

MCS OPERATIONS

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INTRODUCTION

Fisheries enforcement is similar in many regards to other Government surveillance functions; intelligence data is collected from many sources including aerial and surface surveillance missions, satellite imagery and reports from human observers. This is then analysed to determine if and where illegal activity is likely to have occurred. Surveillance and enforcement resources can then be deployed appropriately.

MCS schemes must be clearly defined to have the intended impact within a fisheries management regime and the existing legal framework. It is important that preconceived ideas in relation to use of patrol vessels and fisheries officers as the only efficient tools are abandoned. A good and efficient MCS operation is far more complex and requires an analysis of needs in terms of management measures, MCS, scientific information requirements and cost-benefit considerations.

Unfortunately, a number of countries and donor organisations have concentrated on the sovereignty and enforcement tasks only, neglecting the important information aspects of MCS-systems. Even more unfortunate has been the direct import of MCS solutions from more developed nations concentrating on patrol boats, planes and helicopters, i.e. the surveillance and enforcement part of MCS. Most often these elements turn out rather costly, both in terms of capital costs of purchasing and replacing equipment and recurrent, operating costs. Even if the capital goods are given as grant or development assistance, operating costs have turned out to be excessive (Hersoug and Paulsen, 1996).

Traditional MCS operations could be far more effective and efficient if a more holistic approach was applied in relation to utilisation of all resources available in the fisheries management organisation and information sharing. This should be kept in mind when a MCS system is designed as well as when you revise the effectiveness and efficiency of your MCS configuration. This is of course also valid the other way around. Management plans should not be implemented without considering the resources available and the legal framework. It is important to keep in mind that the cost of an MCS-system should not exceed the national revenue generated from the fisheries industry unless there are specific reasons to do so.

THE CLASSIC MCS OPERATIONS

The philosophy on which fisheries surveillance has traditionally been based has its core in the fundamental principle of presence on the fishing grounds by the MCS platforms involved and available. By doing so, the management authority show their intent and purpose, which is to enforce compliance with fisheries legislation. Anticipation of the actual situation leading to being on the right place at the right time is the main objective for the operations. This leads to the importance of collecting information from as many relevant sources as possible for

processing and redistribution as required to enhance the efficiency of the fisheries administration.

SEA OPERATIONS

Fisheries MCS operations carried out at sea contribute to all types of management plans but most significantly to output and technical control measures. The only place where infringements in relation to logbooks, gear and catch can be detected on site, while fishing operations are carried out, is at sea. It is also a significant method for the collection of commercial data to support stock assessment.

However, this traditional approach is somewhat outdated. MCS operations today include activities that focus on monitoring fishing activities at sea, in port and during processing and marketing activities. They include control operations to specify the conditions for exploitation as well as the traditional surveillance operations.

It is also worthwhile looking into the cost-benefit side of chartered patrol vessels. There are many examples that this is more cost effective than government owned and operated vessels. There are also many successful examples of private or parastatal organisations carrying out observer services.

Patrol Vessels

The term patrol vessels covers a wide range of vessels from small inshore crafts to large sophisticated vessels. It is thus a remarkable fact that the basic objective of the operations is the same.

Patrol vessels carrying fisheries enforcement officers are often the only way to obtain some vital and legally acceptable evidence of infringements beyond border violations by unlicensed vessels. It is also the only platform that can normally conduct an arrest of a vessel (helicopters have this feature to a limited extent).

Patrol vessels can be costly to both buy and operate, but they are in many ways irreplaceable. They must however be integrated into an overall fisheries management strategy, and efforts must be made to optimise their operations.

Observers

Observer programmes are the only way to implement and to ensure compliance with some types of management measures. Strict by-catch regulations or other output-based management regimes that require continuous monitoring are examples of such plans. Observer programmes can also constitute a significant deterrence and transparency among fishing vessels. The value of the programme increases further if it is used in combination with other MCS elements.

Observers also contribute significantly to the collection of data to support stock assessment and other scientific work, which is an important element of MCS operations.

Observer programmes are limited by the size of fishing vessels to be monitored. Capacity for the vessels to accommodate observers is a limitation for such programmes. There are however similar modified programmes seen in artisanal fisheries where the observers (data collectors) do their duties at the landing sites.

AIR OPERATIONS

Air operations are very useful for surveillance of large areas and can be utilised in trans-boundary, regional and high seas operations. This MCS platform is the only one that can provide an overall picture of a large fishing zone within a short timeframe. The information is useful for surveillance purposes as well as for a scientific management overview. Correct utilisation and appropriate information sharing of aircrafts sightings will improve deployment of patrol vessels and observers.

Aircrafts can also have uses for spotting and monitoring such as sightings of fish schools, whales and reef destruction.

Air operations are normally conducted during daylight hours; however, there may be requirements from time to time for both dawn, dusk and night flight operations. The mission may also need to be conducted in adverse weather conditions and at low visibility.

