

FISHERY COUNTRY PROFILE	Food and Agriculture Organization of the United Nations	FID/CP/NAM
PROFIL DE LA PÊCHE PAR PAYS	Organisation des Nations Unies pour l'alimentation et l'agriculture	
RESUMEN INFORMATIVO SOBRE LA PESCA POR PAISES	Organización de las Naciones Unidas para la Agricultura y la Alimentación	March 2007

THE REPUBLIC OF NAMIBIA

1 GENERAL ECONOMIC DATA - March 2007

Area:	823 290km ²
Ocean area:	580 000 km ²
Inland waters (km ³)	5000
Population (2005)	2 million
GDP at purchaser's value (2005):	US\$ 5 billion
GDP per head (2005):	US\$ 2000
Agricultural GDP (2005):	US\$ 381.1million
Fisheries GDP (2005):	US\$ 372.2 million

+Currency: Namibian dollars. Average 2005 rate of exchange US\$ 1.00 =NS\$ 6.4

2 FISHERIES DATA

2003	Production	Imports	Exports	Total Supply	Per Caput Supply
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	'000 tonnes liveweight				kg/2003
Fish for direct human consumption	636	20	381	26	13.3kg
Fish for animal feed and other purposes	249				

Estimated Employment (2003):	13700
(i) Primary sector (including aquaculture):	5,775
(ii) Secondary sector:	7,925
Gross value of fisheries output (2005):	US\$ 592 million
Trade (2005):	
Value of fisheries imports:	US\$ 21,878,000
Value of fisheries exports:	US\$ 375,616,000

3 FISHERY AREAS AND MAIN RESOURCES

3.1 Marine sector

Namibia has one of the most productive fishing grounds in the world, based on the Benguela Current System, one of the four eastern boundary upwelling systems in the world (the others are off North – West Africa, off California and off Peru). These systems support rich populations of fish, which form the basis for the Namibian marine fisheries sector.

Namibia's 200 nautical mile Exclusive Economic Zone (EEZ)'s commercial biomass contain about 20 different species consisting primarily of small pelagic species (pilchard, anchovy, horse mackerel and mackerel) and lobster along the shallower onshore waters on the continental shelf, as well as large pelagic species including adult mackerel, demersal hake and other deep – sea species (monkfish, sole and crab) in the waters further offshore.

Out of the 20 fish species commercially exploited in Namibia, eight species are regulated through TACs (Total Allowable Catch). Resources available in quantity for export are horse mackerel and hake. Namibian horse mackerel is the dominating species in terms of volume in the Namibian waters. It contains only three to eight percent body fat, it is both healthy and highly nutritional as well as a vital staple food source for

many nations in the region. Hake products are of good quality and increasingly in demand in EU and other international market for the catering and retail markets.

The orange roughy is another of Namibia's marine resources. This fish, often referred to as the 'diamond of the sea', is a rare, high-priced addition to Namibia's exports in this sector. Only commercially exploited in 1994, Namibia has become the world's second largest supplier of Orange roughy, however the catches of the species have been small in recent years.

Other marine exports include rock lobster; crab; oysters; monk; tuna; pilchards, seaweed, anchovy, redeye, snoek, sole, kingklip, panga, John dory, angelfish, shark, swordfish, kob, barbel, squid, cardinal fish, Cape guarnard, grenadier, Jacopever, chub mackerel, octopus and mullet.

The state of the stocks is fair for most of the species, despite declining landings in recent years. However it is the pilchard stocks that are of much concern to the nation. The pilchard population was seriously reduced during the 1990s due to negative environmental circumstances between 1993 and 1995 (so-called 'Benguela-Niño') and the negative effects of over-fishing in the period before independence. In 2001, the stock assessment was indicating less than 100,000 MT. The Ministry of Fisheries and Marine Resources made the decision to set zero quotas for pilchard in 2002 in order to allow the rebuilding of the stocks. In October 2003, the adult stocks of this short-lived species were estimated to be 300,000 MT.

3.2 Aquaculture sector

Besides the marine captured fisheries, Namibia also has a small but vibrant aquaculture sector. Marine aquaculture enterprises currently produce abalone, oysters, mussels and seaweed in Luderitz sea lagoons and salt-pond of Walvis Bay and Swakopmund. Inland captured fisheries exist in the north-east and north-west of Namibia, where various types of tilapia species and catfish are harvested from rivers and flood plains. Commercial freshwater aquaculture of tilapia and catfish is also undertaken.

4 FISHERY SECTOR STRUCTURE

4.1 Overall fishery sector

The Namibian fishing sector is divided into marine capture fisheries, inland capture fisheries and marine and freshwater aquaculture sector.

4.1.1 Marine capture fisheries (industrial fisheries)

Namibia's marine capture fisheries sector is exclusively industrial. The demersal fishery targets mainly hake in deep water and monkfish, sole, snoek and kingklip inshore. The mid-water trawlers target horse mackerel, purse-seiners target pilchard, juvenile horse mackerel and anchovy. Other fisheries at the industrial level include tuna fishing, rock lobster fishing, deep-sea red crab fishing and line-fishing (kob and west steenbras).

Marine catches are landed at two major ports: Walvis Bay and Luderitz. Because of its strategic location in the middle of the fishing grounds, most of the landings and processing plants are located in Walvis Bay. Currently a total number of 30 marine resources processing plants operate in Namibia. Because of the emphasis placed on creation of employment, catches are almost entirely industrial and onshore processing

particularly for wet fish including hake is promoted. The industry involves catching, processing and marketing of fish and fish products. About 85 per cent of the fish landed is processed in Namibia and then exported.

4.1.2 Inland capture fisheries

Namibia has no noteworthy natural freshwater bodies suitable for capture fisheries exploitation. Some rivers on the borders to Angola, Zambia, Zimbabwe and Botswana in the Caprivi and Okavango region are used for limited fishing activities.

There are no significant lakes either, the only permanent water bodies being man-made dams and sinkhole lakes. The perennial rivers along the border provide over 1 million hectares of flood-plain wetland with fisheries potential, varying by season at around 2,800 tonnes per annum.

4.1.3 Marine aquaculture

Commercial marine aquaculture (mariculture) is currently dominated by oyster production in Walvis Bay, Swakopmund and Luderitz. Both Pacific oyster (*Crassostrea gigas*) and European oyster (*Ostrea edulis*) are grown. Culture methods include baskets suspended from rafts, longlines and onshore raceways and ponds.

Currently there are eight companies involved in farming oysters in Namibia, which until 2006 was selling 70% of their production to South Africa. Total production has increased from 247 tonnes in 2004 to 302 tonnes in 2005 when new markets were discovered in Asia. It is projected that production could double in 2006 considering the growing demand for Namibian oysters in Asia.

Huge potential to increase production exists in Namibia including the 1,500 km largely uninhabited coastline, unpolluted high quality marine waters, high natural primary productivity of the seawater, availability of inexpensive fish by-products from established fish processing sector for inclusion in wet aqua-feeds and well-established processing, packaging and marketing systems due to the marine capture fisheries that can be adopted for aquaculture purpose. However, lack of finances and lack of interest by financial institutions to finance fish farmers might hamper the further expansions and development of this sector.

4.1.4 Inland aquaculture

Namibia's aquaculture sector is in its infancy, although aquaculture activities are believed to have started in the late 1800's with the introduction of carps, bass and tilapia.

