce Norwegian strains of wild fish. If escapes of cultivated salmon are not held to a minimum, Norwegian society may be forced to accept that the original and natural form of the Atlantic salmon, *Salmo salar*, will gradually deteriorate.

The natural genetic variability of our wild fish populations is the fish-farming industry's basis for continuing to be able to raise cultivated fish systematically for food. Escapes and damage also mean considerable losses to the individual fish farmer and to the industry as a whole.

Via the "Programme for cleaner aquaculture technology", the environmental authorities wish to support the process of identifying methods of production that can help reduce the seriousness of escapes from Norwegian fish farms. Ongoing efforts to establish a gene bank to maintain the genetic variability of salmon strains will continue to be given high priority by Norwegian environmental authorities. Other measures intended to conserve strains of Norwegian wild salmon, such as the liming of acidified rivers, Rotenone treatment of rivers infected by *Gyrodactylus salaris*, releases of fish to regulated rivers and restrictive regulation of fisheries, will continue in operation.

Among the aims of the 1991 - 1993 aquaculture offensive of the fisheries authorities was that of preventing escapes of salmon by technical inspections of fish farms. This was in anticipation of a more permanent system of certification of fish farms. In 1993, it was decided to re-open studies of the proposal to establish a permanent system of certification, and the results of this effort will be available at the end of 1993.

Our experience of the offensive so far, however, is that recognised principles for dimensioning, mooring, operating and selecting locations for fish farms make it possible to considerably reduce the risk of escapes.

3.2 DISEASES

- | | |
|--|---|
| Short-term result goals
(by the end of 1995): | <p>3.2.1 The risk of infection from cultivated fish to wild fish should be reduced by improving the health of fish via preventive health care.</p> <p>3.2.2 The extent of attacks of salmon lice should be reduced.</p> <p>3.2.3 Fish farms and cultivation plants infected by <i>Gyrodactylus salaris</i>, which represent a danger of infection for wild strains, should be rid of the parasite.</p> <p>3.2.4 The introduction of new parasites and infectious fish diseases should be avoided.</p> <p>3.2.5 Norwegian wild fish populations of particular national value should be given special protection against the threat of infection by cultivated fish.</p> |
| Long-term
environmental
objectives: | <p>3.2.6 The risk of infection from cultivated fish to wild fish should not constitute a threat to the conservation of wild strains.</p> |

Description of the situation

All disease-causing organisms are basically a natural aspect of our biological diversity. In nature, the interaction between the disease-causing organism and its host is the result of evolutionary adaptation. The intensive rearing of domestic animals disturb this balance, with the result that disease organisms may be given artificially good conditions of growth, so that they become a serious problem both for the organism under cultivation and for its immediate environment.

By and large, the disease situation for Norwegian populations of wild fish can be mapped to the distribution of equivalent diseases in Norwegian fish farms. The most important methods of limiting infections are thus to improve the health of cultivated fish and to deal effectively with the problem of escapes.

At this point in time, furunculosis has been found in 74 Norwegian rivers (Johnsen et al. 1993), and *Gyrodactylus salaris* in 37; five of the latter have since been declared free of this disease (Jarle Steinkjær, personal communication). *G. salaris* threatens the existence of salmon strains in infected rivers. Infectious salmon anaemia (ISA) is only known to occur in Norway, and this is probably one of the aquaculture industry's most serious health problems. In recent years, widespread infections of salmon lice have been registered in both wild populations and in fish farms. Recent studies have confirmed that salmon lice can carry ISA

infections (Nylund et al. 1993). As far as the other diseases are concerned we have little or no knowledge of how they affect wild fish.

Prevention is an extremely important means of limiting outbreaks of disease in fish farms. Preventive measures include; separating generations, regionalization, clearing dead fish from sea-cages, ensuring that farms are well sited, maintaining appropriate biomass density in sea-cages, etc. More research on breeding, vaccination, etc., may also provide valuable contributions to the task of reducing risks of infection.

Regionalized treatment strategies that utilize environmentally friendly methods to combat salmon lice have led, among other effects, to reductions in the use of antibiotics and a large proportion of "superior" grade fish in production (Trude Bakke Jøssund, personal communication).

In order to reduce the extent of infection due to fish cultivation, the environmental authorities intend to regionalize cultivation activities so that transport of fish will be limited.

Via the "Programme for cleaner aquaculture technology", the environmental authorities wish to support the introduction of methods of production that will reduce the likelihood of infection from farm to farm and from fish farm to wild fish.

In order to meet important national objectives and international obligations, and to adapt to the European market, the veterinary authorities have already launched a regionalization study and a number of regionalization projects, and have tightened up the internal control of fish farms.

3.3 MEDICINES

Short-term result goals (by the end of 1995):

3.3.1 The quantity of medicines reaching the external environment from fish farms should be reduced by 50% of the value of total consumption of medicines, in terms of the mass of active substances, between 1988 and 1992.

3.3.2 The environmental impact of all new medicines registered for use on farmed fish should be assessed.

Long-term environmental objectives

3.3.3 The quantity of medicines reaching the external environment from fish farms should be reduced by 75% of the value of total consumption of medicines, in terms of the mass of active substances, between 1988 and 1992.*

3.3.4 Medicines prescribed for cultivated fish should be as efficient as possible, have good bioaccessibility, and be free of unacceptable environmental effects.

3.3.5 The environmental impact of all new medicines registered for use on farmed fish should be assessed.

* This level of ambition has been determined on the basis of current levels of fish production and the disease situation. A significant increase in production or the emergence of new diseases may decrease the prospects of meeting this objective.

Description of the situation

During the past five years, the mean annual consumption of antibiotics (active substances) in Norwegian aquaculture has been 29 tons (Norsk Medisinaldepot, 1993a). In comparison, traditional veterinary and human medicine have used an average of 10 and 25 tons a year of antibiotics (Anne Markestad, personal communication). The aquaculture industry is thus the biggest contributor of antibiotics to the environment. The antibiotics in current use in aquaculture appear to have only mild toxic effects on benthic sedimentary species, marine crustaceans and algae (Ervik et al., 1993). On the other hand, they do not easily break down, and thus accumulate in sediments in locations where water exchange is poor. Severe reductions in the quantity of sedimentary bacteria and in the breakdown of sediments followed the additions of certain types of antibiotics (Ervik et al., 1993).

Another problem linked to the use of antibiotics is the rise in the occurrence of resistant bacteria. Transmissible resistance may occur, for example, following the use of oxytetracycline or trimetoprim/sulpha. On the other hand, the resistance which occurs following the use of quinolones is not transmissible and is thus less likely to spread to the external environment. There are no grounds for supposing that resistant bacteria are more liable to cause disease than bacteria that lack this property. Resistance is first and foremost a

problem for the aquaculture industry itself, in that treating resistant strains with antibiotics tends to have poor results. In a global context, however, a rise in the frequency of resistant bacteria is undesirable for both veterinary and human medicine. For this reason it is important to reduce the consumption of antibiotics.

Reduced use of antibiotics by the aquaculture industry will reduce or prevent the occurrence of antibiotics in wild fish. The quantities of antibiotics that have been demonstrated in wild fish are extremely low in comparison with the doses that human beings are given during courses of treatment with antibiotics. The effects on our health of eating fish are probably negligible. For the aquaculture industry, however, this is a problem of ethics and industrial policy (Ervik et al., 1993).

One of the objectives of the Hague Convention was to reduce emissions of dichlorvos by 50% by 1995, taking 1985 as reference year. The aquaculture industry met this objective in 1987, when its consumption of dichlorvos (Neguvon^R and Nuvan^R) fell to 32% of 1985 levels. Dichlorvos consumption has fallen yet further since then, and in 1992 was only about 20% of the 1985 level (Grave et al., 1991, Norsk Medisinaldepot, 1993b). Since dichlorvos has a high level of acute toxicity (Cusack & Johnson, 1990, a further objective is to limit its use even further by going over to other, less toxic, alternatives.

3.4 CHEMICALS

Short-term result goals ((by the end of 1995):

3.4.1 The aquaculture industry's use of chemicals should be surveyed and the environmental impact of the chemicals in use should be assessed.

