



INTOSAI
Working Group
on Environmental
Auditing



Auditing Sustainable Fisheries Management:

Guidance for Supreme Audit Institutions

This publication was prepared by the INTOSAI Working Group on Environmental Auditing (WGEA). The WGEA aims to encourage the use of audit mandates and audit methods in the field of environmental protection and sustainable development by Supreme Audit Institutions (SAIs). The WGEA has the mandate to

- help SAIs gain a better understanding of environmental auditing issues,
- facilitate exchange of information and experiences among SAIs, and
- publish guidelines and other informative materials.

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Foreword and Acknowledgements

Experience has shown that fisheries resources are at great risk in the absence of strong governance arrangements. By reporting on issues such as the unsustainable use of the fisheries resources and lack of conservation and maintenance of the fish stocks, Supreme Audit Institutions (SAI) may influence governments to make management decisions for the protection and sustainable utilization of fisheries resources. The use of this guidance should provide a common approach by all Supreme Audit Institutions worldwide.

This document was led by the SAI of South Africa. In particular, we would like to thank the authors Louis Heunis (Project Manager, SAI of South Africa) and Kevin Potter (sub-committee member, SAI of Canada) for their hard and excellent work in preparing the paper.



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Auditor General of Estonia
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Readers are invited and encouraged to consult this paper, as well as information on other WGEA products and services on the INTOSAI WGEA website www.environmental-auditing.org

We hope you will find this guide useful.



Terence Nombembe

Auditor General of South Africa
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Acronyms and Abbreviations

CFP - Common Fisheries Policy

EIA - Environmental Impact Assessment

EU - European Union

FAO - Food and Agricultural Organization

IEA - International Environmental Agreement

INTOSAI - International Organization of Supreme Audit Institutions

IUU - Illegal, Unreported and Unregulated

NGO - Non-Governmental Organisation

RFBs - Regional fishery bodies or arrangements

SAI - Supreme Audit Institution

UNCLOS - United Nations Convention on the Law of the Sea

UNFA - United Nations Fish Stocks Agreement

WGEA - Working Group on Environmental Auditing

Executive Summary

This guidance aims to develop a common approach among Supreme Audit Institutions (SAIs) to audit whether governments are managing fisheries resources in a sustainable way, taking account of environmental economic, social and cultural aspects. Fisheries are an important source of food, food security and jobs and continue to grow in significance as an economic resource. Fish as a resource is utilized through marine capture fisheries, freshwater capture fisheries and fish farming or aquaculture. Fisheries are subject to problems such as overfishing, illegal, unreported and unregulated fishing; fishing “down the food web” (the overexploitation of highly valued fish has led to the harvesting of less valued species and impacted on marine ecosystems); and the use of non-selective fishing gear. Fish are also affected by other threats, such as climate change, habitat loss and pollution.

The main objectives of this document are to increase knowledge about sustainable fisheries management and to encourage more audits in this area. The document should help SAIs to audit various aspects of fisheries resource management and to assess whether their governments are managing fisheries resources sustainably.

This guide focuses on the role of governments in managing fisheries resources, including commercial, subsistence, indigenous and recreational fishing activities, and the related impacts on the environment. However, threats to fisheries resources arising from non-fisheries related activities (such as from aquaculture, landbased sources of pollution, and other non-fisheries activities) are not covered.

The guide contains a Conceptual Framework of Fisheries Governance and Management that gives an overview of potential areas for auditing, risks and government actions to manage fisheries.

Chapter 1 presents the introduction, scope, and background information.

Chapter 2 sets out a four step process for choosing and designing audits of fisheries.

Step 1 - Identify the country's fisheries and the threats to these fisheries

- Consider the main characteristics of the fisheries sector; the economic importance of fisheries; social and cultural impact of fisheries; main threats to the fishery resources; reasons for these threats; the most relevant sectors; and particularly vulnerable areas/sectors.

Step 2 - Understand government's responses to the threats and identify the relevant players

- What is the government doing about the threats identified in step 1? Are there international targets and obligations to which the country is committed, or regional and national targets? What other tools are used to manage the fisheries resource? For example, legislation and regulations, policies and programs, economic tools and incentives, environmental impact assessments, voluntary partnerships, policies and instruments that correspond to the threats, and levels of public expenditure for different policy instruments and responses.

Step 3 - Choose the audit topics and priorities

- What are the highest risks to fisheries; do the financial statements of government reflect the costs and liabilities; does the SAI have the mandate and authority to audit in this area; is this area auditable; how will the audit contribute to good governance?

Step 4 - Decide on audit approaches: establish audit objectives and lines of enquiry

- Decide on the most relevant approach and topic - for example, financial management and regularity; compliance with agreements, laws and policies; performance measurement and results; accountability, coordination and capacity; scientific research and monitoring; public education; or reporting to other agencies and the public.

Chapter 3 of the guide contains information about audits of fisheries from around the world, to illustrate possible audit approaches and methodology.

Appendix 1 provides a methodological tool for data gathering and analysis and **Appendix 2** presents an audit design matrix. These appendices illustrate possible audit approaches and audit methodology that will be most useful in the planning stage, before the auditors have decided the scope (lines of enquiry and methodology) of the audit.

The paper should therefore serve as a way of thinking that will assist in identifying and designing audits of fisheries, whether fresh water or sea fisheries. It should enable public sector auditors to contribute towards good governance in the management of fisheries in their respective countries.

Chapter 1: Introduction, scope and background

1.1 PURPOSE

This document aims to help auditors carry out audits on the sustainable management of fisheries, including social, cultural and economic aspects.

SAIs play a vital role to help ensure that government operations are transparent and that governments are guided by an informed public. SAIs promote sound financial management and public accountability — these are both essential to sustainable development. Further, the independence of SAIs in carrying out financial, compliance, and performance (or value-for-money) audits puts them in a unique position legitimately and credibly to evaluate the effectiveness and efficiency of government policy and obligations.

Using this document should provide a common approach by all INTOSAI regions to auditing sustainable fisheries management. The document also aims to assist SAIs to easily identify, design, and carry out environmental audits. It may also be used as a training programme for SAIs that are keen to start doing environmental audits, including audits of fisheries.

By reporting on issues such as the unsustainable use of fishery resources and lack of conservation and maintenance of fish stocks, SAIs may influence governments to make adaptive management decisions to protect and sustainably use fisheries resources. Other outcomes might be:

- improved institutional and stakeholder capacity in fisheries resources; and
- governments proactively ensuring that further degradation and overfishing is prevented, through enforcing regulations to establish and implement quotas, and addressing unreported and unregulated harvesting.

1.2 WHY FISHERIES ARE IMPORTANT

Fisheries are an important source of food, employment, economic activity, and recreation for people of many nations around the world. Managing fisheries resources is vital for both current and future generations.

Food and food security

Globally, fisheries provide food and particularly protein. In coastal areas the dependence on fish as a food source is often high. Inland fisheries are particularly important for the food security of poor communities, as most inland fish production goes for subsistence or local consumption.

Social and cultural benefits

Beyond the food, employment and financial benefits, there can be significant social and cultural outcomes associated with fishing. Fishers, their families and their wider communities benefit. In a fishery that is managed and fished by a community, the income from fishing may go towards community projects and improving infrastructure and services for the community, or towards support for needy families. People often turn to natural resources when other livelihood options are limited, and in this way fisheries can act as a 'safety net' for the poor.