Studies show that good freshwater aquaculture development potential exists along rivers such as the Okavango, Kunene, Orange and Zambezi, as well as in dams. Commercial freshwater aquaculture of tilapia and catfish is already undertaken in Hardap. In addition, the Ministry of fisheries and Marine Resources and the Ministry of Trade and Industry have developed six community-based intensive freshwater aquaculture facilities in Omusati, Okavango and Caprivi region producing tilapia and catfish for local distribution. Fingerings are also being produced and distributed to small scale farmers in the north for their own production.

The production of freshwater and brackish water species in the Oshikoto Region is also being considered for future development. The long-term strategy of this activity is to apply the lessons learned to other regions. Local species already adapted to culture requirements shall be the first priority (e.g. *Oreochromis andersonii* and *Clarias gariepinus*).

The Ministry is also aiming to adopt a two-pronged approach for the development of this sector. One is freshwater aquaculture, aimed at alleviating poverty, creating employment and satisfying local consumption needs. The second approach involves seawater aquaculture, which includes the culture of oysters and other molluscs for export.

4.2 Marine sub-sector

4.2.1 Means of fishing / production

The development of the Namibian marine fishing was made possible following the independence of Namibia in 1990, by the declaration of an EEZ of 200 nautical mile and the full control obtained over the marine resources. A total of 283 vessels were licensed for commercial fishing in Namibian waters for the 2005 fishing season, compared to 302 and 312 in 2003 and 2004 respectively. It is estimated that the fleet is more than 80% Namibian owned with the bulk of the catches exploit by the following fisheries:

4.2.1.1 Demersal fisheries

Around 121 demersal trawlers (19-77m length) are currently licensed. Their principal target species is hake (*Merluccius capensis* and *M. paradoxus*), caught in deeper waters (trawling is not permitted in less than 200 m depth). Smaller trawlers fish inshore for monkfish (*Lophius spp.*), sole and kingclip. 28 demersal long-liners (19-55 m length range) also target hake, with smaller quantities of highly valuable kingklip and snoek.

Mid-water fishery: 15 mid-water trawlers in the 62-120m length range are licensed to fish for horse mackerel (*Trachurus capensis*). This sub-sector has the largest number of foreign flag vessels, between 12-15 operating at any one time. However, of these, at least 8 are wholly owned by Namibian nationals, but retain foreign flag in order to facilitate work permits for the largely eastern-bloc crews.

Purse-seine fishery: a fleet of 36 purse-seiners (21-47 m length range) target pilchard (*Sardinops ocellatus*) for canning. Juvenile horse mackerel and anchovy (*Engraulis capensis*), which occurs sporadically in Namibian waters, are also caught for fishmeal. Namibia's pilchard stock has not progressed as well as other species to measures designed to re-build stocks, and there is concern about recruitment levels, which appear to be largely influenced by environmental factors. Catches have declined rapidly in recent years from 68,600 tonnes in 1998 to 27,300 tonnes in 2005.

Deep-water fishery: 5 deep-water trawlers are currently licensed to target orange roughy (*Hoplostethus atlanticus*) and alfonso (*Beryx splendens*). The fishery commenced in 1994 but low catch levels have since reduced the value and importance of the fishery.

Tuna fishery: a fleet of 73 tuna vessels in the 6-79 m length range utilising long-line and pole-and-line gear are licensed to target albacore (*Thunnus alalunga*), bigeye (*Thunnus obesus*), swordfish (*Xiphias gladius*) and skipjack (*Katsuwonus pelamis*). Pelagic sharks are also taken. Namibia is an active member of ICCAT and participates fully in regard to regional assessment and management of these species.

Rock lobster fishery: the fishery for rock lobster (*Jasus lalandi*) is based in the southern port of Lüderitz. 34

(7-21 m) rock lobster trap fishing vessels are currently licensed.

Deep-sea red crab fishery: deep-water traps are used to target red crab (*Chaceon maritae*). Only 2 vessels were licensed in 2000 in this small but valuable fishery. Research on deep-sea red crab indicates that the stocks continue to grow slowly. This being a shared stock, Namibia has initiated joint research activities with neighbouring Angola.

Linefish vessels: a fleet of 16 industrial linefish vessels operate offshore and target kob, snoek and steenbras. Some ski-boats also take recreational fishermen out on a charter basis.

Recreational fishery: The recreational fishery targets many of the species targeted by the 'line-fish' fishery: kob also known as kabeljou (*Argyrosomus* spp.), west-coast steenbras also known as white fish, (*Lithognathus aureti*), galjoen (*Dichistius capensis*), blacktail also known as dassie, (*Diplodus sargus*), and snoek (*Thyrsites atun*). Other important recreational species include barbel (*Galeichthys feliceps*) and sharks (principally cow shark (*Notorynchus cepedianus*), bronze whaler (*Carcharhinus brachyurus*), spotted gullyshark (*Triakis megalopterus*) and smooth hound (*Mustelus mustelus*).

Cape Fur Seals: Cape fur seals (*Arctocephalus pusillus*) are also harvested around Cape Cross, Walvis Bay and Atlas Bay. Harvests have declined from 42,223 seals in 2001 to 31,971 in 2004. The TAC for 2006 is set at 80,000 seals.

Seaweed: Seaweed, predominantly kelp, is harvested at a number of locations. Production in 2003 was 288 tonnes, representing a decline of 36 % from 500 in 2002.

Table 1: Harvest of the main commercial species, 2001-2005(tonnes)

Sources: MFMR, annual report 2005.

SPECIES	2001	2002	2003	2004	2005
Pilchard	10 763	4 160	22 255	28 605	25 128
Hake	173 277	154 588	189 305	173 902	158 060
Horse mackerel	315 245	359 183	360 447	310 405	327 700
Monk	12 390	15 174	13 135	8 961	10 466
Kingklip	6 607	7 210	6 603	7 067	5 567
Tuna	3 198	2 837	3 371	3 581	3 654
Crab	2 343	2 471	2 092	2 400	2 480
Rock lobster	365	361	269	214	248
Other fish species	30 810	77 407	33 644	31 997	18 934

Total fish harvest	554 998	623 391	631 119	567 133	552 164
Seals	44 223	40 000	34 000	31 971	64 167
Seaweed (Gracilaria Collection)	800	500	288	N/a	

4.3 Inland sub-sector

Namibia's arid climate means that inland freshwater fisheries sector is relatively small. Only in the north-eastern and north western regions of Caprivi, Okavango, Omusati, Oshana, Oshikoto and Oshana are sizeable freshwater fisheries found.

Perennial rivers provide over 1 million hectares of flood-plain wetlands with fisheries potential, estimated at approximately 2,800 tonnes per annum worth \$ US 3 million (N\$ 22 million) at average value of US\$ 1.25/kg, consisting mostly of tilapias and catfish. About 50% of the rural population live in the northern regions and derive food, income and informal employment from inland fish resources.

The inland fisheries are mainly subsistence based and typically labour intensive, with low catch per unit effort. Catches are mainly consumed by the fishers, their immediate families and extended families or within their communities. Very little surplus is sold outside the communities in the towns markets. However the subsistence fisheries from these regions play a significant role in the lives of rural community.

In Kavango and Caprivi Region more than 100,000 people depend on this resource for their daily protein needs. Freshwater fish consumption in the Caprivi region ranks over beef, game and poultry and also has a significant economic value for the communities. The most important fish species are silver catfish, squeaker, bulldog, tigerfish, and tilapia, silver robber, dashtail barb and sharptooth catfish. The recreational fishery is also a major business sector in the Caprivi region. The importance of freshwater fish resources is emphasised especially during periods of drought when the crop fails and the people rely on fish catches from the river.