3.4.2 The use of copper in net impregnation chemicals should be reduced by 80% compared to 1991 levels.

Long-term environmental objectives:

3.4.3 The aquaculture industry's use of chemicals should be reduced (objectives to be made more specific in 1995).

3.4.4 Chemicals used in aquaculture should be as efficient as possible and should have no unacceptable environmental effects.

3.4.5 Releases of copper from net impregnation processes should cease.

Description of the situation

Total releases of copper to the sea came to 553 tons in 1985, while the corresponding figure for 1990 was 477 tons. The use of impregnating chemicals that contained copper virtually trebled between 1985 (SFT, 1987) and 1990 (Tryland and Øxnevad, 1992). In 1990 and 1992, annual consumption came to about 120 tons. Other releases were from mining (121 tons), ship anti fouling paints (110 tons), industry (66 tons) waste (45 tons) and drilling fluids (10 tons). In order to meet the requirements of the Hague Convention, total emissions of copper will have to be reduced to below 276 tons by 1995, and if national objectives are to be met, they must fall to below 165 tons.

Copper is bioaccumulated in aquatic plants and invertebrates, but not in the flesh of fish. Concentrations of this element have a tendency to rise as it passes through the food chain. Copper is also highly and acutely toxic to aquatic organisms, and even in low concentrations it has chronic toxic effects on many aquatic organisms (SFT, 1993).

As well as using net impregnating chemicals, the aquaculture industry is using chemicals to disinfect equipment. Extremely rough estimates based on a questionnaire circulated to fish farmers in the county of Hordaland suggest that the most heavily used disinfectant is formaldehyde, followed by NaOH and sodium hypochlorite (Kaasa, 1991). Formaldehyde is a natural substrate for bacteria that occur in nature. It can be directly toxic to animals (Torsvik, 1991). Other disinfectants used included chloramine, glutaraldehyde, KOH, quaternary ammonium compounds, malachite green and iodine. Some of these chemicals are also used as medicines.

The authorities need a better overview of the types and quantities of chemicals used by the aquaculture industry to disinfect equipment, the effects of these substances on the environment and any possible alternatives to substances that harm the environment.

1994 will see the introduction of a system of annual reports from fish farmers to county environmental departments on the use of equipment disinfectants. This will provide a better overview of chemicals in current use and of the introduction of new substances.

3.5 ORGANIC MATTER

**Short-term result goals
(by the end of 1995):**

3.5.1 90% of all fish waste products should be recycled.

3.5.2 Permitted thresholds for recipient effects should be determined in 1994.

**Long-term
environmental
objectives:**

3.5.3 The recipient effects of additions of organic matter should lie below the above-mentioned levels.

3.5.4 90% of all fish waste products should be recycled, and 75% of these products should be used in feedstuffs.

Description of the situation

More than 90% of Norwegian fish-farm production takes place in sea water north of Stavanger. Problems related to emissions of organic matter are primarily of local importance. Feed is the source of releases of nutrient salts and organic matter. Between 50 and 80% of these substances end up in the form of food waste, respiratory products and excreta. According to the Directorate of Fisheries, the mean rate of consumption of feed in the aquaculture industry currently lies between 1.2 and 1.3 kg. dry matter per kilo of slaughtered fish. The feed factor varies from 0.9 in the best-run farms to 2.0 in the worst.

Overloading of fish-farm sites often leads to accumulations of sludge on the seabed. Lack of oxygen and the formation of toxic gases are a consequence. The site becomes "used up" and the fish farm needs to find a new site. In certain areas there is starting to be a lack of good locations that do not come into conflict with other interests.

A great deal of ongoing research and development aims to reduce emissions resulting from feeding processes, e.g. in the composition of feedstuffs and in technical solutions and systems for monitoring fish stocks and feeding. Work is also being done on the preparation of improved models capable of estimating the effects of emissions in particular areas. Modelling of this sort will help in the process of siting fish farms.

SFT estimates that at present, some 75% of fish waste from fish farms is recycled. In 1991, such waste came to about 20,000 tons (Nygård, 1992). A further 19,000 tons came from slaughterhouses for cultivated fish. County environmental departments have required all fish farms to collect waste and deliver it for recycling. Some farms have been given temporary permission to bury it.

Systems for the collection, transportation and treatment of waste products are currently in operation, but a task for the future is to ensure that all fish farmers follow up. The quality of the silage produced must also be improved so that as much as possible can be used in feedstuffs. The industry must be made responsible, so that it improves its own systems for the collection and quality assurance of waste products.

4. REFERENCES

- Cusack, R. & Johnson, G.** A study of dichlorvos (Nuvan^R; 2,2 dichloroethenyl dimethyl phosphate), a therapeutic agent for the treatment of salmonids infected with sea lice (*Lepeophtheirus salmonis*). *Aquaculture* 1990; 90: 101 - 112.
- Ervik, A., Samuelsen, O.B. & Sørum, H.** Environmental effects of medicines and chemicals. In: Environmental effects of aquaculture. A Research Council of Norway (NFR) research programme (in Norwegian). 1991-1993. pp. 5 - 9.
- Grave, K., Engelstad, M. & Søli, N.E.** Utilization of dichlorvos and trichlorphon in Salmonid farming in Norway during 1981 - 1988. *Acta Vet. Scand.* 1991; 32: 1 - 7.
- Norwegian Board of Health.** Regulations for requisitioning and delivering medicines from drugstores (in Norwegian), of February 19, 1986.
- Hjeltnes, B. (ed).** Transmission of disease between cultivated and wild fish (in Norwegian). Brochure from the research programme "Environmental effects of aquaculture 1991 - 1993. The Research Council of Norway (NFR) 1993, pp. 13 - 16.
- Jacobsen, J.A., Hansen, L.P. & Lund, R.A.** Occurrence of farmed salmon in the Norwegian Sea. *I.C.E.S. C.M.* 1992/M:31.
- Johnsen, B.O., Møkkelgjerd, P.I. & Jensen, A.J.** Furunculosis in Norwegian rivers - status report (in Norwegian). NINA research report 38: pp. 1 - 73. 1993.
- Kaasa, T.** Consumption of chemicals in Norwegian aquaculture (in Norwegian). SFT report no. 91: 12. 1991.
- Markestad, A.** Personal communication, 1993.
- Norsk Medisinaldepot, a.** Total consumption of antibiotics in terms of kilos active substance for the treatment of cultivated fish, 1981 - 1992 (in Norwegian). NMD, February 17, 1993 (Anne Markestad).
- Norsk Medisinaldepot, b.** NMD's sales figures in kilos for a number of substances used in fish farming (in Norwegian). NMD, February 23 1993 (Anne Markestad).
- Nygård, P.G.** Analysis of flow of goods - by-products and shrimps (in Norwegian). RUBIN report no. 1-2.20.01. 1992
- Nylund, A., Hovland, T., Hodneland, K., Nilsen, F. & Løvik, P.** Mechanisms involved in the transmission of infectious salmon anaemia (ISA) (in Norwegian). DN note 1993-3, pp. 33 - 51.
- Ministry of Social Security.** Act concerning medicines, etc., of June 20, 1964 (in Norwegian).

Norwegian Pollution Control Authority. Marine pollution caused by antifouling agents (in Norwegian). SFT report no. 78. 1987.

Norwegian Pollution Control Authority. Report on Environmental Toxins (in Norwegian). in press. 1993.

Steinkjer, J. Personal communication.

Torsvik, V. Environmental impact of medicinal treatment and disinfection (in Norwegian). Poppe, T.T. (ed.), Fiskehelse, John Grieg Forlag, Stavanger, pp. 357 - 363. 1990.

Tryland, Ø., & Øxnevad, J. Material flow analysis of copper. Assessment of alternatives (in Norwegian). SFT report no. 92:25. 1992.

Økland, F., Lund, R.A. & Hansen, L.P. Escaped cultivated salmon in sea and river fisheries in 1992 (in Norwegian). NINA contract research report 223: pp. 1 - 19. 1993.

Det er utarbeidet fire maler for Norsk Standard som til sammen skal dekke de forskjellige variantene som utarbeides. Malene danner grunnlaget for videre etterbehandling og trykking. Det er derfor viktig at malene brukes etter hensikten, og at den nødvendige kjennskap til MS Word som tekstbehandler er til stede.