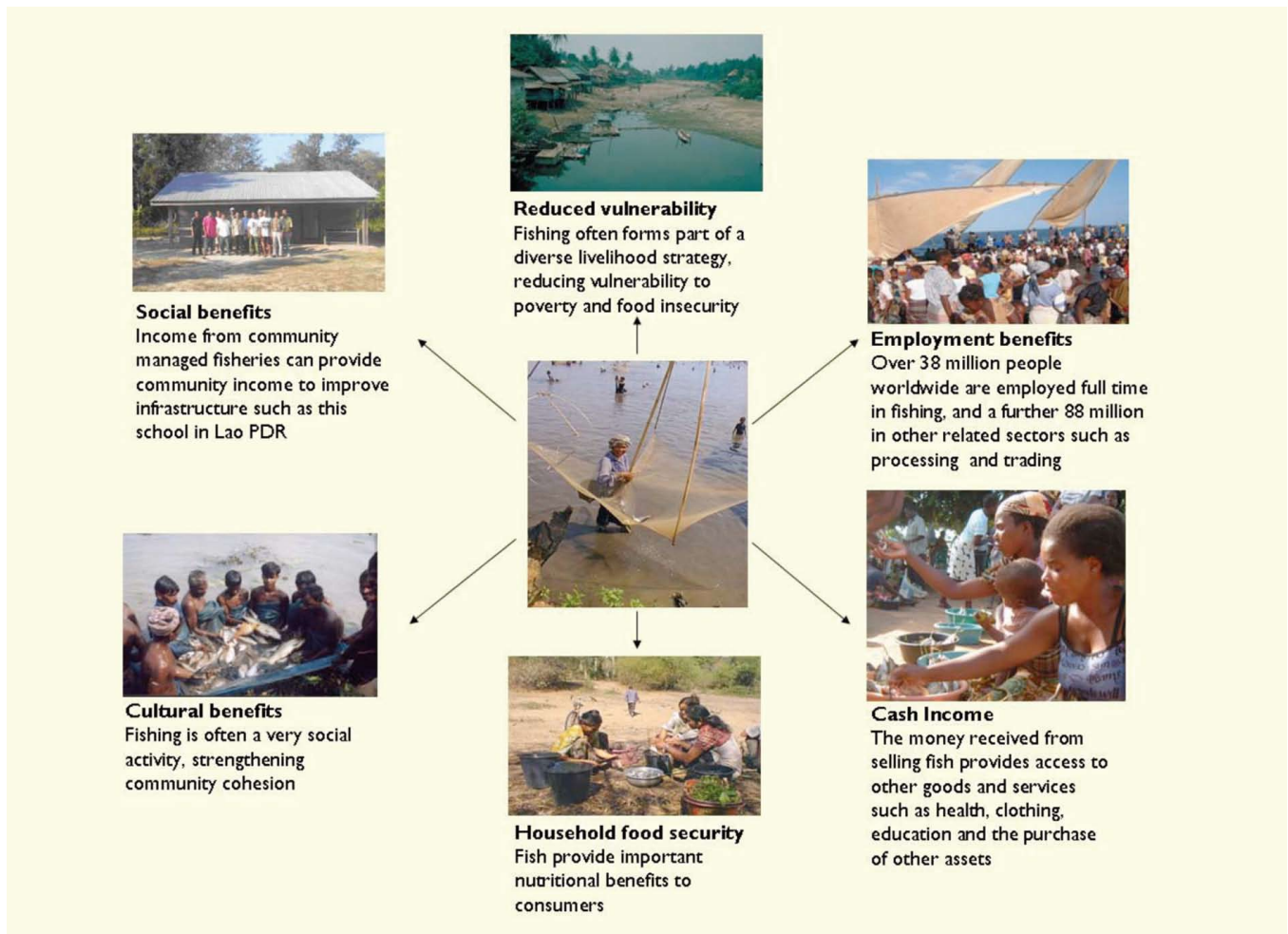
Employment

All around the world people are employed in fisheries and aquaculture. The majority are involved in small-scale fisheries. Related industries, such as processing and marketing, also provide employment opportunities. Significant economic benefits from recreational fishing flow to many regional areas including jobs in the tourism, tackle, boating, and charter industries. Charter boats support game fishing, estuarine and coastal fishing, skin-diving, and whale-watching activities, and there may be a diverse boat hire and service industry.

Financial benefits

Fisheries can provide an important contribution to household cash income. This cash income gives access to other benefits such as education, health services, clothing, and food. It also allows investment in other assets or enterprises such as land, livestock or fishing equipment, which in turn can further reduce vulnerability to poverty.

Exhibit 1

Contributions of fisheries to livelihoods¹

1.3 SCOPE

1.3.1 Focus on fisheries management

There are a broad range of users of marine ecosystems that affect the condition of fisheries beyond the traditional inland and marine capture fisheries. Some of these users' activities take place within the marine ecosystem, for example, aquaculture, oil and gas production, and marine transportation. Some are land-based, for example forestry, agriculture and urban development. The way these activities affect fisheries resources can be complex, and is a topic in itself.

Although it is important for countries to take a holistic approach to risks and threats to their marine ecosystems and fisheries resources, this guide focuses on the role of governments in managing fishing, including commercial, subsistence, indigenous and recreational fishing activities and the related impacts on the environment.

Therefore, additional threats to fisheries resources that arise from related activities (such as from aquaculture, land-based sources of pollution, climate change and other non-fisheries activities) are not covered in this guide.

The WGEA has developed guidance for auditors that either directly or indirectly covers some of the identified non-fisheries related threats to fisheries resources. Below is a list of threats that have been identified from the capture fisheries (those that will be covered by this guide) and exhibit 2 lists threats from non-fisheries sources, and any relevant WGEA guidance. This will help set out the scope of this guidance.

Threats to fisheries include:

- overfishing;
- illegal, unreported and unregulated fishing;
- habitat loss related to fishing activity;
- fishing down the food web;
- non-selective fishing equipment;
- limited knowledge of aquatic ecosystems;
- other fishing practices effecting fish habitats;
- over-investment;
- poor or inadequate fisheries management and enforcement, etc.

Exhibit 2

Summary of non-fisheries threats and corresponding guidance material

NON-FISHERIES THREATS	RELEVANT WGEA GUIDANCE TO SUPREME AUDIT INSTITUTIONS
Climate change	Auditing Government Response to Climate Change
Habitat loss and fragmentation – non-fisheries related causes	Auditing Biodiversity: Guidance for Supreme Audit Institutions
Invasive species	Auditing Biodiversity: Guidance for Supreme Audit Institutions
Impacts from mining	Auditing Mining: Guidance for Supreme Audit Institutions
Impacts from forestry	Auditing Forests: Guidance for Supreme Audit Institutions
Impacts from aquaculture	No guidance

1.3.2 Non-fisheries related threats to fisheries resources

Some non-fisheries related threats to fisheries resources are so significant that auditors should be aware of their effects on fisheries resources. We include brief comments on the some of these threats below.

Climate change

Global climate change is affecting and will continue to affect marine and estuarine fisheries. Projections of future conditions suggest further effects on the distribution and abundance of fish associated with relatively small temperature changes. Changes in fish distribution and abundance will undoubtedly affect communities that harvest these stocks. Coastal-based harvesters (subsistence, commercial, or recreational) may be affected (negatively or positively) by changes in fish stocks due to climate change.

Habitat loss and pollution

Habitat loss and fragmentation are significant threats to biodiversity in marine and freshwater ecosystems. Marine and coastal ecosystems have been degraded or altered by changes in land use and habitat destruction (for example, urban development, tourism, fisheries, deforestation, mining, and aquaculture). Freshwater ecosystems can be physically altered by dams and reservoirs, and by introducing water, drainage, canals, and flood-control systems.

Fertilizers such as nitrogen, sulphur, and phosphorus, which increase agricultural productivity, run-off into natural ecosystems and cause nutrient loading. Excessive nutrients negatively affect nutrient cycles of ecosystems, their functioning, and, ultimately, the species they contain.

Eutrophication (the depletion of oxygen from an environment due to over-dense flora), nutrient pollution, and sewage are threats to freshwater and marine ecosystems, as they threaten the survival of many aquatic organisms. Pollution in water significantly threatens the health of species and contributes to the destruction of biodiversity.

Aquaculture

Increasingly, aquaculture is being relied on as a source of fish and fish products, but comes with risks to freshwater and marine ecosystems. It is now recognized that for aquaculture to continue to grow in a sustainable manner issues such as efficient resource use and minimizing environmental effects will have to be addressed.

1.4 BACKGROUND ON FISHERIES

1.4.1 Trends in world fisheries

There has been an increase in world production of fish and fishery products during the last ten years, almost all of which has come from the increase in aquaculture production rather than from capture fisheries. Total production of fish and fish products from all sources continues to increase. The increase in production has kept pace with population growth, so the contribution of fisheries to food sources has remained relatively constant. Exhibit 3 provides a summary of important recent trends in world fisheries production, and consumption of fish products.

Exhibit 3 World fisheries and aquaculture production and utilization²

PRODUCTION (million tonnes) ^w	2002	2003	2004	2005	2006
INLAND					
Capture	8.7	9.0	8.9	9.7	10.1
Aquaculture	24.0	25.5	27.8	29.6	31.6
Total inland	32.7	34.4	36.7	39.3	41.7
MARINE					
Capture	84.5	81.5	85.7	84.5	81.9
Aquaculture	16.4	17.2	18.1	18.9	20.1
Total marine	100.9	98.7	103.8	103.4	102.0
TOTAL CAPTURE	93.2	90.5	94.6	94.2	92.0
TOTAL AQUACULTURE	40.4	42.7	45.9	48.5	51.7
TOTAL WORLD FISHERIES	133.6	133.2	140.5	142.7	143.6
UTILIZATION					
Human consumption	100.7	103.4	104.5	107.1	110.4
Non-food uses	32.9	29.8	36.0	35.6	33.3
Population (billion)	6.3	6.4	6.4	6.5	6.6
Per capita food fish supply (kg)	16.0	16.3	16.2	16.4	16.7

Note: Excluding aquatic plants.

Overview of Exhibit 3²

Capture fisheries and aquaculture supplied the world with about 110 million tonnes of food fish in 2006 (all data presented are subject to rounding), providing an apparent per capita supply of 16.7 kg (live weight equivalent), which is among the highest on record.

Global capture production in 2006 was about 92 million tonnes with an estimated first-sale value of US\$91.2 billion, comprising about 82 million tonnes from marine waters and a record 10 million tonnes from inland waters. This represents a decrease of 2.2 million tonnes since 2005.

In 2006, more than 110 million tonnes (77%) of world fish production was used for direct human consumption. Almost all of the remaining 33 million tonnes was destined for non-food products, in particular manufacturing fishmeal and fish oil.

1.4.2 Marine capture fisheries

In the past, the largest contributor to world production of fish and fisheries products has come from marine capture fisheries. For the last 20 years, marine capture fisheries production has remained relatively stable, at almost 85 million tonnes. The FAO has raised concerns that the marine capture sector has reached its maximum harvest level. In 2006, the FAO reported that 75% of fish stocks, where assessment information is available, are fully exploited or overexploited. The FAO reported that the proportion of overexploited and depleted stocks, about

25% of all stocks, has remained unchanged in recent years after showing a marked increase during the 1970s and 1980s. The situation is more serious where fisheries are exploited solely or partially in the high seas and, in particular, for stocks that straddle international boundaries.

The FAO has called for fisheries resources to be managed and developed with more control and caution. In the short term there is little potential to increase the contribution of the marine capture fishery to the overall production of fish and fishery products. However, the FAO believes that if national governments adopted more sustainable fishing practices then the overexploited and depleted stocks could rebuild. From this belief, the FAO projects that marine capture fisheries could increase production. Potential future production is estimated at 93 million tonnes.

The catch statistics may not tell the whole truth about the state of marine fish stocks, partly because of some problems with over-reporting. Although production has stayed steady or declined for the last twenty years, fishing capacity and the effort to maintain this production has increased dramatically. Advancements in technology have increased the ability of fishers to target fish stocks while at the same time reducing the harvesting cost per unit. The willingness of consumers in developed countries to pay an increasing price for fish and fish products provides incentives to fishers to fish harder and in areas that may not have been previously fished.