In Omusati, Oshana, Oshana, Oshikoto, the fishing season is seasonal and only occurs during when the Cuvelai plains are flooded during the rainy season. The quantity of fish caught depends on the extent of the flood.

4.3.1 Catch profile

The total productions of inland fisheries in Namibia have not been documented in a consistent manner because of the fact that it is highly subsistence oriented and in other parts occur seasonally. The figures vary from year to year and production is estimated at 2,800 per annum.

4.3.2 Means of fishing / production

The use of fishing gears varies in the different region where inland capture fishery is practised. The fishing gears are classified into traditional and modern.

In areas where there is flood plain, mostly traditional gears are used. Traditional gears include: Fish Kraal, of which women are reported to be the main users. The Trap is constructed from reeds and sedges and it is baited with locally available material such as millets porridge or grain husks. Fish spears are constructed from long, light reeds tipped with barbed, metal points. This is used to spear individual fish and is mostly exclusive used by man. Fish bow and arrows are also used. Fishing basket is constructed from plant material and has a large opening. The basket is placed in shallow water and trap large fish. Baited hooks and line are also used.

The modern gears are mostly used in deeper waters and include: Gill net, which is mainly used by men. The net is suspended in deeper waters along the bank when floods are in. Various net materials are used, constructed from various materials ranging from mosquito nets and shading cloths. Mosquito nets are mostly used by women. Drag and seine nets are used exclusively by men in the most commercial ventures.

5 POST HARVEST USE

5.1 Fish utilisation

The total production from marine fisheries in 2005 was recorded at about 552 164 tonnes. The Namibian catches not transhipped at sea are landed in Lüderitz or Walvis Bay for processing and value addition.

Processing activities include filleting, canning, steaks, heading and gutting, fishmeal and fish oil production.

Hake is currently processed into the following products: fresh fish on ice in which the guts are removed and the fish is preserved on ice for airfreight overseas. Frozen retail packs, typically produced in 400-600 gram boxes sold directly to end-consumers through retail outlets such as supermarkets, freezer food stores and European distributors. Frozen catering packs, these are typically 5 to 10 kg of either frozen headed and gutted fish or frozen fillets (skin-on or skinless) and also fish mince, blocks, sausages, roes, loins, portions and wings.

Monk is processed into various product forms, the main products include skin-on/tail-on individually wrapped portions (IWP) or skin-off and tail-off IWP processed at sea and packed frozen into 10 kg boxes for the catering (food service industry) trade. A very small amount is processed into 200 gram retail packs of frozen boneless fillets, processed ashore for retail markets and the frozen fillets or de-boned tails sold in small volumes to exclusive restaurants.

Orange roughy and alfonsino are processed into large fillets or as bagged glazed smaller frozen skinless fillets for retail trade.

Horse mackerel is frozen at sea into block frozen 30 kg packs. These packs contain three 10 kg blocks of whole, round quick frozen horse mackerel. Otherwise processing involves sun-drying and fishmeal production. Pilchard is almost entirely canned.

Rock lobster is processed ashore and product forms include cooked and frozen whole lobster and tails and also uncooked frozen whole lobster and tails.

Tuna and large pelagics (swordfish, marlin, yellowfin tuna, bigeye tuna and shark) are gilled and gutted, then blast frozen at sea. Sharks are processed into gutted, headed and tailed trunks.

Cultured oyster and abalone are exported live and frozen.

5.2 Fish markets

5.2.1 Domestic market

The domestic market for marine fish products is extremely limited due to the small size of the population (2 million). In addition, the traditional diet in Namibia is meat based. It is estimated that only 10% of Namibian fish is consumed in the local market.

The main fish species dominant in the domestic markets are horse mackerel, small size hake (baby hake) snoek and dentex fish. Horse mackerel is particularly popular because it is cheaper compared to other fish products and easily available. Inland fish, on the other hand, are marketed closer to the area of production and in very limited quantities.

5.2.2 International trade

The country exports more than 90% of its fisheries production in various product forms, primarily to international markets including EU, USA, the Far East as well as African markets. Fish exports account for around 15% of total exports in Namibia, valued at around US\$520.6 million in 2005.

Hake is still mainly exported to the traditional European markets, with the bulk going to Spain, where it either enters the Spanish market or is distributed further to other markets on the European continent, including Portugal, France, Italy, Holland and Germany. Non European markets for Namibian hake includes Australia, Malaysia and USA.

Monkfish and sole are exported mainly to EU through Spain and Italy to France, Germany, Monaco, Netherlands and Portugal.

Orange roughy and alfonsino are sent to the USA, which accounts for about 95% of exports of these species while 5% go to China, Spain and France. Horse mackerel is mainly distributed in the African markets. Approximately 70% goes to Democratic Republic of Congo, and the balance to South Africa, Mozambique and other SADC countries.

Pilchard in the form of canned product is exported to South Africa and to the UK through Glenryck UK.

Tuna and large pilchard are shipped to Japan and Spain and a limited quantity of smaller fish goes to USA. Deep –sea red crab goes entirely to Japan. Rock lobster goes to Japan and USA.

Cultured oysters is exported to South Africa and South-East Asia, especially Singapore, Hong Kong and China, while cultured abalone is exported to Japan and China.

6 FISHERY SECTOR PERFORMANCE

6.1 Economic role of fisheries in the national economy

The marine fisheries sector is a major contributor to the national economy. In 2005 the sector contributed US \$372.2.1 million to GDP, compared with US\$97.8 million in 1996. Contribution to GDP from fisheries has declined over the last five years from 7 % in 2002, 7.8 % in 2003 to 6.2% in 2005.

The decline brought on by the decrease in the TAC for hake as well as stringent conservation and management measures in the small pelagic industry. The main contribution comes from fishing activities, recreational fishing and processing activities.

Despite decline in fisheries contribution to the GDP, the Namibian fishery has experienced growth in landed value of the catches year on year. The value of landings has risen from US\$ 365 million in 2001, US\$395 million in 2004 to US\$ 489 in 2005.

Direct government revenue collected from the fisheries sector include quota fees, marine resources levy (a levy on landed species, used to fund research and training), a by-catch levy (all of which must be landed, discharging is prohibited) with charge rates per tonne set on a species in specific basis, and licence fees for vessels.

Direct revenue generated from the sector has risen from US\$ 12 million in 2001 to US\$ 16 million in 2005.

6.2 Supply and Demand

Despite the abundance of marine fisheries resources of the country, fish consumption in Namibia is among the lowest in Africa, estimated at 13.3 per caput per year. Fish has not been part of the traditional diet of many Namibians. However, the Namibia Fish Consumption Trust has been established by the Ministry of Fisheries and Marine Resources with the objective of increasing domestic fish consumption.

The campaign has proven fruitful since its inception in 1992. The demand for fish is rising for frozen and chilled product in the Namibian traditional markets and expected to increase further. In the past, only low value fish such as horse mackerel and dentex fish were supplied to the local markets. However this has changed and the local market is demanding higher value fish products such as value added hake, previously earmarked for export markets. The most popular fish in the local market is small hake locally known as baby hake, angelfish, snoek, jacopiva, alfosino, Walvis red and horse mackerel.

6.3 Trade

The fishing industry has grown to the extent that it is currently Namibia's second biggest export earner of foreign currency after mining (90% of national output is marketed for export). In 2005, Namibia harvested about 552 164 tonnes of fish. The final value of processed products (export value) that year was around US \$376.0 million.