To enable air surveillance operations to be carried out effectively, the aircraft has to be exempted of the restrictions and constraints associated with normal commercial air traffic.

Fixed Wing Aircraft

Fixed wing aircrafts are suitable for monitoring large areas. A fixed wing aircraft can identify and determine any position of a vessel including if the vessel is actually fishing or not. Proof of infringements is normally secured by photographic evidence (approved method).

The planes aerial surveillance also benefits other MCS platforms like patrol vessels to target specific areas where fishing activities are carried out.

A requirement also exists for the provision of aerial surveillance of fisheries together with other related maritime tasks, which could include Search and Rescue operations (SAR), anti pollution operations, military missions etc.

Helicopters

For fisheries surveillance helicopters are more limited than fixed wing aircraft in terms of monitoring large areas effectively. A value may again exist for the provision of fisheries MCS operations together with other related maritime tasks. The helicopter has additional benefits, which include the possibility of personnel being dropped on or hoisted from a vessel.

Note that helicopters normally are 5-10 times more expensive to operate than small fixed wing aircraft. The need should therefore be clearly identified and acknowledged by the government. The main tasks of a helicopter in the fisheries surveillance role would be the same as for a fixed wing aircraft, with the addition of the ability to carry out fisheries inspections including possible arrests of vessels by fisheries officers.

MONITORING OF LANDINGS

Monitoring of landings is one of the most efficient and important elements of effective and efficient MCS operations when output controls are key elements of the management plans. It is a particularly useful validation of logbook information. However, it is obvious that a large number of landing sites make this type of control difficult. It could be a solution to try to

reduce the number of legal landing sites for some species to increase the level of control, and reduce the need for sub-sampling.

Landing controls are normally less expensive than the use of classical MCS platforms. Restrictive landing procedures in combination with e.g. Vessel Monitoring Systems (VMS) or an observer programme can result in a very cost-effective enforcement strategy if this will suit the requirements of the management plan.

It is important to remember that monitoring of landings does not detect discards or sale or transshipments of fish prior to landings. It will only be possible to monitor physically landed fish, without knowing where or how the fish was caught.

NEW TECHNOLOGY

New technology offers the possibility of improved MCS systems and enhanced cost efficiency. Consequently, it is important that old procedures and working practises are revised to take advantage of new MCS elements. An example of this is VMS. The European Union has established that a 20% gain in the efficiency of patrol vessels through the proper use of VMS easily could compensate for the costs of such a system (Laurec, 1999).

VMS AND REMOTE SENSING

VMS offers substantial opportunities for monitoring the positions and activities of the licensed and registered fishing fleet. This MCS tool is particularly effective if there are restricted areas or boundaries defined in the management plan. A VMS can also give clear indications of transshipments and irregular fishing activities. However, it is very important to note that a VMS cannot stand up in court without information from an additional sensor or source such as pictures from a patrol vessel or plane, a statement from an observer, etc. It is also important to remember that a VMS only monitor those vessels carrying active equipment onboard. It will never detect poachers or unlicensed vessels.

VMS has a limitation related to its cost. Smaller artisanal or in-shore vessels can seldom be burdened with the cost of the transponder. This has generally limited the use of VMS to larger commercial vessels.

The future may open up for additional remote sensing tools that will supplement the VMS and be able to secure acceptable evidence for a prosecution of illegal activities. These types of sensors could be detectors on the fishing gear, engines etc. that would indicate if a fishing operation is carried out or not. However, this technology is still at a preliminary stage.

It should also be mentioned that satellite images like the ones provided by RADARSAT-1 could be utilised in addition to VMS to identify unlicensed vessels.

In the satellite picture a ship acts as a bright point target against the ocean background clutter. Ship detection is dependent on ship size and type, as well as wind speed. As wind speeds increase, the clutter from the ocean background also increases, making it difficult to distinguish the return from a bright point target. The presence of a wake can be used to determine ship heading and speed.

OTHER TYPES OF MCS OPERATIONS

PORT INSPECTIONS

Control of fishing vessels before every sea trip, on issue of licence or through spot checks is a useful MCS option. This opens up for checking of gear and effort control mechanisms to ensure that fishing gear and for example, horsepower regulations are complied with. These types of controls are valuable sources of information for biological, economical, enforcement crosschecks and validation of information.

POST LANDING CONTROL

It is also relevant to extend control measures to cover trade activities after the fish have been landed. Inspections of fish markets, transport providers and sales organisations can provide valuable information about the catches. This type of operation generates valuable information for biological and economical crosschecks as well as validation of earlier collected information. It is also a viable operation for control of illegal fishing, especially of undersized and fish falling outside quota or other “black fish” in general. This is especially valid in small scale and semi commercial domestic fisheries.