² FAO Fisheries and Aquaculture Department, 2009. *The State of World Fisheries and Aquaculture 2008*. Rome: Food and Agriculture Organization of the United Nations. Available at: <ftp://ftp.fao.org/docrep/fao/011/i0250e/i0250e.pdf>

1.4.3 Freshwater capture fisheries

Freshwater resources cover a very small area compared to total land surface. Yet they contain about 40% of all fish species. Freshwater capture fisheries are important to the livelihoods of rural people, especially in the developing world. The FAO reports that the state of freshwater capture fisheries is not well known but is a concern. This is based on the known environmental concerns associated with freshwater fish habitats. These habitats have been affected by human activity. The FAO reports that the biodiversity of freshwater ecosystems appears to be in worse condition than any other ecosystem. Land-based sources of pollution from urban areas, agricultural practices, and natural resource development all contribute to freshwater habitat degradation.

1.4.4 The rise in aquaculture

More recently the FAO has stated that aquaculture has the potential to provide enough fish and fish products by 2030 to maintain the current average consumption per capita. The FAO indicates that it will depend on individual countries being able to set realistic goals to develop and expand their own aquaculture sectors.

However, there are concerns about the environmental impacts of aquaculture operations.

1.4.5 Employment and trade continue to rise

Fishing and aquaculture continue to be important economic activities for many nations. If these activities are most often carried out along coastal areas where jobs can be scarce, the employment and economic effects tend to be disproportionately high.

1.5 WHAT ARE THE PROBLEMS?

1.5.1 Overfishing, illegal, unreported and unregulated fishing

Habitat

Illegal, unreported and unregulated fishing is fishing which does not comply with national, regional or global fisheries conservation and management requirements. It can occur within areas of national jurisdiction, within areas controlled by regional fisheries management organizations, or on the high seas.

Illegal fishing takes place where fishers operate in violation of the laws of a fishery, either within areas of national jurisdiction, the regional fisheries management organizations or the high seas.

Unreported fishing is fishing that has been unreported or misreported to the relevant national authority or regional organization, in contravention of applicable laws and regulations.

Unregulated fishing refers to fishing by vessels without nationality, or vessels flying the flag of a country not party to the regional fisheries management organization governing that fishing area or species.

In some developing countries, dynamite and poisons are used to harvest fish. These practices can have considerable negative effects on fish habitats, such as coral reefs, and can represent a health and safety risk.

1.5.2 Other fishing practices can affect fish habitats

The habitats of many fish have been affected by fishing activities. Trawlers fishing for ground fish such as cod, pollock, and haddock drag steel weights and rollers, as well as nets, behind their boats, devastating huge areas of the sea floor.

Bottom trawling is now being recognized as an important risk to fish habitat, especially as it is generally conducted in areas that contain productive fisheries resources. There are many studies from around the world that document the long-term impacts of bottom trawling, including the destruction of deep sea corals.

1.5.3 Fishing down the food web

Scientists have recently begun to observe that fishers have systematically over-exploited larger, highly valued predatory fish, leading them to shift their harvesting effort towards less valued species lower in the food chain. Scientists have called this “fishing down the food web” and believe that it points to a future where less valued species, such as jellyfish, will dominate marine ecosystems.

Traditional fisheries strategies target larger fish in a stock rather than smaller ones. These strategies ignore the important role played by these larger fish in ensuring the genetic integrity of fish stocks. Some scientists believe that this has played an important role in the decline in the average size of some important fish stocks, for example Northwest Atlantic cod.

Further, scientists are now also concerned about the decline in large predatory fish that are highly migratory, such as sharks and tuna, and the impact that this may have on marine ecosystems.

1.5.4 Non-selective fishing equipment

Some fishing equipment can be highly destructive for species that are not being targeted. Traditionally, bottom trawling, drift nets, and surface long-line fishing technologies have been the most destructive. This equipment has had adverse impacts on fish stocks, turtles, seabirds, and marine mammals, such as dolphins. The by-catch and discard problems associated with this equipment have had an effect in terms of loss of human food, and significant effects on entire ecosystems. By-catch is also an economic cost to fishers because of wasted time and effort.

There have been international efforts to eliminate or limit the impacts of these types of equipment. As well, the fishing industry itself has developed technology to reduce the negative impact. For example, many fishers now employ technology to divert non-targeted species away from bottom trawling equipment.

1.5.5 Effect of improvements in fishing technology

Fishers now hunt fish using technology such as satellites, acoustic fish-finders, and modern, efficient nets. Long gone are the days of simple line-and-hook fisheries.

1.5.6 Limited knowledge of aquatic ecosystems

The international community has recognized that fisheries operate in large, complex, and interconnected ecosystems, which are subject to natural fluctuations and, in some cases, affected by long-term trends resulting from human activity.

The FAO believes that the functioning of marine ecosystems is only partially understood and that there is a need for a greater

understanding of the effects of human activities, including fishing, and the potential reversibility of these effects. While the FAO has been gathering statistics on fisheries since the 1950s, with a few exceptions, the information available on the fisheries themselves is incomplete.

1.5.7 Combined effect

Each of these problems would be bad enough on its own, but all appear to be linked, usually synergistically. Whereas misfortunes that occur singly might not prove fatal, those that come in combination often prove overwhelming.

Exhibit 4

Summary of the main threats to fisheries and their causes

THREAT TO FISHERIES	CAUSES	CONSEQUENCES
Over-exploitation (especially overfishing)	<ul style="list-style-type: none"> Illegal practices (poaching) Result of illegal, unregulated and unreported fishing Lacking resources to manage/control fishing Lacking knowledge about fish stocks Economics (incentive to maximize fishing effort) Social and politic factors (create employment; stimulate economic activity; increase demand; and harvest above or near maximum sustainable levels) 	Collapse of fisheries and other resources.
Illegal, unreported and unregulated fishing	<p>Illegal fishing takes place where fisheries operate in violation of the laws of a fishery, either within areas of national jurisdiction, the regional fisheries management organizations or the high seas.</p> <p>Unreported fishing is fishing that has been unreported or misreported to the relevant national authority or regional organization, in contravention of applicable laws and regulations.</p> <p>Unregulated fishing refers to fishing by vessels without nationality, or vessels flying the flag of a country not party to the regional fisheries management organization governing that fishing area or species.</p>	Overfishing fishing, habitat loss, fishing down the food web.
Habitat loss	Change caused by damage to sea beds and corals due to trawling and other destructive fishing practices.	Decline in distribution, size and genetic diversity of species.
Limited knowledge of aquatic ecosystems	Complexity of ecological systems. Practical limits to the amount of data that can be gathered. Uncertainty in scientific assessments. Lack of clear and forceful scientific advice.	Overfishing.
Impact of technology	Changes to fishing technology that make fishing, combined with the increased value of fish products, economically viable when fish resources are in decline.	Overfishing.

1.6 WHAT ARE THE INTERNATIONAL RESPONSES?

1.6.1 United Nations Convention on the Law of the Sea

The 1982 United Nations Convention on the Law of the Sea (UNCLOS) and associated agreements provide the framework for establishing a system of international ocean governance, including governance for fisheries. UNCLOS defines the rights and responsibilities of nations in their use of the world's oceans, establishing guidelines for the management of marine natural resources. It also established an exclusive economic zone, which extends 200 nautical miles from the land. The

country has sole exploitation rights over all natural resources inside their exclusive economic zone.

Article 61(2) of UNCLOS establishes the expectation that states manage their fisheries resources sustainably:

"The coastal State, taking into account the best scientific evidence available to it, shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation."

As well as this, UNCLOS requires states either to harvest their entire allowable catch within their exclusive economic zone or give the

surplus to other nations. This requirement has led many developing nations that do not have the capability to fish the resources within their areas of responsibility to enter into agreements with developed nations to harvest the surplus fish stocks.

1.6.2 United Nations Fish Stocks Agreement

UNCLOS only covers fishing matters that occur within 200-mile exclusive economic zone for each country. However, there are many important fish stocks that either live straddling exclusive economic zones or that migrate through zones. The 1995 United Nations Fish Stocks Agreement (UNFA) provides a framework for conserving and managing straddling and highly migratory fish stocks in high seas areas regulated by regional fisheries management organizations. UNFA obliges fishers to use the precautionary and ecosystem approaches when managing these fisheries. It requires countries to minimize pollution, waste and fish discards. It reiterates requirements of countries to control the fishing activities of their vessels on the high seas. It provides for the right of countries party to UNFA to monitor and inspect vessels of the other parties, to verify compliance with internationally agreed fishing rules of regional fisheries management organizations. UNFA also provides a compulsory and binding dispute settlement to resolve conflicts in a peaceful manner.

1.6.3 Code of Conduct for Responsible Fisheries

The 1995 FAO Code of Conduct for Responsible Fisheries identifies an internationally agreed statement of fisheries management objectives:

“recognizing that long-term sustainable use of fisheries resources is the overriding objective of conservation and management, States and sub regional or regional fisheries management organizations and arrangements should, inter alia, adopt appropriate measures, based on the best scientific evidence available, which are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing countries.”

The measures promoted by the *Code of Conduct* include:

- avoiding excess fishing capacity and keeping fisheries economically viable;
- promoting responsible fisheries;
- decision-making that takes into account the interests of fishers, including those engaged in subsistence, small-scale, and artisan fisheries;
- protecting the biodiversity of aquatic habitats and ecosystems, including endangered species;
- allowing depleted stocks to recover or, where appropriate, be actively restored;
- assessing and, where appropriate, correcting the adverse environmental impacts on the resources from human activities;
- minimizing pollution, waste, discards, and ‘ghost fishing’ by lost or abandoned equipment; and

- catch of non-target species, both fish and non-fish species, and impacts on associated or dependent species, through measures including, to the extent practicable, the development and use of selective, environmentally safe and cost-effective fishing equipment and techniques.