The domestic market for Namibia's population of 2 million is relative small, hence greater access to the international market is important to, inter alia, facilitate the diversification and value addition policies in the fisheries processing sector. Therefore, both market share and market entry are important to Namibia as foreign exchange earnings assist the country in meeting its food import requirements. On the other hand fish imports are limited and mostly comprises of canned products from South Africa. There are also few canned products such as tuna from USA and Asia and few amount of fresh and canned salmon sold in major supermarkets.

In general the amount of fish imports is relatively small compare to quantity that goes for export.

Table 2: Namibian Fish Trade value in US\$ 1000

Source: FAO FishsStat plus

Year	Exports		Imports	
	MT	US\$ 1 000	Tonnes	US\$ 1 000
1996	266 783	198 906	11 504	7 359
1997	292 837	246 594	35 716	11 319
1998	423 735	382 299	47 594	13 515
1999	407 660	290 993	34 263	5 933
2000	410 239	283 287	130 794	24 176
2001	341 542	329 861	48 004	13 091
2002	363 518	291 572	21 109	9 296
2003	341 610	332 257	16 555	9 394
2004	335 072	362 361	24 376	19 675
2005	295 147	375 616	19 282	21 878

Table 3: Top 10 importers of Namibian fish

Source: FAO FishsStat plus

Importers	Exported value 2005 in US\$ 1 000	Share in Namibia exports %
Spain	171 868	45.8
South Africa	67 041	17.8
Mozambique	17 721	4.7
Italy	16 484	4.4
Japan	13 300	3.5
Republic of Congo	12 468	3.3
Dem. Rep. of the Congo	8 645	2.3

Germany	7 699	2
France	7 569	2
Netherlands	6 892	1.8
Others	45 929	12.2
Total	375 617	100

6.4 Food security

Namibia, with its arid climate conditions and unreliable rainfall, is vulnerable to drought, which has adverse effect on the livelihood of the population. With about 56% of the population living below the poverty line of \$2 per day, poverty alleviation is a key objective of the Government of the Republic of Namibia.

Namibia, being a net exporter of fish and livestock products, the country still relies on import of food to feed its population. Malnourishment amongst children is high 30% rising to 50% in the densely populated central northern and north-eastern areas: where over 50% of the population lives. Fish is one of the cheapest forms of protein available; however fish comprises only about 14 % gram of total animal protein intake except for in the northern region in the Cuvelai and Caprivi floodplains, where fish consumption is much higher and more important in the diet.

The distance between the ocean, the harbours and the major cities and towns is so great that it is not always easy to access fish products. In addition, fish in local market are so expensive because of the high prices offered by international markets. Therefore, the Government of Namibia has made aquaculture a top priority as defined in Namibian Vision 2030 document. Aquaculture is expected to play major role in the enhancement of food security, alleviate poverty, and improvement of livelihood in rural communities.

6.5 Employment

The fishing industry is a source of considerable employment for many Namibians. It is currently estimated that the total employment in the fishing industry is about 13 700. Of this total, approximately 5 575 is employed on-board vessels, 68% of which are Namibians while 7925 are involved in onshore processing, of which nearly all are Namibians. Total employment in the aquaculture sector is estimated at 200 people.

6.6 Rural development

Namibia has very limited natural water resources in the main land and the marine resources do not support small scale and artisanal fisheries because of the rough seas and difficult living conditions along the coast. Thus artisanal and small scale fisheries do not exist.

Fisheries in Namibia do not directly maintain population in their native places nor does it assist in developing of remote parts of the country except in the Caprivi and Okavango region, where captured freshwater fisheries is practiced. However, the marine industrial fishing sector supplies jobs to 13,700 people. With a high average number of 10 dependent per job, this brings the number of people benefiting from fisheries to 135 000.

In addition, many Namibians employed in the marine sector originate from different parts of the country and

have the tendency of sending money to their places of origin (home in remote areas) where money is then used for the development of their communities. In the Oshikoto, Oshana, Ohangwena, Omusati, Okavango and Caprivi region, the income used for community development is in most cases earned outside the region.

Furthermore, The Government of the Republic of Namibia is engaged in promoting community based fish farming, primarily to promote food security and create employment and income generation for the community members. During 2005, a total of 191 small scale fish farmers received fingerlings (tilapia and catfish) from the Ministry of Fisheries and Marine Resources to grow and sell for their own income. Freshwater aquaculture in particular is expected to contribute to the livelihood of the people in rural areas.

7 FISHERY SECTOR DEVELOPMENT

7.1 Development prospects/strategies 1

7.1.1 Main areas for opportunities

The Namibian marine fisheries are considered well managed and development has taken place since independence in 1990. However, areas that need further development include:

- Aquaculture - The Government of the Republic of Namibia has identified aquaculture as a top priority for development. The Government foresees the role of aquaculture of freshwater species to enhance food security, generate income and improve rural livelihood. It is again envisaged that by the year 2030, aquaculture will have grown to become a thriving industry.
- Value added products: The Government of the Republic of Namibia believes Namibia fish exporters are not competitive enough. Over-reliance on exports of commodity-type fish products, lack of product innovation from the industry to develop value-added products; poor product differentiation with competitors; poor branding; poor knowledge of market requirements, and poor knowledge of consumer preferences are some of the weaknesses identified in the Namibian fishing industry. Innovation in the fish processing sector could substantially improve.
- Potential for upgrading production: quality and the production of new value added products exist in the country considering the well established processing, packaging and marketing systems. Value addition could lead to higher earnings from exporters of high quality products that command good prices in the international markets.

Namibia as a country has potential to increase their export output from Fisheries and contribute to the national economy. Proper marketing research and new marketing strategies could be developed. There is a need for the establishment of an export promoting body that will look at promoting Namibia fish and fish products on international markets.

Renewal of the fishing fleet: There are too many old vessels in Namibian waters that have contributed to poor

production output in recent years. Investment is needed in a form of new equipment (vessels) to replace the aging fishing fleet and to enhance Namibia's competitive edge. The present fleet is also suffering from being fuel inefficient and with rising oil prices; this has further disadvantaged the Namibian industry.

7.1.2 Main constraints to development

The main constraints to further development of the marine fisheries as identified by government and the fishing industries are:

- Lack of investment incentives for the fishing sector. The Government of Namibia needs to facilitate development in the sector by introducing incentives that makes it attractive from international competitive perspective, for investor (both local as well as foreign joint venture partner) invest in Namibian fisheries and aquaculture.
- Lack of access to financing for the aquaculture sector. Currently there is a lack of capital for the aquaculture sector in Namibian. Access to finances at realistic rates is crucial for the growth of fishing, aquaculture and processing. Entrepreneurs looking for capital to venture in aquaculture operations are facing difficulties because both local and international financial institutions are reluctant to provide start up capital. Lack of knowledge, high risk and lack of security are some of the reasons given by local banks. However, aquaculture production shows considerable promise, especially in mariculture. Most significant is the oyster production in Luderitz and Walvis Bay.

7.2 Research

The Ministry of Fisheries and Marine Resources through its Directorate for Resources Management, continue to conduct annual scientific research aimed at quantification of the resources and the state of the environment. The main activities include stock assessment for those species managed by TAC –hake, pilchard, horse mackerel, and orange rouhgy, rock lobster, monk fish, deep seared crab and seals. The MFMR conducts annual surveys of these species and are important as they provide recommendation, for the determination of total allowable catch.