DETERRENCE AND VISIBILITY OF MCS OPERATIONS

The regular presence of MCS personnel such as inspectors and observers and platforms e.g. patrol vessels and planes, will act as an effective deterrent. VMS will also ensure compliance from the vessels carrying the equipment onboard. It is obvious that potential violators will hesitate to carry out illegal operations when their position, course and speed are monitored in real time by the fisheries administration.

However, it is also particularly important that an initial inspection performed in an area arrives as a surprise to the crew of the fishing vessels. This could work as a contradiction to the deterrence gained through a visual operation, therefore it is important to find a balance that suits the objectives of the operation.

INFORMATION SHARING – THE INTEGRATED APPROACH

Even if data requirements for MCS differ from those of the scientists, a large synergy effect between the different professions within fisheries management may be achievable.

Stock assessment in most countries is often suffering from a lack of basic data. An improved monitoring programme will improve the quality of data to be utilised for this purpose.

It is therefore important for all stakeholders in the information and data to participate in the development of the fisheries administration. Lack of communication between scientists and the enforcement side is a classical obstacle for efficient fisheries management in many countries, with as a result that enforcement officers may be fighting scientists to make sure they get as big portion of the annual budget as possible, without considering the needs in relation to fisheries management as such.

LEGAL FRAMEWORK

The legal framework is the basis and preparatory phase for any MCS regime whether it is aimed at fisheries or any other sector. It is the fundament on which all operations and management plans are based. It is therefore important to know this framework both for the purposes of enforcement and possible required revisions. Mechanisms to change laws and regulations must be known and used dynamically to ensure a sustainable fisheries management regime.

LEGISLATION

In the absence of an appropriate legal framework it may be very complicated and expensive to impose measures against infringements based upon legally adequate evidence. It is therefore necessary to regularly revise the legislation to make sure that the intended output of the MCS operations can be obtained. For example, it is not possible to enforce rules regarding discards of by-catch unless the fisheries law clearly defines this as a serious infringement with appropriate sanctions in place. Another example is that it is absolutely essential that the fisheries inspectors have the power to access all holds of a fishing vessel and all factories, records and required documentation. You cannot carry out law enforcement operations without delegating this power.

LEGITIMACY

It is not always required to seek legitimacy from fishers to carry out a successful MCS operation, but it will certainly ease the implementation and the long-term effect of the MCS measures if the fishers themselves find the regulations imposed on them fair and justified. Most people involved in the fisheries will agree and understand the need to protect the resources in a sustainable manner. This objective can only be reached if both the law enforcement organisation and the scientific personnel co-operate in creating awareness among all the interest groups.

SANCTIONS AND PENALTIES

It is vital for the effectiveness of the MCS organisation that the industry assesses the penalties and sanctions for infringements as a serious risk to their operations. Only then will the MCS operations have the required deterrent effect. It is therefore important to co-operate and make clear to the courts and the judges the importance of a deterrent system were penalties are found severe by the industry. Inter-agency workshops and symposia could be options to promote this type of awareness. The perception of potential violators of the likely consequences, rather than probability of being caught is of particular significance to all monitoring and enforcement programmes (Sutinen and Andersen, 1985).

FACILITATION FOR MCS

To facilitate MCS through a management regime may sound out of the ordinary for many fisheries managers. However, it is very important to ensure that the intended effect of a management plan is obtained. This can be facilitated by:

- Implementing a good licensing and marking system.
- Limiting the number of landing sites for species falling under landing quota or otherwise protected.
- Banning transshipments at sea.
- Establishing checkpoints for vessels leaving a specific zone.
- Restricting landings to own (national) ports, also for licensed foreign-flagged vessels.
- Allocating special courts to process fisheries violations.

CONCLUSION

It is indisputably the goal of any MCS programme to achieve efficient and effective fisheries management. MCS systems are established to support planning, implementation and decision-making processes in relation to fisheries management plans.

It is a fact that efficient fisheries management cannot be achieved without an efficient law enforcement organisation. This may hopefully change the classical perception where the science element and the enforcement element operate as two separate organisations. Effective fisheries management requires an integrated approach with understanding of all the needs and constraints in the running of the management regime. Design of management plans must take MCS capacity into account to become successful. The MCS organisation must understand the principles of fisheries management to be able to carry out efficient operations.

Even if the ideal MCS solution is distant today, it should be possible to improve the present MCS activities through analyses of information collection, information sharing and co-operation. The operations are generally limited to only one area of the fishing activity, viz. at sea, at the landing site or during processing and marketing. However, it is important to follow a philosophy of crosschecking and verification of information and therefore three areas must be considered.

Even the most favourable MCS scheme must be based upon a number of tools to ensure effective and cost efficient operations. Consideration must be given to the fast technological development of systems such as VMS to achieve a depth in the verification of information throughout a fishing operation.

The requirements for skilled staff and good training programmes cannot be emphasized enough. This paper has not considered human resources, it will be dealt with in the next paper, that is based on a series of Powerpoint slides.

REFERENCES

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