For å sikre dette på en best mulig måte, er det utarbeidet en skriftlig brukerveiledning for malene. Denne distribueres fra NSF til de enkelte fagorganene.

Denne forsiden må alltid fylles ut ved etablering av et nytt dokument. Alle felt som vises i blått skal **ikke** endres av brukeren – de oppdateres automatisk.

Felt som inneholder tegnet: ✎ skal erstattes med faktiske opplysninger. De fleste av disse feltene er på denne forsiden. Klikk én gang på symbolet, og skriv deretter inn den relevante teksten. Trykk Ctrl-A og deretter F9 etter at denne siden er fylt ut slik at alle referanser blir oppdatert.

FYLLES UT AV FAGORGANET, KOMPLETTERES AV NSF	
NORSK STANDARD	INTERNASJONAL STANDARD (Hvis relevant)
NS-Nummer: NS 9410	ISO-Nummer: [✎ ISO-Nummer]
Norsk tittel: Miljøovervåking av marine matfiskanlegg	Evt. Engelsk tittel: [✎ Engelsk tittel]
NS Utgavenummer: 1	
NS Utgivelse: 2000	ISO Utgivelse: [✎ ISO måned] [✎ ISO år]
Søkeord: retningslinje, miljøovervåking, forurensning, matfiskanlegg, grenseverdi, organisk belastning, modellering, bentisk påvirkning, MOM	
Norsk tittel - Omslagsside: Miljøovervåking av marine matfiskanlegg	Engelsk tittel - Omslagsside: Environmental monitoring of marine fish farms
Prisgruppe: [✎ Prisgruppe]	
ICS kode: 13.020.40; 65.150	
Descriptors: guidelines, environmental monitoring, pollution, fish farms, limits, organic load, modelling, benthic impact, MOM	
Status (fjernes før trykking): FORSLAG TIL	

ICS 13.020.40; 65.150

Søkeord: retningslinje, miljøovervåking, forurensning, matfiskanlegg, grenseverdi, organisk belastning, modellering, bentisk påvirkning, MOM

Descriptors: guidelines, environmental monitoring, pollution, fish farms, treshold values, organic load, modelling, benthic impact, MOM

Miljøovervåking av marine matfiskanlegg

Environmental monitoring of marine fish farms

Norsk versjon

Standarden er fastsatt av Norges Standardiseringsforbund (NSF). Den kan bestilles fra NSF, som også gir opplysninger om andre norske og utenlandske standarder.

Postboks 353 Skøyen, 0213 OSLO
Telefon: 22 04 92 00 Telefaks: 22 04 92 11

Prisgruppe

Standarden er utarbeidet av Norsk Allmennstandardisering (NAS), som også er faglig ansvarlig for standarden og kan gi opplysninger om saksinnholdet.

Postboks 360 Skøyen, 0213 OSLO
Telefon: 22 04 92 00 Telefaks: 22 04 92 15

© NSF Gjengivelse uten tillatelse forbudt

Environmental monitoring of marine fish farms

ContentsBackground

.....	1
Foreword	2
1 Scope	2
2 Normative references	2
3 Definitions.....	3
4 Monitoring	3
5 A-investigation.....	6
6 B-investigation	6
7 C-investigation	8
8Appendix A (informative) A-investigation	
Appendix B (normative) B-investigation, forms and tables	
Appendix C (informative) pH and redox potential	
Appendix D (normative) Point assignment for pH/Eh	
Literature	

Foreword

The present standard has been developed under the Programme for standardisation of environmental data, which is a part of the Norwegian Ministry of Environment's work in environmental data compilation. The Norwegian General Standardizing Body (NAS) acts as secretariat for the programme. The aim of environmental data compilation is to achieve rational and cost-effective data collection, retrieval, re-use, distribution and management of environmental information.

The basis for the present standard includes the report "MOM (Fish Farm – Monitoring – Modelling) – Concept and revised edition of the monitoring programme" (1997). A standardisation committee comprising representatives from Akvaplan-niva, Norwegian Fisheries Directorate, Norwegian Institute of Marine Research, Norwegian Institute for Water Research (NIVA), Norwegian Fish Farmer's Union, Section for Applied Environmental Research at the University of Bergen and Sunnhordland Aquaculture Group has been responsible for the development of the standard itself. NAS has acted as secretariat for the work.

Background

The aquaculture industry aims to ensure favourable environmental conditions for farmed fish in order to promote optimum fish health and growth. The industry aims to avoid unnecessary environmental impact from fish farms, or that the aquaculture activities harm the surroundings. Pollution control authorities

have defined threshold values for environmental quality, including those specified in SFT's guidelines "Classification of environmental quality in fjords and coastal waters" (1997).

Overloading of sites and accumulation of organic material in the form of waste feed pellets and excrement can be a fundamental cause of stress, poor growth and disease, with the associated spread of infectious agents and need for medication. Organic material can therefore be influential for several types of environmental impact, even if the effect is greatest on the bottom under the cages. The present standard focuses on methods for determination of bottom conditions at and in the vicinity of fish farms.

Threshold values for environmental impact are set such that fish farm sites may be in use over a longer time-period and aim to ensure favourable living conditions for farmed fish as well as to prevent unacceptable impact on the surrounding area. Application of the present standard does not preclude participation in environmental monitoring programmes in a wider sense when this is deemed necessary to shed light on a given problem or to assess the condition of a recipient.

Repeated and systematic monitoring provides an overview of the changes in bottom conditions both under and around the site. The environmental effects are monitored regularly and any undesirable developments are corrected.

1 Scope

The standard describes methods for measuring bottom impacts from marine fish farms, and gives detailed procedures for how environmental impacts from individual fish farm sites shall be monitored.

The monitoring encompasses three types of survey (A, B and C investigation). A and B investigations describe the impacts on the sea floor under and in the immediate vicinity of the site in question. The C investigation aims to obtain a picture of the impacts on the recipient as a whole.

2 Normative references

In the text, the following standards and publications are referred to in such a way that they have contributed significantly to the decisions made for the present standard. At the time of issue of the present standard, the respective versions specified were valid. Because all standards are subject to revision, those using the present standard for decision-making should ensure that only the current issues of named standards are referred to. Members of IEC and ISO (in Norway NEK and NSF) have access to updated records of valid standards.

NS 9422:1998 Water quality – Guidelines for sediment sampling in marine areas

NS 9423:1998 Water quality – Guidelines for quantitative investigations of sublittoral soft-bottom benthic fauna in the marine environment

SFT Classification of environmental quality in fjords and coastal waters – Guidelines (current version)¹

¹ Available free of charge from the Norwegian State Pollution Control Authority, SFT, Postboks 8100 dep., 0032 OSLO or e-mail: bestilling@sft.telemax.no

3. Definitions

The following definitions apply to the present standard:

3.1

holding capacity

highest possible production of farmed fish at a given site or in a recipient, where the environmental impact is kept within specified threshold values

3.2

threshold value

value of a parameter that divides between defined levels of impact in a monitoring programme

3.3

site condition

classification of the observed condition at the site, by means of environmental standards

NOTE The site condition is determined using the present standard. Four site conditions are recognised. Site conditions 1, 2 and 3 indicate acceptable levels of bottom impacts, whereas site condition 4 indicates unacceptable bottom impacts.

3.4

environmental standard

threshold value for environmental impact

3.5

fish farm site

area approved for fish farming. The site is limited to the immediate vicinity of the fish farm

3.6

monitoring level

scope of survey required to determine whether the environmental impact is retained within specified threshold values

3.7

monitoring programme

set of routine measurements of parameters that describe environmental effects from fish farms

NOTE: The monitoring programme consists of three types of investigations; A, B and C, where the former is the simplest, whereas the latter is most thorough.

3.8

recipient

water body that receives input of natural or anthropogenic origin

4 Monitoring

4.1 Principle

The present standard is based on the direct relationship that exists between the effluent from a fish farm and the environmental response seen in the vicinity of the fish farm. Environmental conditions and associated tolerance levels are extremely variable in marine waters. Therefore, it is more important to monitor environmental impact using critical effect parameters rather than measuring the actual effluent from a fish farm.

The principles for regulation of environmental impacts may be summarised as follows:

- The actual environmental effects are monitored, not just the volume of effluent;
- The monitoring intensity is adapted to the extent of impact;
- The system consists of modules that can be replaced or modified as appropriate according to new knowledge or legislations.