In addition to the research conducted by the Ministry, co-operation and sharing of expertise between scientists of Angola, South Africa, Germany and Norway is achieved through BCLME, BENEFIT and the NANSEN programmes. BENEFIT provides training and research opportunities for both scientists and technicians within the region. The Norwegian research vessels, RV "Dr Fridtjof Nansen continues to provide valuable for research for the Ministry

The Benguela Environmental and Fisheries Interaction and Training (BENEFIT) is a regional marine science and training programme involving three member states of the Southern African Development Community (SADC): Angola, Namibia and South Africa. It is a 10 year program, established in 1999 and funded from a variety of local, regional and international research and development sources. The research component of the program focuses on fisheries resources and environmental aspects of the Benguela system. Some of the main research activities conducted since 2000 include:

- Validation of sardine and horse mackerel ageing methods in the Benguela system, Horse Mackerel, *Trachurus trachurus capensis* and *Trachurus trachurus* Trecae, recruitment surveys, retrospective analysis of research and commercial data on Horse Mackerel distribution in the Benguela,
- Stock dynamics of hakes (*Merluccius capensis* and *M. paradoxus*) in the Southern Benguela region,
- Distribution and movement of *Dentex macrophthalmus* in the Northern Benguela area,
- Evaluation of a long-line tagging technique for Hake migration studies.

With regard to the environmental aspect, research conducted in 2002 includes:

- Implementation of effective ADCP data collection and management for oceanographic and fisheries research in the SE Atlantic,
- Continuity and Mesoscale Patterns of Circulation in the Benguela Upwelling System, application of remote sensing in the Benguela system--phase 2,
- An integrated system for inshore monitoring of environmental variability in the Benguela system,
- A Namibian modelling-based case study on the biogeochemistry and dynamics of hypoxic environments in the Benguela system and their linkage to fisheries habitat suitability.

Benguela Current Large Marine Ecosystem (BCLEME) programme is a multinational cross-sectoral initiative by Angola, Namibia and South Africa, funded by Global Environment Facility (GEF). The programme facilitates research aimed at managing the living marine resources of the Benguela Current in an integrated and sustainable manner and to protect the marine environment.

7.3 Education

Since independence, MFMR has made human resources development a priority and training in various fields has been offered to staff members. The main courses that have been developed by the MFMR include:

- Fisheries inspector and observer training ,
- Commercial sampling programme for fisheries observers,
- Deck officers training course
- Marine engineer officers training.
- Qualifying training leading to academic degrees

Most of the training mentioned above are offered at the Namibia Maritime and Fisheries Training Institute (NAMFI).

NAMFI is a training institution of the Ministry of Fisheries and Marine Resources and continue to play an important role in the training of Namibians for the fishing industry. Since its establishment, the institution has trained approximately 500 students in navigation, engineering, safety at sea and Monitoring, Control and Surveillance.

The Ministry, through it Marine Resources Fund, provides financial assistance to its staff members to further their studies in fields relevant to their daily duties. The Ministry bursaries are awarded on yearly basis and about 44 staff member have benefited from the scheme so far, pursuing various degrees, diplomas and certificate, in Science, Fisheries and Management Sciences, Aquaculture Management and Administration, both locally and abroad on full-time and part-time basis. In 2005, priority has been placed on aquaculture where staff members attended courses covering quality control and monitoring of aquaculture farming management.

The Ministry also provides training through workshops and seminars organized on a national and regional basis.

7.4 Foreign aid

In addition to the budget provided by the Government of Namibia, the MFMR receives technical and financial assistance from various countries and organisations. The assistance received in 2005 included:

Donor	Type of assistance provided
Norwegian Agency for development Cooperation (NORAD)	Support to review the MFMR economic model database
Icelandic International Development Agency (ICEIDA)	Provided technical assistance for review of economical model database
European Union	Support to NAMFI (Namibia fisheries institution) with equipment including computers and vehicles and renovation of the institution's building
Regional Government of the Xunta de Galicia	Financial support for Henties Bay fisherman's cooperative; financial assistance on aquaculture development project (Omahenene/Onaviv); technical assistance to NAMFI staff training in Spain.
Government of Malawi	Technical assistance (aquaculture developement projets)

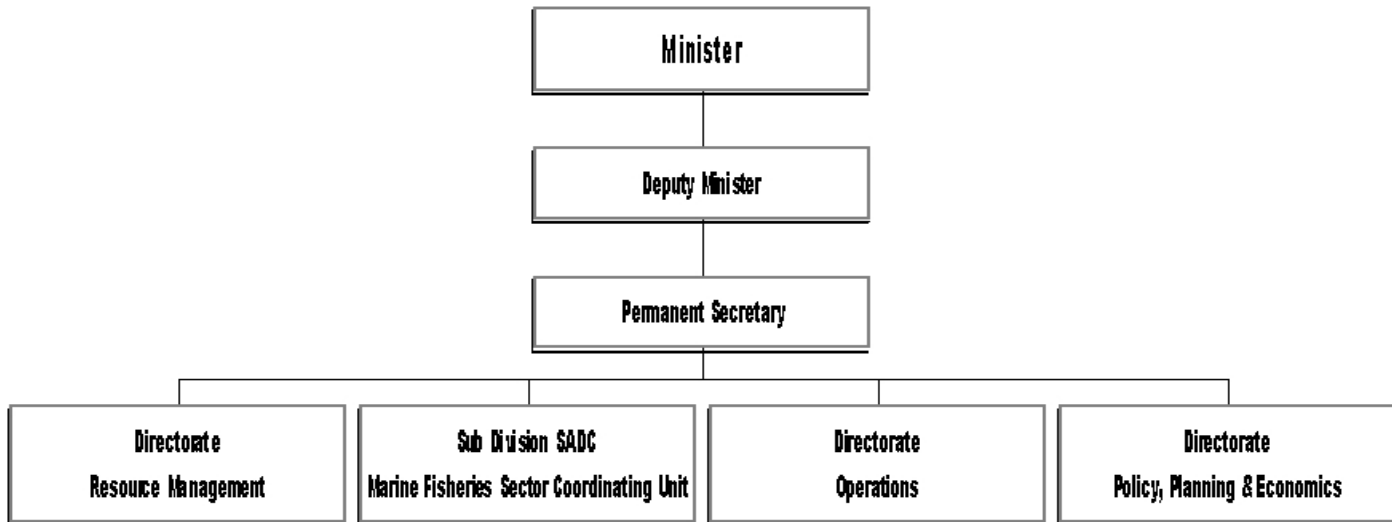
Government of Cuba	Technical assistance (aquaculture development projects)
Department For International Development (DFID) (UK)	Capacity building for trade in fish

8 FISHERY SECTOR INSTITUTIONS

Namibia's key fisheries institution is The Ministry of Fisheries and Marine Resources (MFMR). Established in 1991 and located in Windhoek, the capital of Namibia, it had from its inception a very clear fisheries management focus. The Ministry is responsible for the development and management of capture fishery and aquaculture.

The Ministry consist of the Minister, the Deputy Minister, the Permanent Secretary and four directorates namely: the Directorate of Resource Management, responsible for scientific research and advice; the Directorate of Operation and Surveillance, responsible for monitoring, control and surveillance; the Directorate of Policy Planning and Economics, responsible for the coordination of MFMR planning activities, as well as formulating fisheries policies and legislation and undertake research and advise on socio-economic issues; and the Directorate of Aquaculture, responsible for the administration and development of aquaculture and mariculture. The Office of the Permanent Secretary of the MFMR provides executive management to the four directorates. For further information on MFMR visit: www.mfmr.gov.na

MINISTRY OF FISHERIES AND MARINE RESOURCES STRUCTURAL ORGANOGRAM



8.1 Regional fisheries arrangements

Namibia is a member to regional organisation and host to number of regional programmes embarked on the Assessment of the Marine Fisheries and Research programme commonly known as the Benguela Environmental and Fisheries Interaction and Training Programme (BENEFIT); and the Benguela Current Large Marine Ecosystem (BCLME) and the Intergovernmental Organisation for Marketing Information and Co-operation Services for Fish and Fishery Products in Africa (INFOPECHE).