Also, the *Code of Conduct* indicates that countries should adopt an ecosystem approach. They should assess the impacts of environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent on the target stocks, and assess the relationship among the populations in the ecosystem.

The *Code of Conduct* addresses the role and responsibilities of fisheries management authorities, either for individual countries or regional fisheries management organizations. It indicates that they should have the capacity for, or access to, services that provide the following functions:

- collecting information on the fishery;
- collecting data on the nature, timing and distribution of fishing efforts; and information on each fishery’s social and economic characteristics;
- analysing of the relevant information to identify trends in the resources and ecosystem, and in the fishery’s performance to allow for appropriate changes to management measures to ensure that the objectives for the fishery are being achieved;
- considering all relevant information in a decision-making process, including participation by the key stakeholders, in order to select appropriate management measures and ensure effective, sustainable management; and
- monitoring, control and surveillance, designed to encourage compliance with the management measures and, where necessary, to enforce the regulations.

The *Code of Conduct* calls for precautionary mechanisms to be put in place to ensure conservation, protection, sustainable use, and management of fisheries resources for sustainability purposes (a precautionary approach).

1.6.4 Regional Fisheries Management Organizations

Regional fisheries management organizations play an important role in contributing to sustainable fisheries management around the world. These organizations bring countries together to address common issues and concerns for conserving and managing mandated fish stocks. The FAO believes that regional fisheries management organizations are the only effective means to govern fish stocks that straddle national jurisdictions or are found on the high seas. The effectiveness of regional fisheries management organizations depends on the member nations themselves.

1.6.5 Framework for governing and managing fisheries

Experience shows that fisheries resources are at greatest risk when there are no strong governance arrangements. Fisheries governance sets out the overarching objectives and principles for

managing fisheries resources. Fisheries governance is international, national and local in scope and has both long and short-term implications. Most fish caught are taken from within areas of national jurisdiction, which provides an incentive for countries to put in place strong governance and management frameworks.

Due to the complex nature of the social, economic and environmental factors in which fisheries exist around the world, it is not possible to have one approach to governing and managing fisheries. Rather, it is appropriate to talk about the diverse and complementary actions or attributes that could be considered in a country's frameworks for governing and managing fisheries. These are:

- adopting relevant international agreements;
- adopting national fisheries policies that consider social, economic and conservation objectives;
- adopting fisheries legislation that establishes the requirements agreed to through international agreements and sets out the legislative framework for the fisheries objectives and principles agreed upon (legislation and regulations can cover matters such as access to fisheries or vessel restrictions, regulation of fishing gear, seasonal regulations to restrict fishing in certain areas during particular periods, closing or opening of areas, regulations relating to landing of fish, setting quotas, and so on);
- establishing a national fisheries management authority with the mandate to perform specified management functions set out in legislation and policy;
- establishing scientific capability to understand the status, trends, and cause-effect relationships of fisheries resources;
- establishing the capability to understand the social and economic dynamics of the capture fishery, and the markets that it trades in;
- economic instruments and participatory approaches (with the fishing industry) for example, tradeable quota arrangements; grants to reduce fleet capacity, or taxes on "super-profits" from extracting natural resources;
- establishing strong monitoring, controls, and surveillance; and
- establishing effective enforcement.

Developing countries, including small island developing countries, do not currently have the financial and management resources to exert control over their fisheries resources. There are international support programs that are designed to help these countries increase their capability to govern and manage their fisheries.

1.6.6 Planning, implementing and evaluating fisheries

It is important that each country has a fisheries management authority with the mandate to develop and implement the management functions set out in legislation and policy. The authority needs adequate financial resources and the right numbers and types of skilled people to implement the mandate it has been given.

Where significant fisheries exist, fisheries planning processes should be supported by a scientific capability to understand

the status, trends, and cause-effect relationships of fisheries resources. Also, the fisheries planning processes should be supported by the capability to understand the social and economic dynamics of the capture fishery, and the markets that it trades in.

Fisheries management plans should reflect:

- the national fisheries legislation and policy;
- the social, economic and conservation objectives set for the fishery;
- the area of operation and jurisdiction;
- the history and socio-economic importance of the fishery;
- information about the target species, including how they interact within the ecosystem;
- the effects of the fishery on recruitment, abundance, spatial distribution, and age or size structure of the target species, based on available monitoring data; and
- the existing management procedures (including evaluating past performance).

Fisheries management plans should also reflect:

- the critical habitats and the potential direct and indirect impact of the fishery on them;
- the composition of species that are retained or discarded;
- the size of fish discards;
- the considerations for how to selectively harvest target species while minimizing unwanted by-catch; and
- the consideration of the effect of fishing equipment on habitat and or other negative environmental effects (for example, ghost fishing by lost equipment).

Planning processes, as described above, may not exist for small-scale, artisan fisheries. However, established traditional management approaches may support sustainable local fisheries. The FAO has identified fishing overcapacity as one of the primary reasons for overfishing. Assessing and managing fishing capacity is a significant challenge for fisheries managers. Overcapacity can be addressed either by input controls or through incentive-adjusting measures. Examples of input controls used in the fishery include setting allowable fishing seasons/days, open and closed areas, net mesh sizes, allowable fishing equipment, and fishing vessel restrictions. Incentive adjusting measures include rights-based management approaches. Finally, the actual performance of the fishery in meeting the social, economic, and conservation objectives should be evaluated. Using the information from such evaluations, fisheries managers can adjust plans for future years accordingly.

1.6.7 Monitoring, control, and surveillance approaches

Monitoring, control, and surveillance approaches need to be adapted to the nation's fisheries resource and the socio-economic circumstances of the fishery.

A comprehensive approach includes:

- **monitoring**
collecting, measuring and analysing information about fisheries activity;
- **control**
specifying the arrangements for harvesting fisheries resources; and
- **surveillance**
overviewing fishing activity to ensure that participants follow legislation, conditions of access, and approved management measures.

Effective monitoring, control, and surveillance approaches have both preventive and deterrent features. The preventive features encourage voluntary compliance with the legislation, conditions of access, and approved management measures. The deterrent features support enforcement in ensuring compliance by participants.

In the end, the strength of the monitoring, control, and surveillance approaches is reflected in the level of compliance that is achieved.

1.6.8 Enforcement

Inspection, investigation, and legal processes enforce national fisheries legislation. Voluntary compliance is undermined when participants see others evading the law and receiving economic returns from their illegal activity. The enforcement function needs to have enough capacity (financial, equipment, and people in the right numbers and with appropriate skills) to enforce the

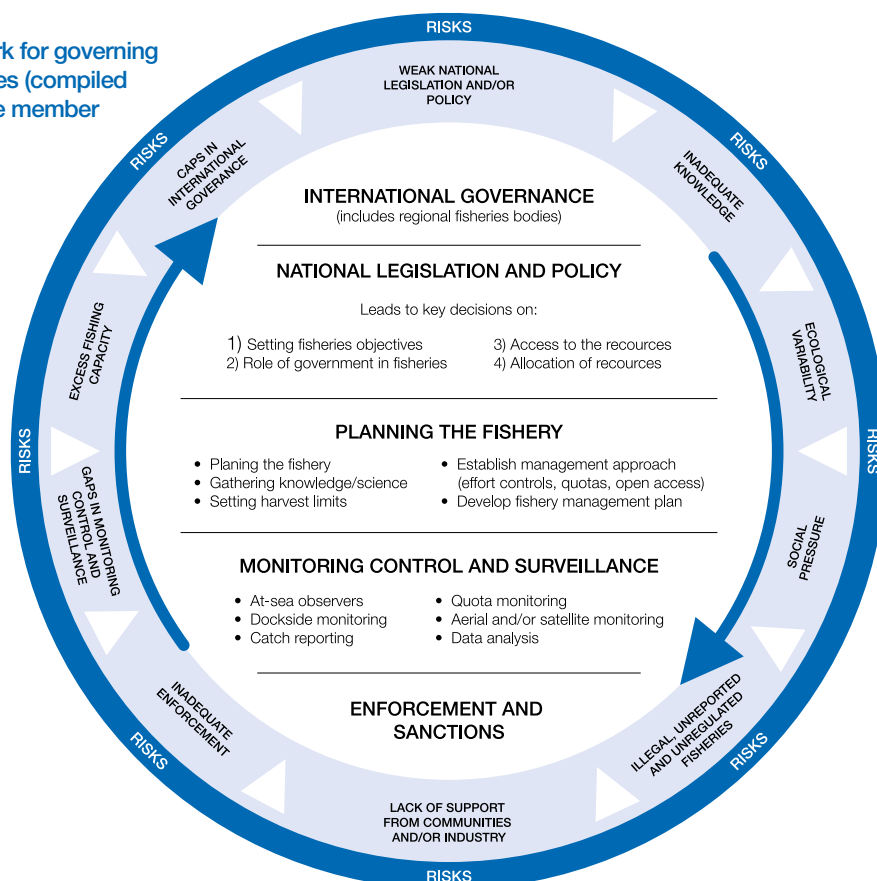
national fisheries legislation. In some jurisdictions administrative sanctions, for example the temporary loss of the right to fish, are used as a means of promoting voluntary compliance with national fisheries legislation.