For further details see 'Fisken og havet', number 5, 1997.

4.1 Impact zones

Fish farm effluent consists of large particles (waste feed pellets and intact faecal pellets), smaller suspended particles (feed dust and broken faecal pellets) and dissolved material (nutrients, organic compounds etc.). These types of effluents have different potential dispersal kinetics, and affect the water column and sea floor at varying distances from the fish farm. A greater impact is accepted under a fish farm than further out into the recipient. Around a fish farm, various zones are formed, which are affected to different degrees (see Table 1), and where different environmental standards are used. The table gives information on the dominant source, and potential source, of impact, which type of investigation is included in the monitoring of each individual zone and which environmental standards are applied in each case.

Table 1: Overview of impact zones

	Local impact zone	Intermediate impact zone	Regional impact zone
Definition	Area under and near a fish farm where most of the larger particles are deposited. This does not normally extend beyond 15 m from the fish farm.	Area between the local impact zone and the regional impact zone, where sedimentation of smaller particles occurs	Area beyond intermediate impact zone
Source of impact	Fish farm	The fish farm is the main source of impact, but other factors may also contribute	The fish farm is one of several sources of impact
Potential impact	Marked changes in benthic faunal communities and chemical conditions at the sea floor. Fouling of the cage group, reduced oxygen levels in the cages.	Gradually less impact	Increased primary production, and oxygen consumption in deeper water
Monitoring investigation	Mainly A and B	Mainly C	Mainly C
Environmental quality standard	Threshold values given in the present standard	Threshold values given in the present standard	SFT: Classification of environmental quality in fjords and coastal waters

4.2 Monitoring frequency

The repetition frequency of the B-investigation at the site is as shown in Table 2. The time of survey is determined by the production cycle at the site. Sampling is primarily carried out during periods of intensive production.

Table 2: Frequency of A- and B-investigations at the site (local impact zone) in relation to impacts at the site (site condition). Site condition 4 corresponds with unacceptable conditions

Site condition	Monitoring level	
	A-investigation (optional)	B-investigation
1	every 3 months	every 2 years
2	every 2 months	annually
3	monthly	every 6 months
4		eventual extended B-investigation

Should the conditions under the fish farm be unacceptable (Condition 4), an extended B-investigation may be carried out to ensure a correct evaluation of the site. This primarily encompasses a larger number of samples, but may also be extended to include additional parameters such as total organic carbon (TOC), medication (anti-parasitic and antibiotic compounds), total nitrogen, phosphor, zinc and copper.

Before a recipient is used for fish farming, a C-investigation should be carried out. This survey provides a documentation of the environmental conditions which, when compared with subsequent surveys, will reveal the extent to which the fish farm affects the recipient. A comparative survey should be carried out four years after establishment of the fish farm. The monitoring frequency for new recipients and for those already in use for fish farming is determined by the relevant authorities, based on the principle that monitoring intensity increases proportional to impact.

The monitoring programme is assessed regularly and adjusted as necessary according to the results obtained.

4.3 Maps and charts

The following maps and charts are made available upon start-up of the monitoring programme:

- Chart (1 : 50 000) and topological chart, M711-series, showing the site and position of the fish farm. In addition, an original hydrographic map shall be made available, covering the site and its surrounding area;
- Chart (1 : 5 000) showing the site and position of the fish farm;
- Topological map of the sea floor, for example one based on echo-sounding prior to or in connection with the first B-investigation at a fish farm (see Figure 1). The map covers the site and at least 10 m of the surrounding sea floor in all directions (local impact zone). If the fish farm comprises dispersed cages, the entire area containing cages is covered;
- Map showing the form and dimensions of the fish farm, comprising number, length, breadth and diameter of the cages and distance between eventual dispersed cages. Depth contours are shown.

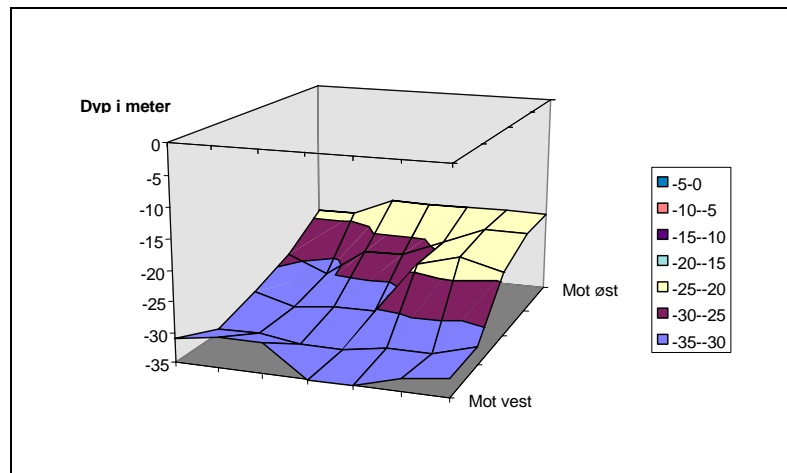


Figure 1: Example of a topological map of the sea floor

5 A investigation

The A investigation consists of a simple measurement of sedimentation rate at the sea floor under a fish farm, and can give information on high point-source loading. The survey is easily done and is carried out by the fish-farmer himself. The survey gives information on bottom loading and is particularly useful in combination with the B-investigation. The A-investigation does not use environmental standards. The A-investigation is optional, but recommended. A description is given in Appendix A (informative).

6 B investigation

6.1 Background

The B investigation comprises a simple trend monitoring of the bottom conditions under a fish farm. Because the survey is repeated regularly, at intervals determined by the extent of the environmental impact, the development of the environmental impact can be followed successively. Both the average condition at the site and the conditions under different parts of the fish farm are revealed. The B-investigation comprises many different parameters and is therefore less sensitive to anomalies in individual parameters.

The division between acceptable and unacceptable sedimentary conditions is set as the highest level of accumulation within which burrowing bottom fauna can survive in the sediment.

Sampling is carried out using a hand-held grab deployed from the cage group or boat. Sampling is carried out according to NS 9422.

NOTE: It may be difficult to carry out the B investigation at sites with high water depth and/or a stony or rocky bottom.

6.2 Aim

The B investigation is a simple and frequent monitoring of the environmental state at the site, such that trends may be revealed.

6.3 Personnel

The survey is carried out by personnel with the necessary training and competence.

NOTE: Competence requirements and training scheme is determined by the Fisheries Directorate.

6.4 Parameters

The B-investigation encompasses three groups of sediment parameters. All parameters are assigned points, according to the extent to which the sediment is affected by organic material. The higher the points, the more affected the sediment:

- Faunal investigation (Group I): Investigation where the presence or absence of animals larger than 1 mm in the sediment is recorded. Presence of animals gives 0 points; no animals gives 1 point.;
- Chemical investigation (Group II): Quantitative survey where the pH and redox potential (E_h) is measured in the sediment. The recorded pair of measurements for pH/ E_h is awarded points according to figure D1;
- Sensory investigation (Group III): Qualitative investigation where sediment outgassing, smell, consistency, colour, grab volume and thickness of the layer of deposits is recorded. Presence of gas bubbles gives 4 points, absence of gas bubbles gives 0 points; pale/grey sediment gives 0 points, brown/black sediment gives 2 points; absence of smell gives 0 points, some smell 2 points and strong smell 4 points; firm consistency gives 0 points, soft consistency 2 points and loose consistency 4 points; a grab volume less than $\frac{1}{4}$ gives 0 points, a volume between $\frac{1}{4}$ and $\frac{3}{4}$ gives 1 point and a volume over $\frac{3}{4}$ gives 2 points; an accumulation of organic material on the sediment of less than 2 cm gives 0 points, between 2 and 8 cm gives 1 points and over 8 cm gives 2 points.

NOTE Because the site condition is determined at once, the B-investigation does not include parameters that require laboratory analysis.