BENEFIT facilitates research collaboration between Angola, South Africa and Namibia and support training of national scientists from these countries at university level. Further information on BENEFIT visit: www.benefit.org.na

SADC fisheries MCS programme's objectives are to improve management of fisheries resources of the SADC coastal States through improved national institution capacity building for efficient, cost effective and sustainable fisheries and enhance effective regional co-operation on monitoring, controlling and surveillances and fisheries management. Further information: www.mcs-sadc.org. The programme was closed down in 2006.

BCLME is a multi-sectoral initiative by Angola, Namibia and South Africa, focusing on numerous management issues of a trans-boundary nature, including the status of shared fish stocks and appropriate management measures, ecosystem-fish stock interactions, pollution studies, habitat destruction/alteration

and biodiversity and environmental monitoring. Further information visit: www.bclme.org

INFOPECHE is an Intergovernmental Organisation for Marketing Information and Co-operation Services for Fish and Fishery Products in Africa (INFOPECHE). Namibia becomes a member of INFOPECHE in 1993. In 2001 INFOPECHE and the Government of Namibia established a regional office INFOSA to serve the Southern part of Africa –SADC. The overall objectives of INFOSA are:

- To contribute to the development and modernisation of the fisheries sector in southern Africa
- To contribute to a more balanced supply of fisheries products in the region
- To make best use of the export opportunities within and outside Africa
- To promote technical and economic co-operation among contracting partners

During the initial three years of operation, INFOSA is financed by the Government of Norway and hosted by the Government of Namibia: www.infosa.org.na

8.2 International organisations

In addition Namibia is also a member to International organisation.

8.2.1 South East Atlantic Fisheries Organisation (SEAFO)

The convention to establish SEAFO was the first to be signed following the establishment of the 1995 UN Fish Stocks Agreement, signed by nine States in Namibia on 20 April 2001. SEAFO represents a major achievement in regional co-operation in the south-east Atlantic. Namibia became the first signatory nation to ratify the Convention in November 2001. The Convention has also been ratified by the European Community and will enter into force 60 days after the deposit of a third instrument of ratification with Namibia, as Depository. From the date of signatures in 2001, the Ministry of Fisheries and Marine Resources in Namibia acted as an Interim Secretariat. In March 2005 and with the appointment of the staff, the permanent secretariat was opened in Walvis Bay, Namibia

SEAFO comprises of the Commission, the Scientific Committee and the Compliance Committee as subsidiary bodies and the Secretariat. The Compliance Committee is yet to be formalised. The Commission has an oversight responsibility of the Organisation. The Scientific Committee provides scientific advice on the resources status and on harvesting levels taking into consideration, among others, ecosystem approach) and precautionary approach principles). The institutions are designed to function according to the principles of cost-effectiveness and to expand only at the same pace as its workload

Namibia's involvement in the process was largely due to the desire to ensure that in-zone fisheries were not undermined by IUU fishing for straddling stocks in the high seas areas adjacent to the Namibian EEZ.

8.2.2 International Commission For The Conservation Of Atlantic Tunas (ICCAT)

ICCAT is responsible for the conservation and management of tuna-like species. The rapid development of

a thriving domestic tuna fishery for albacore tuna, swordfish and sharks, provided the impetus for Namibia to join ICCAT in 1999.

In 2005, Namibia was accorded favourable fishing possibilities in the ICCAT Convection area, as an outcome of the meeting in Sivilla, Spain. This is in regard to the four-year swordfish country quota allocation in 2002 which assumed Namibia a total 1.070 tonnes of swordfish in 2005, a three year catch sharing arrangement for albacore tuna and a 2,100 tonnes catch limit for big eye tuna.

8.2.3 Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

As a member of CCAMLR, Namibia is committed to the management and conservation of the marine resources of the Antarctic. The Namibian fishing industry is interested in fishing in CCAMLR's waters and is ready to participate responsibly in the harvesting of fishery resources, especially tooth fish.

Namibia recognises that the provision of accurate, reliable and timely data to the CCAMLR Secretariat and therefore complies fully with the CCAMLR Catch Documentation Scheme (CDS). Prior to the enactment of the Marine Resources Act (2000), there were occasional incidents of IUU vessels visiting Namibian ports to land toothfish and other deep-water species taken in high seas areas. However since 2000, the new Act coupled with strict implementation of the CDS has resulted in a cessation of such incidents.

9 GENERAL LEGAL FRAMEWORKS

Before Namibia's independence in 1990, the rich fishing grounds were constantly overexploited by foreign distant water fishing fleets as a result of poor or complete absence of fisheries management. Shortly after independence, the Government of Namibia proclaimed a 200 nm EEZ, (Act No.3 1990) in accordance with the provision of the United Nations Convention on the Law of the Sea of 1982.

In 1992 a detailed White Policy Paper entitled: "Toward responsible development of the Fisheries Sector" presents the goal and strategies to achieve sustainable utilization and development of Namibia's marine fisheries resources. This master plan, based on long-term perspectives, has proved to be the right approach for the development of Namibia's fishery sector.

The Sea Fisheries Act of 1992 is considered a cornerstone of fishing management in Namibia. It was revised at the end of the 1990s and replaced by the Marine Resources Act (act No 27 of 2000) which now represents the primary marine fisheries legislation. It entered into force in August 2001. [Marine Fisheries Act 2000.](#)

The new act incorporates international best practice for fisheries management and incorporates the key elements of the international agreements entered into by Namibia. The Act is based on the strategy to provide for the conservation of the marine ecosystem and responsible utilization, conservation, protection and promotion of marine resources on a sustainable basis; for that purpose to provide for exercise of control over marine resources.

Various regulations have been promulgated under the act. This established the terms and condition for all vessels and fishers operating within Namibia's EEZ. In line with Namibia's obligations as a flag state,

regulations also prescribe the activities of Namibia flag vessels operating outside the national EEZ. Under The Marine Resources Act (2000), a Marine Resources Advisory Council (MRAC) has been established, which provides advice to the Minister on Fisheries policy, management and development issues.

Other important legal documents are:

- The Marine Resources Regulations (2001),
- Namibia's Marine Resources Policy (2004) and Territorial Sea and Exclusive Economic Zone of Namibia Act (1990),
- Policy statement on granting of right of exploitation to utilize marine resources and on the allocation of fishing quotas.
- The Inland Fisheries Resources act (No.1 of 2003), which governs inland fisheries.
- The Aquaculture Act (No.1 of 2002), Aquaculture policy of 2001.

Four basic objectives have underpinned the effective management policy:

- the rebuilding of depleted fish stocks;
- the development of a national fishing and processing industry;
- empowerment of previously disadvantaged; Namibianisation of the industry.

The 'Namibianisation' policy aims to encourage the active and greater involvement, participation and benefit of Namibians - especially of Namibians previously excluded (during the Apartheid regime) from the fishery sector. Incentives are offered to companies that are at least 51 percent owned by Namibians (e.g. quota levies, long-term fishing rights).

10 MANAGEMENT APPLIED TO THE MAIN FISHERIES

Namibia's fishing grounds of 200 nautical miles are amongst the most productive in the world. Over 20 commercially important fish species are landed using various fishing methods. To prevent overexploitation and to promote economic viability in the industry, the Ministry issues rights of exploitation, fishing vessel licenses, and in some fisheries, TACs and individual catch quotas and closed seasons.