1.7 CONCEPTUAL FRAMEWORK, POTENTIAL METHODOLOGY TOOL AND AUDIT DESIGN MATRIX

The idea behind the conceptual framework is that it should provide auditors using the fisheries guidance document with an overview graphic image of potential audit areas for fisheries. Risks, such as weak national legislation and/or policy, inadequate knowledge, ecological variability, social pressure, illegal, unreported, and unregulated fishing, lack of support from communities and industries, inadequate enforcement, gaps in monitoring and surveillance, excess fishing capacity, and gaps in international governance are conceptualized in this diagram. International governance, national legislation, planning fisheries, monitoring and surveillance and enforcement and sanctions are also included as examples of actions which governments could take to manage fisheries.

Appendix 1 is an example of a methodological approach to gather and analyze data relevant to fisheries. Chapter 2 and Appendix 2 deal with the choosing and designing of the audit of fisheries. All three should be read in conjunction. The guidance itself provides information on each of the main subjects covered by the conceptual framework.

Exhibit 5
Conceptual framework for governing and managing fisheries (compiled by the sub-committee member the SAI of Canada)



Chapter 2: **Choosing and designing fisheries audits**

2.1 PURPOSE OF THIS CHAPTER

The purpose of this chapter is to guide SAIs and auditors as they choose and design audits of fisheries. It includes the following four basic steps (described in more detail in [Exhibit 6](#)).

STEP 1

Identify the country's fisheries resources and threats to them.

STEP 2

Understand the government's responses to these threats and the relevant players.

STEP 3

Choose audit topics and priorities.

STEP 4

Decide on audit approaches: audit objectives and lines of enquiry.

These steps are only suggestions, and they can be adapted to the situation and needs of an individual SAI. They can be used to define the objectives, scope, and criteria of a single audit of fisheries. Even though the steps are presented in a linear way, they are, in fact, highly inter-related and iterative.

The steps should also be read in conjunction with the conceptual framework (see [Exhibit 5](#)) and [Appendices 1](#) and [2](#).

2.2 CO-OPERATION BETWEEN SAIS IN CARRYING OUT SUSTAINABLE FISHERIES AUDITS

Co-operation between SAIs in carrying out environmental audits has become more common in recent years for a good reason: there are many benefits, for both the SAIs and the environment. For the SAIs, co-operative audits facilitate mutual sharing and learning, capacity building, networking, and identification of best practices. For the environment, many environmental problems transcend political boundaries. Some fish stocks migrate across national borders, and countries should therefore co-operate to manage these fisheries. Therefore, combining forces through co-operative environmental audits allow SAIs to take a broader view of the situation, to consider the various effects of domestic actions, and to benchmark best practices. SAIs within a region that has a regional management agreement, policy or strategy in place, could undertake a cooperative audit of the effectiveness of the implementation by each country of regional management approaches.

The WGEA paper entitled *Cooperation between Supreme Audit Institutions: Tips and Examples for Cooperative Audits* responds to the ongoing demand for information and ideas on how to make co-operation work effectively.

The Supreme Audit Institutions of Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, and Sweden conducted an audit of environmental monitoring and fisheries management and control in the Baltic Sea (see [Exhibit 11](#)).

The Office of the Auditor-General of Norway and the Accounts Chamber of the Russian Federation conducted a parallel performance audit of the management of fish resources in the Barents Sea and the Norwegian Sea (see [Exhibit 17](#)).

2.3 FOUR STEPS FOR A FISHERIES AUDIT

Exhibit 6

Four basic steps for a sustainable fisheries audit

STEP 1

Identify the country's fishery resources and the main threats

- Pollution and habitat loss related to fisheries
- Overinvestment, overexploitation of fisheries and excessive fishing
- Illegal, unreported and unregulated fisheries
- Weak national legislation and/or policy
- Inadequate knowledge about fish stocks
- Ecological variability
- Social pressure
- Lack of support from communities and industries
- Inadequate enforcement
- Gaps in monitoring and surveillance
- Gaps in international governance
- Fishing down the fish web
- Non-selective fishing gear
- Poor or inadequate fisheries management (which could also be the root cause for the occurrence of all the above-mentioned threats)
- Impact of improvement in fishing technology

STEP 2**Understand the government's responses to these threats and the relevant players****What?**

- International governance
- United Nations Convention on the Law of the Sea
- United Nations Fish Stock Agreement
- Code of Conduct for Responsible Fisheries
- Regional fisheries management
- Fisheries governance and management framework
- National legislation and policy
- Planning and implementing the fishery
- Gathering knowledge
- Research and science
- Setting harvest levels
- Establish management approach
- Develop fishery management plan
- Evaluating the fishery
- Monitoring, control and surveillance
- Enforcement and sanction

Who?

- National, state, provincial and local (municipal) governments, international (for example, European Union)
- Government owned agencies and enterprises
- Non-government organizations: civil institutions, professional associations, local communities, scientific institutes

How?

- International Conferences
- Sign international conventions
- Enact legislation
- Establish policies
- Set programs
- Use economic tools and incentives
- Promote voluntary partnerships
- Conduct environmental impact assessments
- Fund research
- Promote public education

STEP 3**Choose audit sub-topics and priorities**

- International governance
- National legislation and policy
- Planning, implementing and evaluating the fishery
- Monitoring, control and surveillance
- Enforcement and sanction

STEP 4**Decide audit approaches, audit objectives, and lines of enquiry**

- Financial management and regularity
- Compliance with agreements, laws and policies
- Policy coherence
- Performance measurements and results
- Auditing of performance information
- Natural resource accounting
- Accountability, co-ordination and capacity
- Scientific research and monitoring
- Public education
- Reporting to clients and the public

STEP 1**IDENTIFY THE COUNTRY'S FISHERY RESOURCES AND THE MAIN THREATS**

In **step 1**, auditors should develop domestic approaches for auditing fisheries issues and must understand the situation in their country regarding fishery resources, the role of government

to manage fishing activities and the main threats to fisheries. **Chapter 1** gives a general background on some of the common global threats and concerns. The conceptual framework in **Exhibit 5** also provides auditors with a graphic overview of potential audit areas. Auditors should assess the degree of relevance and urgency of certain issues in their own country and this will help to determine whether audit work is warranted and what priority it should be given.

The conceptual framework and methodology tool in this guidance will help auditors work through **step 1**.

Conceptual framework (see Exhibit 5)

Risks, such as weak national legislation and/or policy, inadequate knowledge, ecological variability, social pressure, illegal, unreported, and unregulated fishing, lack of support from communities and industries, inadequate enforcement, gaps in monitoring and surveillance, excess fishing capacity, and gaps in international governance are conceptualized in this diagram.

Appendix 1: Potential methodology: data gathering and analysis

This is an example of a methodological approach to gather and analyze data relevant to fisheries. There may be other data or information better suited to understanding an individual SAI's national fisheries and fisheries resources. The tool identifies information that can address the following:

- The importance of fisheries and fisheries resources to a country
- The fisheries governance and management framework

Chapter 1, Part 3 deals with the scope of the audit.

The following questions aim to encourage auditors to follow a step by step approach to gather information about participation in international fisheries treaties/conventions, and regional fisheries management bodies. The questions also gather information about the fisheries legislative and policy framework, and overview information about administrative, scientific, monitoring, control and surveillance, and enforcement processes. This information focuses on roles and responsibilities.

KEY QUESTION: What are the main characteristics of the fishery sector in your country?

For example:

- Commercial or subsistence fisheries?
- Large-scale industrial or artisanal fisheries?
- Coastal, inland or ocean fisheries?
- Importance as food/protein source?
- Co-operation or disputes with neighbouring countries over fisheries issues?
- Importance for recreation, tourism?
- Poor knowledge about the sustainable use of fish resources?

See Chapter 1, Part 4 for background information on fisheries.

Another possible sources of information are the Fishery and Aquaculture Country Profiles of the Food and Agriculture Organization of the United Nations www.fao.org/fishery/countryprofiles/search/en and the European Commission <http://ec.europa.eu/fisheries/>

KEY QUESTION: What is the importance of fisheries for the economy (for example, percentage of GDP, employment, source of foreign currency, royalties earned for the treasury, and so on), society (importance to coastal communities, importance for indigenous peoples, and so on) and the environment?

See Chapter 1, part 2 for information on why fisheries are important.

The South African Standing Committee on Public Accounts (Parliamentary committee) requested the Auditor-General of South Africa during 2008/2009 to do a performance audit on the handling of confiscated abalone. The audit report of 2009 demonstrates that measures were not in place to ensure the timely awarding of tenders for the processing of confiscated abalone; that uniform tariffs were not applied for the processing, marketing, selling, and exporting of abalone; and that the non-rotation of the processing of abalone between the service providers resulted in the use an additional monitoring team. (See Exhibit 18)

KEY QUESTION: What is the social and cultural importance of fisheries? (for example, food resource, recreational activity, commercial enterprise, or to support important indigenous historical customs)

Refer to Chapter 1, part 2 for information on why fisheries are important.

As well as their value as sources of food and income, fisheries resources are valued by the community in many other ways.

For example, they have value from people knowing that the environment and the diversity of species are maintained and that fisheries resources exist. Refer to Exhibit 1, which deals with how fisheries contribute to livelihoods.

To learn more about sustainable development issues (economic, social and environmental issues), see:

INTOSAI Working Group on Environmental Auditing, 2004, Sustainable Development: The Role of Supreme Audit Institutions. Available at www.environmental-auditing.org

KEY QUESTION: What are the main threats to fishery resources? (for example, overfishing, illegal, unreported and unregulated fishing, selective fishing equipment, and so on) Why have these threats arisen? What analysis have responsible agencies undertaken of the main threats?

See part 5 of Chapter 1 for problems and threats to fisheries.

To consider local threats, SAIs can seek information from government agencies that are responsible for controlling and overseeing fisheries. Other sources of information include universities, non-governmental and international organizations, local and state councils, laws, and the media.