6.5 Equipment

The following equipment is required:

- Winch: A portable or fixed boat winch may be used to retrieve grab samples. The winch may be omitted for sampling in shallow water;
- Grab: A grab with a sampling area of at least 200 cm² is used. The grab shall close fully such that water and sediment does not leak out during hauling to the surface, and it is equipped with hinged flaps on the top, to allow inspection Group II and Group III parameters;
- pH measurement equipment: Both regular combination electrodes and ISFET electrodes may be used. The latter are very robust. Further, a field pH meter is required, together with buffer at pH 4.0 and 7.0 and distilled water;
- Redox measurement equipment: Redox electrode and reference electrode or a combination redox electrode. Further, a field redox meter and redox buffer is required;
- Miscellaneous: Sieve with round mesh holes of 1 mm diameter, white plastic bath of dimensions appropriate to an open grab, volume measure for grab contents, plexi-glass cylinder for sub-sampling, magnifying glass (5x enlargement), electrode holder, disinfectant solution and vessel for disinfecting.

6.6 Preparation of equipment

Upon arrival at the site, the pH and redox electrodes are assembled and calibrated according to the manufacturer's instructions:

- pH, redox and reference electrodes are fastened to a holder such that the sensors are at precisely the same height (avoid direct sunlight). The pH electrode is calibrated in a buffer solution of pH 4.0 and 7.0. The buffer temperature is equivalent to that of the sea water (see Appendix A);
- The electrodes are immersed into a beaker containing sea water or sea water buffer and stirred occasionally. The electrodes are ready for use after 30 min.

6.7 Sampling

The text in this section relates to completion of Table B.3 FORM FOR SAMPLES. The samples are taken in such a way as to be as representative as possible of the bottom conditions at the fish farm.

Sampling is carried out in accordance with the following guidelines: A minimum of 10 samples are taken, evenly spread across the sampling area. If the fish farm consists of dispersed cages, at least one sample is taken at each cage, independent of the number of cages. The sampling positions are marked on the fish farm cage map, and are revisited during future sampling. During sampling, if the grab is empty on retrieval, another attempt is made. If the second attempt is also unsuccessful, the bottom is likely to be rocky, without accumulation of organic material. This is noted in Table B.1 FORM FOR SAMPLING LOCATIONS.

NOTE An empty grab does not guarantee the absence of accumulation

During the first survey at a site, the sea floor under the fish farm is mapped by taking 15 to 20 grab samples evenly spread out over the area occupied by the farm and the bottom substrate and water depth is noted.

6.7.1 Compact cage group

The sampling area comprises the entire area under the cage group to its outer edges. If samples taken at the outer edges are strongly affected (condition 2 or 3), further samples are taken out into the transitional zone.

2.1.1 Dispersed cages

The samples are primarily taken beside the cages, particularly downstream of the prevailing current and towards the deepest area. Should there be many cages in an area, samples are also taken between the cages.

6.8 Reporting

On completion of a survey, a short report is compiled which contains a chart (1 : 5 000), the topological map, cage map, with sampling points marked and all forms filled in during the survey. The report shall give a brief description of the conditions under the fish farm and a comparison of the results from the different samples.

Eventual variation in the sedimentary conditions across different parts of the fish farm is noted. Individual samples classed as unacceptable are noted and assessed separately, even if the condition of the site as a whole is classed as acceptable, and advice is given on remedial measures to be taken.

The report contains a comparison with earlier investigations and reveals any developmental trends. A full data appendix is included and all information necessary to allow any other person to conduct an identical survey. The report should be presented in both paper and electronic format.

7 C-investigation

7.1 General

The C-investigation is a survey of the bottom conditions from the fish farm (local impact zone) and outwards into the recipient (regional impact zone). The main element is a survey of the bottom faunal communities, carried out according to NS 9423. In addition, information is obtained on additional parameters that may be used to determine if organic material is of fish farm origin.

It is advantageous to carry out a C-investigation in co-operation with all others responsible for contributing to the impacts in a recipient.

7.2 Aim

The C-investigation gives detailed information on the environmental conditions in the remote and transitional zones and towards the local impact zone of the fish farm.

7.3 Personnel

See requirements specified in NS 9423

7.4 Analytical parameters

The following analytical parameters are obligatory:

- Bottom fauna: Quantitative and qualitative investigations of macrofauna (animals larger than 1 mm);
- Chemical parameters:
 - Total organic carbon (TOC). This to be analysed according to NS 9423
 - Total nitrogen (totN)
 - Phosphor (P)
 - Zinc (Zn)
 - Copper (Cu) (only in transition zone);
- Sediment grain size distribution: Measurement of the relative proportion of clay, silt, sand and gravel in the sediment, analysed in accordance with NS 9423;
- Oxygen content: Measurement of the oxygen content of the water masses during sampling;
- Visual description: Characterisation of the sediment based on colour, smell and presence of faecal and food pellets. This characterisation is not a quantitative assessment in the same sense as in the B-investigation, but is used as a background upon which to base the evaluation of benthic fauna.

7.5 Sampling

Two parallel grab samples are taken, as described in NS 9422 and NS 9423. If the grab is recovered empty, another attempt shall be made. Should the second attempt also prove unsuccessful, it is likely that the bottom is rocky, without accumulation of organic material. If the bottom is severely affected, with a strong smell of hydrogen sulphide and devoid of macrofauna, only one grab sample replicate is taken.. Both these cases are noted in the field log book, and are included in the subsequent evaluation of results.

One set of samples is taken downstream as close to the fish farm as possible and one set is taken in the deepest part of the area. If the fish farm lies over a steep underwater slope, the samples are taken at the bottom of the slope. Should the samples indicate poor environmental conditions, additional samples are taken from an area located between the fish farm and the deepest part.

The sampling positions are marked on the chart such that future samples may be collected from the same positions. These positions are then assigned as fixed, long-term monitoring sampling stations.

7.6 Sample processing

The samples are processed in accordance with NS 9423.

7.7 Evaluation of results

In the regional impact zone, threshold values are taken from SFT “Classification of fjords and coastal waters. Guidelines”. Threshold values in the intermediate impact zone are given below.

Faunal diversity indices are little suited for determination of environmental condition in cases where there are relatively few species with an even distribution of individuals, such as often is the case near fish farms. Therefore, close to the cages, the evaluation is based on numbers of species present and faunal composition.

Environmental Condition 1:

- At least 20 species of macrofauna (>1 mm) excluding nematodes within a sampling area of 0.2 m²;
- None of the species contribute more than 65 % of the total number of individuals.

Environmental Condition 2:

- 5 to 19 species of macrofauna (>1 mm) excluding nematodes within a sampling area of 0.2 m²;
- More than 20 individuals excluding nematodes within a sampling area of 0.2 m²;
- None of the species contribute more than 90 % of the total number of individuals.

Environmental Condition 3:

- 1 to 4 species of macrofauna (>1 mm) excluding nematodes within a sampling area of 0.2 m².

Environmental Condition 4 (unacceptable):

- no macrofauna (>1 mm) excluding nematodes within a sampling area of 0.2 m².

7.8 Reporting

A report is compiled which contains all original data and a concluding assessment. If results are available from a comparable survey carried out before the fish farm was established, these are compared with the new results using multivariate analyses. Statistical analyses are carried out in accordance with NS 9423.

The report shall include all the necessary information required in order to carry out the survey in an identical manner at a later time, such that trends may be assessed.

Appendix A (informative): A-investigation

A.1 General

The A-investigation is used to measure the bottom sedimentation rate under a fish farm. The survey is relatively easy to carry out, but there is some uncertainty associated with it. As a time series is built up, the sedimentation rate can give information on the extent of bottom deposition and certain indications of possible over-feeding. Environmental standards are not used in the A-investigation.

A.2 Aim

The fish farmer obtains a general overview of bottom impacts under the farm.

In conjunction with the results from the B-investigation as well as a knowledge of the feeding intensity and fish density at each cage, the fish farmer is able to regulate the impact and at the same time disperse it as much as possible across the relevant area of sea floor such as to prevent overloading of larger or smaller areas.

The A-investigation gives feedback to the fish farmer about the feeding regime in terms of the quantity of food passing through the cage. Based on this information, the feeding regime can be regulated such as to avoid over-feeding, which is both expensive as well as contributing to increased environmental impact.

A.3 Personnel

The A-investigation is carried out by the fish farmer himself or a person appointed by him.

A.4 Equipment

For the A-investigation, two sediment traps are required for collecting waste feed and excrement. See Figure A.1. The trap diameter shall be at least 10 cm and the height 6 times the diameter. There shall be as much distance as possible, and at least 5 m between trap and the underwater buoy from which it is suspended and the top of the trap shall be 2 m above the sea floor.