10.1 Main goals/objectives

10.1.1 Mission statement

To strengthen Namibia's position as a leading fishing nation and contribute towards the achievement of economic, social and conservation goals for the benefit of all Namibians.

10.1.2 Overall objectives

The overall objectives of the Ministry of Fisheries and Marine Resources are to:

- Promote and regulate the responsible and sustainable utilization of living marine and freshwater resources and aquaculture within the context of environmental sustainability;
- Establish a conducive optimal environment in which the fishing and fish processing industries can prosper and derive optimal income from marine resources;
- Further Namibia's interest within the international fishing sector;
- Provide professional, responsive and customer-focused services;
- Deliver services efficiently and effectively providing the best value for money;
- Continuously invest in human resources development so as to enhance Namibia's capacity to manage fisheries and marine resources, develop and participate in domestic fishing and fish processing, and play an effective role in regional and international fisheries affairs;
- To achieve increasing and sustainable yield of fisheries and marine resources for the development of the economy and the benefit of the people of Namibia.

10.1.3 Strategies being applied to attain these goals / objectives

Namibia's commitment to fisheries management and development is clearly stated in the National policy. The Ministry of Fisheries and Marine Resources in particular has a long-term planning/vision for Namibia's marine and aquaculture sector.

The strategic plan of the Ministry of Fisheries and Marine Resources for 2004 -2008 expresses the mid-term direction for the Ministry and describes the performance expected of the Ministry. The strategic plan also provides a framework of objectives, strategies and intended tasks against which the Ministry can be held accountable.

In addition, the Government, through the National Planning Commission, is currently coordinating 'Vision 2030', a long term development plan including a strategy for the fisheries sector. The strategies for marine resources as stipulated in the vision 2030 document are as follows.

- Setting TACs at a conservative level in order to promote the sustainability of resources and to enhance the recovery of depleted stocks.
- Adopting and implementing all the policies and programmes in support of sustainable and equity.
- Developing strategies that create incentive for fishing companies to adopt more sustainable fishing practise.
- Utilizing the services of expert consultants to assist Government fisheries scientists in setting their estimates for TACs.
- Continuing research, involving outside researchers, into the functioning of the marine environment and marine biodiversity.

- Developing new ways of adding value to Namibia's marine products
- Improving awareness of market requirements for marine products, and monitor market responses to Namibian products.
- Identify cost-effective, flexible and adaptable management approaches and national disaster response strategies to the potential impact of sea-level rise and other impacts linked to climate change, which could affect the marine resources sector.
- And encouraging entrepreneurial drive and redirect investment so that environment friendly economic and livelihood options are opened for the poor. E.g. promote small scale mariculture enterprise development.

10.2 Institutional arrangements

10.2.1 Rights-based approaches to fisheries management

The Government of Namibia maintains a management system comprising fishing rights, setting annual total allowable catches and allocation of quotas to right holders.

Fishing rights or harvest rights of exploitation, represent the central component of the fisheries management regime. The allocation of rights is spelled out in the Sea Fisheries Act, 2000. Section 33 provides for granting of rights of exploitation to utilise marine resources, and section 39 provides for the allocation of quotas in respect of particular species.

The main purpose of the right is to limit entry to the fisheries sector to keep catches sustainable. The rights are granted for a period of 7, 10, 15 or 20 years depending on various factors (e.g. degree of Namibian ownership, status of investment by the operator). As of 2005, 158 rights were allocated to companies who met the Ministry requirements for obtaining fishing rights and quotas. 25 rights were granted for seven years, 41 for ten years and 92 for fifteen years.

Fishing rights are not freely transferable in Namibia or, rather, not transferable permanently except in association with sale of a vessel and the approval of the Minister. Plans are underway to allow rights holders to make one transfer annually of some amount from the annual quotas they cannot fully utilise, to other vessels, which they own or to other right holders for the use by their vessels.

The main reason for none permanent transfer of rights is the possibility that transfer of rights might seriously threaten the progress made in the goals of Namibianisation and black economic empowerment. As part of the 'Namibianisation' policy, foreign newcomers have to form joint ventures with Namibians as a precondition for long-term fishing rights and quotas since 2000.

10.3 Management measures

The Namibian Management system for marine captured fisheries consists of a number of components that each plays a part in contributing to fisheries management.

The fishing industry in Namibia is not subsidised and Namibia is strongly opposed to the subsidy policies of other nations, both on the grounds that subsidies cause over-capitalization which leads to over-fishing, and

because subsidies distorts trade unfairly. Instead it is taxed, especially through the quota fees. In addition fee rebate apply to Namibian vessels, Namibian crew and processing on-shore. Compulsory levels of shore processing apply, the hake TAC is currently issued 60% as a wet-fish quota, which is landed on ice for on shore processing, while 40% freezer quota, which is processed at sea by freezer trawlers).

Overall, the Namibian fisheries do not benefit from manufacturing incentives and tax relief incentives offered to other industries in Namibia. However, there are considerable fuel rebates for Namibian companies according to criteria linked to the grade of operation, ownership, the flagging of the vessel and the employment share of Namibians. To support Namibianisation and empowerment policies, fishing rights and quotas are given to Namibian controlled ventures.

10.3.1 Key elements

Key elements in the management regime include limited access through allocation of fishing rights, establishing total allowable catches (TAC) for all major commercial species, by-catch restrictions, allocation of individual quotas, a system of fees, fishing licenses and the most recent closed seasons. In addition, fisheries observers are placed on board all vessels and inspectors monitor the landings in order to guarantee a strict respect for the regulations.

Total allowable catches are set for all major species. These are based on recommendation from the fisheries scientists employed by the Ministry of Fisheries and Marine Resources. The purpose for the TACs is to ensure sustainable fishing operations; that the level of fishing effort does not undermine the status of each stock.

Table 4: TACs set by year, 1991 – 2002 (tonnes).

Source: MFMR

	Pilchard	Hake	Horse Mackerel	Crab	Rock Lobster	Alfonsino	Orange Roughy	Monk
1990	40 000	60 000	150 000	n.a.	n.a.	n.a.	n.a.	n.a.
1991	60 000	60 000	465 000	6 000	1 200	n.a.	n.a.	n.a.
1992	80 000	90 000	450 000	6 000	100	n.a.	n.a.	n.a.
1993	115 000	120 000	450 000	4 900	300	n.a.	n.a.	n.a.
1994	125 000	150 000	500 000	4 900	130	n.a.	n.a.	n.a.
1995	40 000	150 000	400 000	(50 000)	3 000	230	n.a.	n.a.
1996	20 000	170 000	400 000	(90 000)	2 500	250	n.a.	n.a.
1997	25 000	120 000	350 000	(100 000)	2 000	260	10 000	12 000
1998	65 000	165 000	375 000	(75 000)	2 000	300	0	12 000

1999	45 000	275 000	375 000	(50 000)	2 000	350	n.a.	6 000	n.a.
2000	25 000	194 000	410 000	(50 000)	2 000	350	n.a.	2 400	n.a.
2001	10 000	200 000	410 000	(50 000)	2 100	400	n.a.	1875	13 000
2002	0	195 000	350 000	(40 000)	2 200	400	n.a.	2 400	12 000
2003	20 000	180 000	350 000	(40 000)	2 000	400	n.a.	2 650	12 500
2004	25 000	195 000	350 000	(40 000)	2 200	420	n.a.	2 600	12 000
2005	25 000	180 000	350 000	(45 000)	2 300	420	n.a.	2 050	11 500

(Figure in bracket the portion of the TAC of industrial fish caught for fishmeal)

Individual quotas represent TACs that are distributed to right holders in each fishery in a form of quotas. The main purpose with individual quotas allocation is to promote economic efficiency, to give companies sufficient knowledge about expected catches levels for the year for proper planning of their fishing activities. Quotas are not transferable for the same reasons that rights are not transferable.