Conceptual framework (see Exhibit 5)

The conceptual framework identifies inadequate knowledge as a risk to good fisheries management. If a country does not know the threats to its fisheries resources, it is less likely to be able to manage them in a sustainable way.

KEY QUESTION: What are the drivers behind the threats?

When identifying threats to fisheries, auditors should remember that behind the threats are economic interests, poverty, poor regulation, lack of management and enforcement that makes it possible to act illegally, as well as socio-political, cultural, religious, scientific, and technological factors that cause changes to fisheries.

KEY QUESTIONS: Which sectors are most relevant? Are there any areas or sectors that are particularly significant in terms of their environmental effects or impact on the fisheries resources?

After considering the main characteristics of the fishery sector as suggested above (i.e commercial or subsistence, large-scale or artisanal, coastal, inland or ocean, and so on), it will be useful to consider which of those sectors are the most relevant to the country's economy and society and whether any areas or sectors are particularly significant in terms of their effects on the environment or impact on fisheries resources.

Auditors may have to consult non-governmental organizations, universities, or any organizations that have done this kind of assessment. SAIs may hire consultants to help them.

Once a SAI has understood the threats to its fisheries resources, it needs to understand what the government is doing to mitigate or prevent them (what programs exist and which policy tools are used) and who is responsible. With this information, SAIs can then consider traditional audit questions, such as mandate, risk, auditability, and materiality, to select and prioritize audit topics.

The Netherlands Court of Audit tabled a report on 30 October 2008, Sustainable fisheries. This audit was conducted due to the worldwide concern about the consequences of intensive fishing at sea. Many species of fish are being overfished. EU policy to combat overfishing in European waters is directed at the “sustainable management” of marine life, taking account of both environmental and economic interests. The Netherlands Court of Audit investigated whether the Netherlands was succeeding in implementing and enforcing EU fisheries policy and whether the sustainability goals were being achieved (see Exhibit 15).

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STEP 2 UNDERSTAND THE GOVERNMENT’S RESPONSES TO THESE THREATS AND THE RELEVANT PLAYERS

This step identifies relevant audit criteria and provides an overview of how the government manages fisheries. Both the importance of fisheries resources to a country and the frameworks for governing and managing fisheries should be identified.

Governments play a crucial role in protecting fisheries, and they manage fish stocks using a variety of methods. These include regulatory instruments, such as assigning fishing rights under a permit, determining fishing quotas for each permit, setting minimum size limits, placing restrictions on the type of equipment that may be used, having closed seasons, having closed areas such as marine reserves, requiring independent observers to be onboard fishing vessels to monitor fishing practices, and restricting the effort (for example, limiting the number of fishermen on a squid jigging boat, controlled access to the resource and so on). Governments can also use economic instruments such as subsidies, incentives, taxes, or grants, and participatory approaches – under which the fishing industry is involved in managing the fisheries resource, for example, through tradeable quota systems.

International governance, national legislation, planning fisheries, monitoring and surveillance and enforcement and sanctions are examples of actions which governments could take to manage fisheries (see the conceptual framework in Exhibit 5).

The potential methodology: data gathering and analysis (see Appendix 1) deals with an example of a methodological approach to gather and analyze data relevant to fisheries. The tool identifies information that can address the importance of fisheries and fisheries resources to a country and the fisheries governance and management framework.

Auditing fisheries management: Audit design matrix (see Appendix 2) includes criteria aligned with the potential topic, risk, researchable questions, and sub-researchable questions.

KEY QUESTION: What is the government doing about the threats?

As noted in Chapter 1, part 6, governments can and do take action to manage fisheries resources, and to protect and conserve them where necessary. They regulate fishing and exploitation of resources, and they control pollution. They can and do use a variety of public policy tools to authorize, finance, and implement these actions. Public policy tools include international agreements, laws, programs, and public education.

The most common environmental policy tools and questions for auditors are described in the following.

INTERNATIONAL CONVENTIONS AND TREATIES

KEY QUESTION: Are there international targets and obligations within this area that commit your country?

Various bilateral, regional, and international environmental agreements (IEAs) have been signed by national governments. SAIs can play a major role in auditing the implementation of these agreements – to what extent governments have complied with their obligations under them – and in reporting on the government response. Where a country has ratified an international fisheries agreement, the auditor should find out whether corresponding national legislation has been introduced, and whether it is being enforced.

To learn more about international conventions and treaties, see:

INTOSAI Working Group on Environmental Auditing, 2001, The Audit of International Environmental Accords. Available at <http://www.environmental-auditing.org/>

Auditors should find out from the agency responsible for international relations if the country has signed any regional agreements related to fisheries. The information could also be provided by the ministry that deals with the fisheries in the country. There are many such agreements, and describing them is outside the scope of this paper.

The Office of the Auditor-General of Norway and the Accounts Chamber of the Russian Federation conducted a parallel performance audit of the management of fish resources in the Barents Sea and the Norwegian Sea. The objective of the parallel audit was to assess the efficiency and effectiveness of national follow-up and implementation of bilateral agreements between Russia and Norway and decisions made by the Joint Norwegian-Russian Fisheries Commission. (See Exhibit 17)

KEY QUESTION: What are the regional and national targets and objectives in this field?

The SAI of Morocco conducted a performance audit of the department of fisheries during 2006. The audit criteria were based on law, regulations, standards and indicators, and international benchmarking; government indicators and parameters set by government; fisheries policy objectives; and international conventions. The SAI of Morocco criticized the department for failing to translate the objective of preserving fish stocks by taking concrete action.

The main recommendations made by the SAI of Morocco were:

- to strengthen control and surveillance, and ensure their proper geographic distribution; and
- to review the extent of “gel des investissements” in the fleet for better conservation of fishery resources while complying with the laws and regulations.

(See Exhibit 14)

LEGISLATION AND REGULATIONS

Governments have a variety of legal powers and tools that they can use to manage fisheries resources, and address fisheries problems and activities. Legal powers include legislation (acts of Parliament or Congress), regulations, permits, licenses, bylaws, and ordinances. These powers can be used for matters such as restricting access to fisheries areas or fish stocks, regulating fishing equipment or methods, closing or opening of areas, issuing permits and setting quota of allowable catch, restricting the effect of fishing on other species, for example, by closing a fishing area if other species are adversely affected, providing for protected “no-fishing” areas such as marine reserves, providing penalties and sanctions, and so on.

In some cases, national laws will give effect to international agreements. In some cases, countries enact specific laws to implement specific agreements. More often, a single piece of legislation (such as an ocean or fisheries act) can be used to address a number of agreements.

In other cases, national laws are unrelated to international agreements and simply respond to national needs. Legal powers are used broadly to manage, regulate and monitor fishing activities, and these legal powers can be used to manage access to fisheries and where, when, and how fish can be taken.

“In many countries, a lead environmental department or other agency of the executive government) is charged with ensuring that the environmental laws are properly implemented by public and/or private entities. These laws may charge the environmental department with such activities as:

- Issuing permits that limit the quantity or concentration of pollutants discharged
- Monitoring discharges’ compliance with such permits
- Monitoring environmental obligations to help identify other potential breaches of regulations
- Helping in the interpretation of regulations, and providing other assistance to regulate entities to assist in their compliance efforts

Taking enforcement action when violations occur In some cases, these environmental regulatory responsibilities may be delegated by the federal (national) government to lower levels of government. In addition, other types of executive government departments may also exercise certain environmental responsibilities. The SAI is often charged with examining how well these other departments exercise their environmental responsibilities”.

In 2005, the Office of the Auditor-General of Botswana conducted a performance audit of the fishing industry to determine how unregulated fishing activities, the absence of a policy framework, and operational mechanisms had affected the sustainability of fisheries and the environment. The audit objectives were to determine whether the Fisheries Division of the Department of Wildlife and National Parks had adequate guidance and operational mechanisms to manage and protect the fishing industry by determining: (1) whether the Division had a policy framework with clear objectives; (2) how much information was collected to devise long-term management plans and use strategies for the fisheries to provide protection, regulations, and sustainably use resources; (3) how much open fishing affected fish stocks; (4) whether routine inspections were carried out; (5) whether the Division fulfilled its obligations to protect the aquatic environment, as specified in the Southern African Development Community Protocol on fisheries; and (6) whether there was appropriate monitoring in place. The audit’s scope included covered policy aspects, planning, fish stock assessment activity, fish and habitat protection controls, inspections, manpower and staff training and monitoring and reporting. (See Exhibit 9)

For many SAIs, having national laws (and the supporting legal tools) is a prerequisite for conducting compliance audits.

POLICIES AND PROGRAMS

Governments can also formulate national policies specifically on fisheries. Policies tend to set direction, but are usually not prescriptive or enforceable. A policy might state intent or a desired outcome. In some cases, policies can be supported by specific procedures (action plans) and (funded) programs. Implementing programs successfully requires that the projects have enough money, skilled people, goals and

authority. Governments should set performance measures for implementing their policies or programs. Governments also establish and support research programs on fisheries. These research programs are often linked to monitoring databases.

In 2009, the Auditor-General of Canada conducted a performance audit on the protection of fish habitats. The audit found that the two responsible departments could not demonstrate that fish habitats were being adequately protected as required by the Fisheries Act. In the 23 years since the Habitat Policy was adopted, many parts of the Policy had been implemented only partially or not at all. (See Exhibit 10)

As the emphasis in this guidance paper is on sustainable fisheries, a good policy or strategy for sustainable fisheries is “likely to include or be accompanied by a set of targets for what needs to be achieved and indicators which measure progress towards meeting those targets ... In some case, the targets may seek to put into effect commitments made by national governments as signatories to international treaties. Indicators are often a vital link to ensure that governments are held to account for their performance against their sustainable development objectives”.