A.5 Sampling

One sediment trap is suspended at the side of the pen containing either the most fish or with the most intensive feeding regime. The other trap is suspended at the edge of a cage containing an average amount of fish. At a compact fish farm, the traps are suspended from the central walkway. The traps are not to be suspended such that the water currents carry material away from them.

The quantity of waste collected within 14 days is measured. The overlying water is carefully removed. The deposits together with the remaining water are then transferred into a measuring container and the quantity of sediment is noted after settling. An appropriate sized measuring container is used, depending on trap size and estimated material content. An alternative to the use of measuring container, a transparent trap with volume marks may be used.

NOTE The sediment can be hazardous to the fish and must not be emptied into the water near the fish cages.

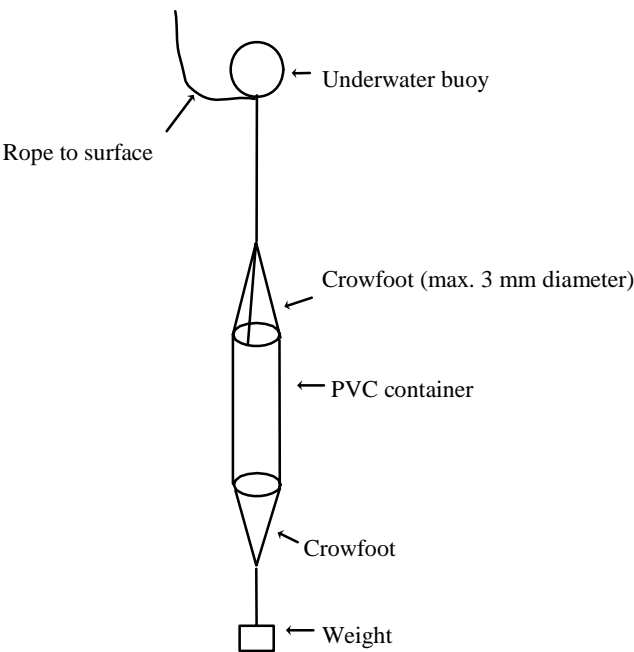


Figure A.1: Suspended sediment trap

Appendix B (normative): B-investigation, forms and tables

Table B.1 FORM FOR SAMPLING LOCATIONS

Company:

Concession no.:

Site:

Date:

Sampling location (number)										
Depth (m)										
Number of sampling attempts										
Bottom type:	Shell-sand									
	Sand/gravel									
	Clay									
	Mud									
	Stony									
	Rocky									
*Echinoderms										
*Crustaceans										
*Molluscs										
*Bristleworms										
** <i>Malacoceros fuliginosa</i>										
Organisms from the fish farm										
Feed/ faeces										
<i>Beggiatoa</i>										
Spontaneous outgassing										
Outgassing during sampling										
Outgassing in the sample										

Grabb area:

*Few/Many/One species dominate ** Number of individuals are noted

Signature:

Table B.2 FORM FOR CONTROL VARIABLES

Temperature	Sea water	Sediment	pH-buffer
pH			
E_h (mV)		Reference electrode potential (mV)	

Table B.3 FORM FOR SAMPLES

Site:

Date:

Gr.	Parameter	Points	Sample number										Index
I	Animals	Yes (0) No (1)											
			Condition (Group I)										
II	pH	Measured value											
	E_h (mV)	Measured value											
		+ ref. potential											
	pH/ E_h	Points, Appendix D											
	Condition (sample)												
	Condition (Group II)												
III	Outgassing	Yes (4) No (0)											
	Colour	Pale/grey (0)											
		Brown/black (2)											
	Smell	None (0)											
		Medium (2)											
		Strong (4)											
	Consistency	Firm (0)											
		Soft (2)											
		Loose (4)											
	Grab volume (v)	$v < \frac{1}{4}$ (0)											
		$\frac{1}{4} \leq v < \frac{3}{4}$ (1)											
		$v \geq \frac{3}{4}$ (2)											
	Thickness of deposits (t)	$t < 2$ cm (0)											
		$2 \leq t < 8$ cm (1)											
		$t \leq 8$ cm (2)											
			Sum										
			Corr. sum (0,22)										
			Condition (sample)										
Condition (Group III)													
II & III	Average value (Group II & III)												
	Condition (sample)												
Condition (Group II & III)													

AVERAGE VALUE FOR SITE

Signature:

TABLE B.4 Determination of condition for individual samples and condition for each parameter group

X : Index PH/ E_h Corrected sum Average value (Groups II & III)	X < 1,1	1,1 ≤ X < 2,1	2,1 ≤ X < 3,1	X ≥ 3,1
Condition (Sample) Condition (Group II) Condition (Group III) Condition (Groups II & III)	1	2	3	4

TABLE B.5 Determination of average condition at the site

Condition (Group I)	& Condition (Group II & III)	⇒ Average value for site
A	1, 2 or 3	1, 2 or 3
A	4	4
4	1 or 2	1 or 2
4	3	4
4	4	4

B.1 Inspection of samples

The sample is inspected and the results noted in B1 Form for sampling locations. Further details on pH and redox measurements are given in Appendix C.

The following procedure is applied:

- The closed grab is placed in the plastic basin and the top flaps are opened. pH, redox and reference electrodes are pushed 1 cm into the sediment. If necessary, the overlying water may first be drained off. The electrodes are held as steady as possible; the pH value is read when the given value is stable and the Eh value is read when the drift is less than 0.2 mV/s. Should stable values not be obtained within five minutes, the drift is marked by arrows. The values obtained are noted in B1 Form for sampling locations. For redox measurements, Eh is calculated by adding the half-cell potential of the reference electrode (at the relevant temperature) to the measured value (see Appendix C).
- The electrodes are rinsed in sea water and any water droplets are removed with absorbent paper. During extended pauses, the electrodes are put into sea water of the same temperature as the samples. The electrodes are controlled in freshly collected sea water or sea water buffer at ½ hour intervals (see Appendix C.).
- A core sample is taken via the flaps on the upper side of the grab before the sediment is emptied into the basin, to be used for assessment of some of the Group III-parameters. Alternatively, the grab may be opened such that the sediment gently slides into the basin. The sediment is now assessed in terms of the Group III parameters, and the assigned points are noted in Table B3 Form for samples.
- The sediment in the basin is sieved through a mesh screen of 1 mm pore size. The material remaining on the mesh screen is transferred to a white tray and is surveyed under a hand-held magnifying glass (5x enlargement). Presence of animals in the sample is noted as 0 and absence is recorded as 1 in Table B3 Form for samples. Exception: A sample containing only the bristleworm *Malacoceros fuliginosa* is still assigned a point of 1. This species is capable of living on the surface of heavily affected sediments and is therefore not considered as infauna (animals living within the sediment).

In Table B.1. Form for sampling locations, the following are noted:

- abundance of the different animal groups;
- eventual occurrence and abundance of *Malacoceros fuliginosa*;
- any other observations are noted at the bottom of the form.

NOTE The sediment sample is not to be discarded at the fish farm because it may be harmful to the fish.

B.2 Evaluation of results

Table B.3. Form for samples is further used both to determine the sediment condition with respect to each parameter group as well as to determine the average condition for the site.

The following are determined for each parameter group:

1. “Condition (sample)” (sediment condition for each individual sample)
2. “Index” (average value of all samples)
3. “Condition (Group)” (average condition for each parameter group).

Finally, the “average site condition” is determined based on the results from all three parameter groups.

Group I parameters (animals): This group distinguishes only between acceptable and unacceptable conditions at the site. The average value of the points for all samples is calculated and noted under “index”.

If more than half of all the samples contain animals (Index < 0.5), “Condition (Group I)” is deemed acceptable (A) (corresponds with conditions 1, 2 or 3). If less than half of the samples contain animals, (Index ≥ 0.5), “Condition (Group I)” is set to 4 (unacceptable).

In certain circumstances, if the bottom is hard and the retrieved grab contains a low volume of material (less than ¼ full), the amount of material may be too small for animals to be sampled. For this reason, it is only required that at least half the samples shall contain animals.