Fishing licences are issue as a measure to gain control over flag state vessels. They are a requirement in order to fish commercially within Namibia's EEZ. Specific licences must also be obtained in order to use Namibian flag vessels to harvest any marine resources in any water outside of the Namibian EEZ.

Fees form an important part of Namibia fisheries management, and comprises quota fees, by-catch fees, Marine Resources Fund levy and License fees, all paid by the fishing companies. Their role is twofold: firstly to earn revenue for the Government and secondly to create incentives that work toward the goals of the management system, both conservation and Namibianisation.

The quota fees are by far the most important. They are payable on allocated quotas, regardless of whether the fish is caught or not. Quota fees contribute about 1/3 of the total Government revenue generated from fisheries.

By-catch fees represent fees pay for untargeted fish. Each right holder receives a quota for one target species. All catch of other species must be landed and carries a by-catch fee. This by-catch fee works to discourage right holders to target species that they do not have quota for, and forms an incentive to avoid catching such species.

Marine Resources Fund levy: this levy is paid into a fund that finances the research activities of the Ministry as well as a number of training initiatives. A small fee is charged on all landed fish that go to this fund. The Marine resources fund is controlled by the Ministry while quota fees and by-catches fees goes directly to the public coffer, though the Ministry of finance.

Monitoring control and surveillance: Namibia's MCS system has evolved over the years into what is today widely regarded by the international community as a very effective system. The MCS comprises an integrated programme of inspection and patrol at sea, on land and in the air to ensure continuing

compliance with Namibia's fisheries laws. The major features of the programme are described below:

Onboard observer programme- every vessel leaving the port of Walvis Bay and Luderitz for commercial fishing is required by law to have an observer onboard. The onboard observer serves both to ensure compliance and to collect of scientific data. A Fisheries Observer Agency (FOA) was established under the Marine Resources Act (2000) and ensures further improvement and contribution towards sustainable utilization of marine resources within and outside the Namibian waters.

Sea, air and shore patrol- Systematic sea patrol, largely directed at ensuring compliance with fishing conditions by licensed vessels through regular at-sea inspection. Air patrols detects and deter unlicensed fishing vessels and monitor the movement and operation of the licensed fleets. The shore patrols ensure compliance by both recreational and commercial fishers with conservation measures for the inshore resource. The Ministry of Fisheries and Marine resources has two patrol vessels and one aircraft.

Monitoring of landings- complete monitoring of all landings at the two commercial fishing ports of Walvis Bay and Luderitz by onshore inspectors to ensure that quota limits and fee payments are complied with.

Vessel Reporting and Vessel monitoring system- all vessel are required to supply EEZ exit and entry reports as well as daily catch and effort report via radio and in the form of vessel log sheets.

A more recent development has been the implementation of a satellite-based vessel monitoring system (VMS). The VMS provides benefits for fisheries management in the form of improved real-time monitoring of vessel movements and activities and further deterrence to illegal, unreported and unregulated (IUU) fishing activities. Namibia's national VMS will also enable the country to comply with requirements by international fisheries management organisations to which Namibia belong.

10.3.2 Fishery-specific management regulations

In addition to quota restrictions and TAC management, each commercial species has its specific management approach.

10.3.2.1 Hake

Hake: is managed through the following management measures Area restrictions (trawling is not permitted in less than 200 m depth). There is a limit on cod-end mesh size of 110mm.

In the process of introducing selectivity devices.

Fishing season: May to April

In 2005 a closed season for the hake fishery was introduced as another management measure to allow for stock rebuilding. The closed season lasted for two months, September and October.

10.3.2.2 Monkfish and sole

Minimum mesh size :75 mm and 110 mm

Fishing season: May to April

10.3.2.3 Orange roughy

Minimum mesh size: 110 mm

Fishing season: May to April

Horse mackerel-Management measures:

Area restrictions (no trawling in less than 200m depth).

Minimum mesh size : 60mm

Leave an area if:

Proportion of hake by-catch in a single haul landed on deck exceeds 5% (by weight) of a haul.

Pilchard by-catch are landed,

Proportion of horse mackerel less than 17cm total length for any net landed on board exceeds 5% (by weight).

10.3.2.4 Pilchard

Minimum mesh size:12,7mm

Pilchard by-catch limitations (for the horse mackerel mid-water fleet).

Fishing season 1 January – 31 August

10.3.2.5 Large pelagic species

The ICCAT Catch Documentation Scheme is in force.

ICCAT issued TAC's for swordfish and other tunas.

Gear restrictions (long-line, pole-and-line only).

Fishing season: January to December.

10.3.2.6 Deep-sea red crab

Using pots or traps.

No catches are allowed in water shallower than 400 metres.

Fishing season: January to December.

10.3.2.7 Rock lobster

Output control (TAC set each season).

Size limitation (65 Mm carapace length).

Season 1 November – 30 April.

No berried females to be landed.

10.3.2.8 Line-fish fishery

Closed areas and reserves.

Permits, daily bag and size limits (recreational fishery).

Input control – boat/effort limitation (restriction on number of rods).

Fishing season: January to December.

10.3.2.9 Cape Fur Seals

3-year rolling TAC (currently pups and bulls animals)

Season 1 July – 15th November.

Strict harvesting practices.

Fisheries Inspectors present at each harvesting location.

11 RECREATIONAL SUB-SECTOR

Policy for Recreational fishery is prescribed in the Marine Resources Act (2001). A large number of visitors enjoy recreational fishing along the Namibian coast. Section 5 of the regulation state that, a person who for recreation purpose harvest in Namibian water must be in position of fishing permit and carry out such harvest subject to the condition prescribe in the regulation. By law fishing for recreational purposes is only allowed in:

- Terrace Bay and Torra bay
- From the Ugab river to Walvis bay
- Pelican point to Sandwich Harbour
- From southern limits of Diaz Point to Grosse Bucht
- From Pomona Island to the Orange River

12 AQUACULTURE SUB-SECTOR

The Government of Namibia anticipates that sustainable aquaculture has a significant role to play in food security as well as providing socio-economic benefits to Namibians. Current policy for this developing sector is laid out in the policy paper: Towards the Responsible Development of Aquaculture (2001), Aquaculture Act (no, 18 of 2002), and Aquaculture Licensing regulation. Under this policy, Namibia is committed to observing the principle of optimum sustainable yield in the exploitation of living natural resources and ecosystems.

Main objective of the policy is the responsible and sustainable development of aquaculture to achieve socio-economic benefits for all Namibians and the secure environmental sustainability. Meeting these policy objectives rests on four strategies:

Establishing an appropriate legal and administrative framework for aquaculture, including establishing systems of tenure and rights for commercial aquaculture;

Establishing appropriate institutional arrangements for aquaculture;

Maintaining genetic diversity and the integrity of the aquatic ecosystem; and

Enduring responsible aquaculture production practices.

The aquaculture Act (2002) come into forces in 2003 and prescribe, inter alia, the procedure for obtaining aquaculture licence , monitoring, regulation, processing, marketing, environmental safety measures and consumer health and safety issues.