INTOSAI Working Group on Environmental Auditing. 2004. Sustainable Development: The Role of Supreme Audit Institutions, Part 2, para 2.11. Available at www.environmental-auditing.org

ECONOMIC TOOLS AND INCENTIVES

Governments use grants, loans, subsidies, taxes, user charges, and service fees as other types of policy tools. In some cases, using these tools is grounded in financial or fisheries legislation. Care is required in providing incentives and subsidies as over-investment in the fishing industry can contribute to overfishing, especially where combined with poor or inadequate fisheries management.

In 2006 the Board of Audit of Japan conducted a regularity audit of the payment of subsidies to Japanese Fisherman. These subsidies were intended for fisherman that disposed of unnecessary boats or equipment. The objective of the audit was to evaluate the regularity of the national fisheries policies. (See Exhibit 13)

ENVIRONMENTAL IMPACT ASSESSMENTS

Environmental impact assessments (EIAs) are used to examine projects, programs, policies, or activities to ensure that potential impact on the environment, including on fisheries, is carefully considered before legislation is enacted. EIAs are critical planning tools, given the serious and irreversible damage that humans can cause to the environment. Failure to consider such damage and set appropriate mitigation measures before

a policy, program, or project is launched can lead to significant environmental degradation, damage to human health, and economic costs. In some governments, EIAs are legislated. In others, they are a policy tool.

VOLUNTARY PARTNERSHIPS

Voluntary partnerships are agreements between governments, non-profit organizations, or corporations that come together for a common purpose without legislation. They can be an effective way of involving stakeholders in decisions about resource management and environmental matters.

In Norway, stakeholders are involved in quota allocation decisions through the Advisory Meeting for Fisheries Regulations. The domestic regulation process for quota allocation begins after international quota negotiations are finalised. First, the Directorate of Fisheries makes proposals for the domestic regulation. These proposals are then discussed in the Advisory Meeting, which has representatives from the fishermen’s associations, the fishing industry, trade unions, the Sami Parliament, local authorities, environmental organisations and other stakeholders. As a final step in this process, the Ministry of Fisheries and Coastal Affairs decides how the quotas should be shared between the vessels and sets out the technical regulations for how the fishing should be carried out in the following year.

KEY QUESTION: Who are the main players and what are their roles and responsibilities?

Auditors need to identify the major players involved in the fisheries industry they are auditing. Players can be numerous and can have both converging and diverging interests. The auditor must define each player’s role, activities, and scope of influence.

Players may include government departments and agencies at the national (federal), provincial, state, or, local (municipal) level. The government management framework for fisheries varies from country to country.

In some countries, national (federal) agencies are responsible for these activities. In others, responsibilities may be delegated to lower administrative levels. National (federal), state, provincial, and local (municipal) governments have different powers, and their specific roles and responsibilities can vary widely. For example, national governments tend to develop and formulate policies, and lower levels of government often implement those policies. National governments enact national legislation and regulations, and local levels of government use tools, such as permits and licences. These are not fixed rules, however, so it is important for auditors to understand where an issue fits into the hierarchy of authority, which level of government is involved, and how that level is involved.

Non-governmental organizations, such as civil institutions, members of social movements, professional associations, local communities, business sectors, academic institutions, and scientific institutes, may have a role to play. In some

countries, it is also important to highlight the key role played by indigenous communities who often have strong interests in management of natural resources that they once managed traditionally. Many countries have established knowledge resource centres, databases, and networks to preserve and disseminate traditional ecological knowledge, and some have or are exploring co-management (shared management) of natural resources with indigenous communities.

As well as their roles as policy-makers and regulators, some governments may conduct “operational enterprises” in their societies and as such may have a negative impact on fisheries. Auditors should identify any such state-run agencies and enterprises that affect fisheries.

KEY QUESTION: What policies and instruments correspond to the threats?

Among other activities, authorities are responsible for:

- ensuring that fisheries laws are being enforced by public and private entities;
- preparing standards;
- defining policies;
- issuing licenses to limit the volume or concentration of pollutants discharged into the environment;
- monitoring to identify potential environmental damage; and
- applying sanctions when laws are violated.

Other management functions in fisheries could include:

- certifying vessels;
- issuing fishing permits/licenses;
- setting registration for exploration and exploitation of marine resources;
- setting allowable numbers of fish to be captured; and
- enforcing laws.

In 2005, the Office of the Auditor-General of Botswana conducted a performance audit of the fishing industry to determine how unregulated fishing activities, the absence of a policy framework, and operational mechanisms have affected the sustainability of fisheries and the environment. (See Exhibit 9)

KEY QUESTION: What are the levels of public expenditure for different policy instruments and policy responses?

When auditing an aspect of fisheries resource management, it will be necessary for auditors to understand the financial expenditure involved and the accountability systems for that expenditure. This will be an important part of the context for the audit. Much of this information will be available to the audit team from the financial statements and accountability documents of the relevant government agencies and through discussions with the financial auditors.

STEP 3 CHOOSE AUDIT SUB-TOPICS AND PRIORITIES

Now auditors need to analyze the risks and materiality relating to the issues described in steps 1 and 2 so that they can define where audit action is most relevant and useful. Auditors could also start to identify possible audit sub-topics. There are many ways of framing and defining audit sub-topics related to fisheries.

Potential topics are:

- international governance;
- national legislation and policy planning;
- implementation;
- evaluating and monitoring the fishery;
- control and surveillance; and
- enforcement and sanction.

See auditing fisheries management: audit design matrix (Appendix 2). Also refer to the core section of the conceptual framework. (see Chapter 1, part 7)

SAIs may select an overall threat to fisheries to focus on. The important thing is to define the focus of the investigation. In choosing an audit sub-topic or sub-topics and setting priorities, SAIs should consider the following key questions.

KEY QUESTION: What are the highest risks to fisheries?

The SAI will need to analyse risks to define where its actions will be most relevant and useful.

If necessary, they may request help from experts in the field.

Since fishery issues can be complex and difficult to understand, many SAIs could obtain the support of experts to help them understand particular issues or to clarify some points.

For example SAIs could use external experts for:

- identifying specific issues or audit topics; and
- helping to carry out the audit, or to completing specific work on behalf of the SAI.

For more information, see the paper below, and in particular the frequently asked questions for advice on using experts.

INTOSAI Working Group for Environmental Auditing. 2007. *Evolution and Trends in Environmental Auditing*. Available at www.environmental-auditing.org

KEY QUESTION: Do the government's financial statements reflect the costs and liabilities?

For some SAIs, the level of government expenditure and accountability for that expenditure is a critical factor. Some monies can be earmarked for specific fisheries legislation and directives and this can be considered in the financial audit, or more deeply in a compliance or performance audit.

For more information, see: INTOSAI Working Group for Environmental Auditing, 2004. Environmental Audit and Regularity Auditing.
Available at: www.environmental-auditing.org

KEY QUESTION: Does the SAI have the mandate and authority?

After identifying the players, the SAI should determine which ones it has jurisdiction over. Even in the government sphere, it may be able to act only at the national (federal), state, provincial or local (municipal) level. Private players (for example, the private sector, state-run enterprises, or non-governmental organizations) that are financed by public resources may also fall under SAI jurisdiction. Despite the lack of jurisdiction over some players, auditors must know who they are and what role they play, since the government can regulate or influence their behaviour through public policy tools and instruments.

KEY QUESTION: Will reporting requirements and the expected audience influence the choice of an audit topic? (In other words, is the audit area auditable?)

First and foremost, the auditor should decide whether there are suitable sources of criteria to conduct the audit against. For example:

- Has the government signed international fisheries-related agreements?
- Does the government's response (step 2) reflect the environmental threats (step 1) identified?
- Has the government enacted fisheries laws and regulations?
- Does the government have policies or strategies on fisheries management?
- Are fishery-related topics included in state budgets?
- Do the government's financial statements reflect the environmental costs and liabilities?
- Does the government receive external funding from international organizations to fulfill its fisheries obligations related to international agreements?

KEY QUESTION: How will the audit contribute to good governance?

SAIs will also have to assess where they will be most effective in improving the way governments protect and conserve fisheries. Auditors may consider the following questions:

- What are the interests of the users of the audit report, particularly the primary users (for example, Parliament)?
- What is the relative significance of the topic to government activities overall?
- What is the effect of the audit likely to be? Will the audit make a significant difference?
- Has management of fisheries resources been audited before?

After determining where their actions will be most useful and choosing the sub-topic or sub-topics, auditors can start planning the audit.

STEP 4 DECIDE AUDIT APPROACHES, AUDIT OBJECTIVES, AND LINES OF ENQUIRY

Based on the choices made in step 3 the auditor needs to identify audit objectives, audit criteria, audit questions (lines of enquiry), and the audit approach. In this step, the guide provides possible ways of designing the audit and the Audit design matrix in Appendix 2 specifically deals with a list of potential topics, risks, researchable questions, sub-researchable questions, and criteria which auditors could consider.

The Netherlands Court of Audit investigated whether the Netherlands was succeeding in implementing and enforcing EU fisheries policy and whether the sustainability goals were being achieved. The study sought insight into the causes of failure or inadequate realization of policy goals and tried to find recommendations for improving and implementing policy.

Scope (lines of enquiry): The audit questions were:

- What are the results of the fisheries policy in terms of sustainability?
- What causes lack of success?
- How is the European Fisheries Policy enforced in the Netherlands?
- How effective has the fleet reduction policy been in terms of economic sustainability?
- What are the results of innovation policy for the reduction of ecological damage?

(See Exhibit 15)

KEY QUESTION: What are the most relevant objectives and lines of enquiry for this audit?

The following are some possible lines of enquiry and associated researchable questions.

See Appendix 2: Audit of fisheries management: Audit design matrix. Columns 3 and 4 provide a potential list of researchable and sub-researchable questions.