Exception: Samples taken on rocky bottoms where organic material is scooped up, but which do not contain primary sediment (and therefore no infauna), cannot be expected to contain animals and Group I parameters are excluded. As a result, these samples are not included in calculation of the average value for Group I parameters.

Group II parameters (pH/E_h): The pair of figures for measured pH and corrected E_h for each sample is plotted onto the figure in Appendix D. The figure distinguishes five intervals, to which each is allotted points. The recorded points are noted under “pH/E_h”.

“Condition (sample)” is read from Table 1 by using the points allotted for “pH/E_h” for each individual sample.

The average value of the points for all samples is calculated and noted under “Index”.

“Index” is entered in Table 1 and “Condition (Group II)” is read and recorded.

Group III parameters (sensory): The sum of points is calculated for each sample.

In order to compare directly points for Group III with points for Group II parameters, a “corrected sum” is calculated for each sample by multiplying the sum with 0.22.

“Condition (sample)” is read from Table 1 by using the value for “corrected sum” for each individual sample.

The average value of all corrected sums is calculated and recorded under “index”.

“Index” is entered into Table 1 and “condition (Group III)” is obtained and recorded.

Group II & III parameters: For each individual sample, the average value of “pH/E_h” and “corrected sum” is calculated and entered under “average value (Groups II & III)”.

“Condition (sample)” is read from Table 1 by using the “average value (Groups II & III)” for each individual sample.

Thereafter, the “index” is calculated by taking the average value of all samples.

“Index” is entered into Table 1 and “condition (Group II & III)” is obtained and noted.

Average site condition: Using “condition (group I)” and “condition (groups II & III)” the “average site condition” is given in Table 2.

Appendix C (informative) pH and Redox potential

C.1 Utility

The B-investigation is suited to field work, and the given procedure can be applied for determination of pH and redox potential in sea water and marine sediments. In principle, the procedure may be used for samples collected with a water sampling device, a cylindrical core sampler, box core sampler or a grab.

NOTE The procedure does not aim to operate at a precision level equivalent to that achieved under ideal laboratory conditions. The aim is that different operators with individually selected equipment shall achieve results repeatable to within ± 0.1 pH units and ± 25 mV E_h .

Thermodynamic assessment of E_h measured using platinum electrodes is not recommended. The parameter is used only as an empirical environmental parameter associated with a contamination gradient.

C.2 Principle

pH and E_h are general chemical parameters controlled by acid-base and the reduction-oxidation equilibrium in the sample. The parameters can be determined non-destructively using electrodes inserted directly into the sample without the addition of chemicals. In the marine environment, the E_h value varies from +400 mV in surface water at atmospheric equilibrium to -200 mV in anoxic sediments or bottom water in fjords and basins with poor water exchange. The pH value normally varies between 8.0 and 8.1 in surface water down to 7.0 in naturally anoxic water masses and sediments.

In principle, pH ($= -\log\{H^+\}$) and pE ($= -\log\{e^-\}$) are analogue expressions for the negative logarithm of proton and electron activity. The relationship between pE activity and the E_h potential is obtained by the Nernst equation:

$$E_h = (RT/nF)\ln\{e^-\} = 0,056 \text{ pE at } 10^\circ\text{C},$$

where:

R is the molar gas constant;

T is the absolute temperature;

n is the number of particles and

F is Faradays constant.

It is important to note that the observed resting potential in the sample (E_{obs}) is equivalent to the difference between half-cell potential of the redox electrode (E_h) and the reference electrode (E_{ref}):

$$E_{obs} = E_h - E_{ref}$$

To determine the redox potential, the half-cell potential of the reference electrode must be known and added to the observed potential:

$$E_h = E_{obs} + E_{ref}$$

Table A.1: Half-cell potentials at different temperatures for two Radiometer reference electrodes

t (°C)	Ag AgCl E _{ref} (mV)	Calomel E _{ref} (mV)
0	236.55	-
5	234.13	272.83
10	231.42	271.87
15	228.57	270.78
20	225.57	269.49
25	222.34	268.04

The supplier of the reference electrode should be able to supply the precise E_{ref} at the relevant measuring temperatures. Table A.1 shows the half-cell potentials for two commercially available electrodes.

C.3 Choice of measuring equipment

There is a wide and ever-increasing choice of commercially available electrodes and measuring equipment, and the quality and user-friendliness is steadily improving. The two alternatives given in Table C.1 are examples of equipment tested in the field, but should not be considered as binding. The requirements for accuracy are such that most general field instruments and electrodes are suitable.

A platinum (Pt) redox electrode is used, and an Ag | AgCl electrode filled with KCl solution is suitable as a reference electrode.

The reference electrode must not contain metal ions that can lead to clogging of the salt-bridge when used in sulphidic samples. Calomel electrodes contain mercury and, if possible, should be avoided in field surveys.

ISFET technology (Ion Specific Field Effect Transistor) for measurement of pH is newer and less well-tried than traditional glass electrodes. An important advantage with ISFET sensors is that they are very robust compared with glass electrodes and tolerate drying during transport and storage (they require storage in air). One disadvantage with the first models that appeared on the market was that the shape of the electrode tips was unsatisfactory for penetration into the sediment sample. The measuring accuracy is sufficient for the present purposes. The response time and stability over time appears to be at least as good as, and possibly better than, glass electrodes.

C.4 Temperature control

All electrode potentials are temperature dependent. Temperature control is particularly important for pH measurements. Low temperature sensitivity is an important criterion for the choice of buffer solution and reference electrode.

Ideally during pH measurement, the sample and the buffer should be at the same temperatures. To achieve the above-mentioned replicability, it is sufficient that the samples are measured at a temperature that deviates less than 5 °C from the *in-situ* temperature, i.e. the temperature of the sample before it was removed from the sea floor. The temperature in the bottom water and sediments at Norwegian fish farms is often between 5 °C and 10 °C. Over large parts of the year, the air temperature will be approximately similar, or lower. The recommended working temperature for calibration and measuring is therefore between 5 °C and 10 °C. A refrigerator, ice or buckets of sea water are simple, readily available means of maintaining the recommended working temperature.

If the pH meter is equipped with temperature compensation, variations between samples and between sample and buffer are compensated for, but changes in pH as a result of temperature changes during storage are not.

No particular attention is paid to temperature during measurement of the redox potential, but during conversion from cell potential to E_h, the half-cell potential of the reference electrode is used at the appropriate working temperature (Table C.1).

C.5 Calibration of pH

Two-point calibration of pH is carried out at the site before the start of the measurements. The instrument user manual must be followed. Two buffers are used, with pH values of 7.0 and 4.0, respectively. The pH- E_h diagram (Appendix D) is based on calibration in low ionic strength buffers (regular NBS or IUPAC buffers).

After calibration, the electrodes are placed in sea-water. Sea water has a higher salinity than the buffer solutions. This affects the diffusion conditions of the electrodes and causes some problems, such that it may take some time before the electrode gives a stable pH reading. The work should therefore be organised such that the electrodes are allowed to stand in sea water for approximately ½ hour before the measurements are started, preferably with occasional stirring. A somewhat longer response time may be expected during the first measurements after a calibration. During measurements, the electrodes are rinsed in sea water only. Alternatively, fresh water may be used with an additive of 30 -35 g salt (NaCl) per litre, but this cannot be used as a pH-buffer in the same way as sea water.

The pH of sea water is approximately 8.0 - 8.1 with only slight variation. In deep water, the pH can be somewhat lower, but seldom less than 7.6. Sea water is well buffered and freshly collected sea water may therefore be used as a working buffer to control the electrode during measurements, but care should be taken to avoid local conditions that may affect the pH, such as industrial effluent, algal blooms and brackish water layers.

It should not be necessary to re-calibrate a good pH electrode between measurements, but it should be controlled regularly in the working buffer, for example at ½ hour intervals. Should this reveal systematic deviation, the results may be corrected after the measurements are completed. Should there be a persistent deviation of more than 0.2 pH units from the value first measured, the operator should consider recalibrating the electrode and, if possible, repeating measurements.

C.6 Control of Redox potential

It is not necessary to calibrate platinum electrodes. However, the entire redox cycle should be controlled in a solution with a known redox potential, such as a redox buffer solution. Such a solution can be made by dissolving 1.0974 g $K_3Fe(CN)_6$, 1.2278 g $K_4Fe(CN)_6$ and 7.4551 g KCl in 1000 ml distilled water. This solution has a stable E_h of 430 mV at 25 °C, decreasing at lower temperatures. Between temperatures of 5 °C – 10 °C, the sum of the measured cell potential (E_{obs}) and the specified half-cell potential (E_{ref}) should be between 400 mV and 430 mV.

An unstable pH/mV signal during measurement may be due to clogging of the salt-bridge or the salt-bridge not being covered by the sample. If the salt-bridge is clogged by sediment particles or precipitation, the electrode is damaged and must be replaced (refers to glass pH electrodes and reference electrodes, not ISFET or platinum electrodes).

Other causes of technical problems may be a weak battery, dampness or corrosion in the electrical contacts, static electricity or electrical noise from nearby electrical installations.

C.7 Deflection/ response time

The response time, i.e. the time taken before the instrument shows a stable value, is dependent on the composition of the sample and can be lengthy for E_h measurement. Assuming that a maximum of 4 to 5 minutes is available for each sample, it is important to establish routines that give as repeatable as possible results within this time-frame.

After the electrodes are inserted into the sample, there is an exponential decrease in deflection. A deflection of less than ± 25 mV from the stable value is usually achieved within 1 to 2 minutes. A deflection of up to 0.2 mV per second at the moment of measurement is considered acceptable.

In certain circumstances, it may not be possible to fulfil even such relatively “mild” requirements as to deflection within a realistic time-frame. This is particularly the case in the transition from reduced to sulphide-free sediment samples. Sulphide is adsorbed to platinum electrodes and can affect measurements

in weakly-buffered samples several hours after contact. As illustrated in Figure A.1, this can result in poor replicability in samples with high E_h values recorded within the maximum acceptable waiting time (5 min.). Sulphide absorption does not affect the readings in the redox buffer or sediment samples with a redox potential lower than approximately 100 mV. The B investigation is not affected either, because the assessments of condition (Appendix C) do not differentiate values $E_h > 100$ mV.

If the measurements are always carried out first on a sulphidic sample, or even sea-water to which a small crystal of sodium sulphide (Na_2S) has been added, the measuring area is reduced at the upper end of the gradient, but the replicability is improved over the entire measuring area as a whole.

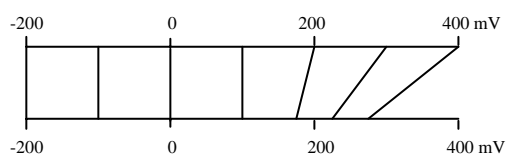
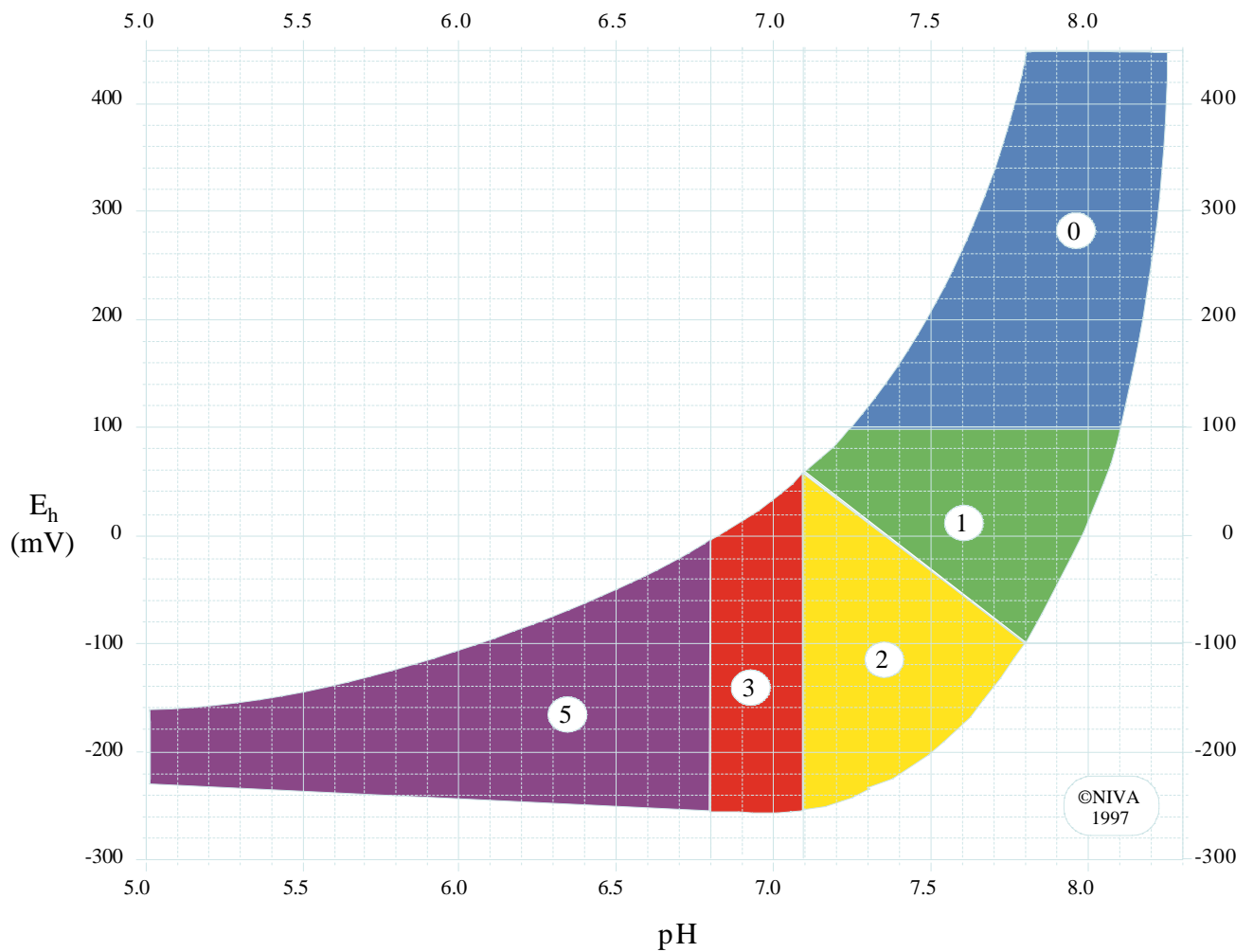


Figure A.1: Schematic illustration of the E_h gradient in marine sediment measured with a platinum electrode before (upper scale) and after (lower scale) contact with hydrogen sulphide.

Appendix D (normative) Point assignment for pH/ E_h



(Reproduced with permission of NIVA)

Figure D.1 Point allocation based on redox potential and pH value

(NIVA logo fjernes (som I den norske versjonen))

Literature

- Directorate for Nature Research, 1999. Environmental objectives for the Norwegian aquaculture industry. New environmental objectives for the period 1998 – 2000. DN report 1999-1. In Norwegian.
- Ervik, A., Hansen, P. K., Aure, J., Stigebrandt, A., Johannessen, P., and Jahnsen, T. 1997. Regulating the local environmental impact of intensive marine fish farming. I. The concept of the MOM system (Modelling - Ongrowing fish farms - Monitoring). *Aquaculture* 158: 85-94.
- Fisheries Directorate. Guidelines for completion of application forms for aquaculture activities.
- Hansen, P. K., Ervik, A., Aure, J., Johannessen, P., Jahnsen, T., Stigebrandt, A. and Schaanning, M, 1997. MOM – Concept and revised edition of the monitoring programme. *Fisken og havet* no. 5, 1997. In Norwegian.
- Molvær J., J.Knutzen, J.Magnusson, B.Rygg, J.Skei and J.Sørensen, 1997. Classification of environmental quality in fjords and coastal waters. SFT Guidelines 97:03. TA-1467/1997, 36pp. In Norwegian.
- Schaanning, M.T., 1994. Distribution of Sediment Properties in Coastal Areas Adjacent to Fish Farms and Environmental Evaluation of Five Locations Surveyed in October 1993. NIVA report no 3102. 33pp.
- Schaanning, M.T., Dragsund, E., 1993. The relationship between current conditions and sediment chemistry at aquaculture sites. Niva/Oceanor report No. OCN R-93051, 44 pp. In Norwegian.