FINANCIAL MANAGEMENT AND REGULARITY

SAIs can carry out audits with an environmental focus using a regularity (financial and compliance) mandate. It is not necessary to have a performance audit mandate to conduct an audit with an environmental focus. A SAI may consider that its greatest skills and experience are auditing financial and compliance issues. It would make sense for them to use this experience in an environmental audit. The INTOSAI WGEA 2004 paper Environmental Audit and Regularity Auditing illustrates possibilities for carrying out audits with an environmental focus using a financial and compliance framework.

The costs to governments of developing and implementing environmental policies and obligations are increasingly significant. A SAI should recognize that environmental costs, liabilities, and asset impairments affect the preparation and audit of financial statements. The regularity auditor will need to assess the completeness and accuracy of the figures reported.

The objective of auditing financial statements is to enable the auditor to express an opinion on whether the financial statements are prepared, in all material respects, in accordance with an identified financial reporting framework. Material respects can be directly linked to environmental costs, obligations, impacts, and outcomes. Auditing financial statements requires the auditor to consider environmental matters as part of the regularity audit.

Having acquired a sufficient knowledge of the business, auditors assess the risk of material misstatement in the financial statements. This would include the risk of misstatement due to environmental matters, namely environmental risk.

Examples of environmental risk include:

- compliance costs arising from legislation; and
- effects of non-compliance with environmental laws and regulations.

Auditors can investigate the use of public funds in projects and programs that focus on fisheries, asking:

- Are the funds spent on fisheries management correctly administered, according to spending authorities and regulations?
- Are adequate financial resources allocated to protection programs?
- Is the disbursement of funds monitored?
- Against what criteria is the disbursement of funds measured?

In 2002 the SAI of New Zealand undertook an inquiry into a complaint from the fishing industry that levies paid by the fishing industry to offset environmental effects of fishing on marine life (such as the albatross and other sea birds, sea lions, and dolphins) were not being properly spent. The levy was set on a cost recovery basis to assist with research on reducing the effect of fishing on protected marine species, but the fishing industry believed it was being spent on research into other species not adversely affected and that the government agencies responsible for collecting and administering the fishing levy were not working together effectively. The inquiry found some validity to the concerns about the levy setting process and some aspects of the expenditure, but a follow up report in 2005 noted that improvements had been made.

(See Exhibit 16)

COMPLIANCE WITH AGREEMENTS, LAWS, AND POLICIES

A fisheries audit can address the consistency of government strategies, actions, and programs with laws and regulations, or

with the international conventions that the country is a signatory to. It may answer the question 'is the government meeting commitments it made in treaties, laws, policies, and programs?' The following are some of the lines of enquiry:

- Are there international agreements that protect fisheries within the country's geopolitical borders or shared protected areas?
- Is the country following the rules and agreements determined by the international conventions that it is a signatory to?
- Has the government enacted laws and regulations to implement its international commitments and domestic policies?
- Are there any conflicts or gaps between national policies on fisheries and the country's environmental laws?
- Are fisheries laws and regulations being adequately enforced?
- Is there any conflict between national policies and the international conventions that the country is a signatory to?

The European Court of Auditors tabled a special report on the control, inspection and sanction systems relating to the rules on conservation of community fisheries resources. The objective of this audit was to find out if the Commission and the Member States are taking the necessary steps for an effective system of control, inspection and sanctions for the conservation of fisheries resources. (See Exhibit 12)

Since late 1997, the Australian Customs Service (Customs), the Department of Defence, and the Australian Fisheries Management Authority have been patrolling Australia's Southern Ocean Exclusive Economic Zones (EEZs) and apprehending fishing vessels operating there illegally. Following an incursion into Australia's extensive Southern Ocean EEZs by an illegal fishing vessel in August 2003, the then Government announced a program to deter, detect, and apprehend vessels conducting illegal, unreported and unregulated fishing in this zone. The Government contracted an armed vessel capable of year-round patrols in the challenging conditions of sub-Antarctic weather. The vessel is the *Oceanic Viking*.

The objective of the audit was to assess whether Customs has implemented effective measures to control illegal, unreported and unregulated fishing in the Southern Ocean. The audit examined how Customs manage and co-ordinate enforcement operations in the Southern Ocean. (See Exhibit 8)

POLICY

Auditing policies and programs on management of fisheries resources can be valuable. Interesting lines of enquiry include:

- Are government policies being complied with?
- Do the policies deal with the most important threats to fish stocks, other species affected by fishing, and the environment? Do the policies or strategies have targets

and measures and is there a monitoring and evaluation regime? What use is made of information gained from monitoring and evaluation? Is it used to review and amend the policies?

- Have general policies on fisheries management been addressed, specified, and executed in laws and other instruments such as plans and budgets?
- What kinds of changes can be suggested that would make national policies achieve better results?

PERFORMANCE MEASUREMENT AND RESULTS

Fisheries audits can assess the performance of government programs to deal with threats to fisheries. SAIs may wish to evaluate the traditional three e's –effectiveness, efficiency, and economy – of the programs. They may also wish to assess the processes used to define and measure success and the results of these processes. For example:

- Have the relevant agencies defined expected results for their programs?
- Have they developed indicators and measures for these results and are they being monitored and tracked?
- Is the data used to measure performance reliable?
- Are policies and programs on fisheries achieving their objectives and intended results?
- Why are policies and programs not achieving their objectives and intended results, and how can the causes be countered?

In 2003 the National Audit Office of the United Kingdom conducted an audit of the role of the Department for Environment, Food and Rural Affairs in enforcing fisheries regulations on vessels fishing in the waters around the English coast and in respect of fish landed at English ports. The report examined: (1) the role of the Department in enforcing fisheries regulations; (2) the effectiveness of the Department's methods in detecting, dealing with and deterring infringements of regulations; and (3) the management of its enforcement activity, which ultimately sought to maintain the economic viability of the fishing industry. (See Exhibit 19)

ACCOUNTABILITY, CO-ORDINATION, AND CAPACITY

Topics such as fisheries frequently involve many government entities and other players. SAIs could assess how departments and agencies have demonstrated good governance, for example, whether they can meet their responsibilities for environmental programs and actions, and whether they have the mechanisms to co-ordinate those actions.

- Are the roles, responsibilities, and accountability of relevant entities (for example, ministries and departments) clearly defined?

- Are any necessary mechanisms to co-ordinate action in place?
- Do the entities have adequate financial and human resources to carry out their roles and responsibilities?
- Has staff received adequate training?
- Have the entities developed robust internal management systems?

SCIENTIFIC RESEARCH AND MONITORING

The government's capacity to undertake research and monitor ecosystems can directly affect how fisheries are protected. In many countries, this responsibility is legally defined. Suggested lines of enquiry are:

- Does the government have the scientific knowledge (in-house or consultant-based) to prioritize its actions on fisheries management?
- Are there adequate systems in place to regulate and monitor the status of fisheries?
- Is the government developing and maintaining databases on fisheries, either in-house or with research institutions?
- Is information being shared between the national and international monitoring systems?
- Does the public have access to information on monitoring activities?

The Office of the Auditor-General of Norway and the Accounts Chamber of the Russian Federation agreed that carrying out scientific expeditions is a necessary prerequisite for acquiring reliable assessments of the state of joint stocks and for preparing a scientific basis for the setting of quotas for sustainable and rational fishing. Estimates of the stock size of a living marine resource are based on data from research expeditions and fisheries statistics. The large unregistered figures for fishing make the fisheries statistics unreliable, which increases the importance of the research data as a basis for estimating stocks. When the actual catch level additionally exceeds the precautionary limit, it becomes even more necessary to monitor stock developments closely through research expeditions. Scientists from both Norway and Russia had problems carrying out their research expeditions as planned in 2004–2005. The Office of the Auditor-General of Norway and the Accounts Chamber of the Russian Federation acknowledged that this situation was unsatisfactory since the conducting of expeditions is vital to enable reliable stock estimates to be drawn up as well as scientifically-based quota recommendations. The Office of the Auditor-General of Norway and the Accounts Chamber of the Russian Federation agreed to follow up the parallel audit over three years (2007–2010). The follow-up will assess whether the results of the audit have contributed to more efficient and effective management of shared living marine resources in the Barents Sea and the Norwegian Sea and whether the audit has helped to solve the problems of illegal fishing and trans-shipment in these ocean areas. (See Exhibit 17)

The Office of the Auditor-General of New Zealand audited whether the agency managing fisheries, the Ministry of Fisheries, had enough information to ensure that the fisheries were being managed in a sustainable way, and to their full economic potential. The risks were two-fold, namely: particular stocks could be over-fished, risking the survival of the stocks; and particular stocks could be under-fished, depriving New Zealand of export income, employment opportunities in the fishing industry, and tax revenue. (See Exhibit 16)

PUBLIC EDUCATION

National and international environmental protection programs often have a public education component. Large sums of money can be spent even though the success of these programs has not been measured. SAls may include, among others, the following lines of enquiry:

- Is the government allocating appropriate funds for public outreach and education at each phase (formulation, planning, implementation, and evaluation) of a policy?
- Is the government encouraging the public and private sectors to protect and manage fisheries?
- Has the government integrated fisheries concerns into its public outreach strategies?
- Is the government measuring its public outreach results?

REPORTING TO OTHER AGENCIES AND THE PUBLIC

The reporting requirements of public policies can be an important source of audit evidence. For example, many international environmental agreements require that national governments report to United Nations agencies or other international agencies (for example, donor organizations). As well, regulated entities within a country may be required to report to regulatory agencies that, in turn, may report to their Parliament or equivalent.

Proper monitoring, reporting, and accountability processes – which include collecting data, performing analyses, and reporting on findings – should be in place. SAls can ensure that such reports and performance comply with appropriate standards, rules, and regulations. SAls may consider:

- How are departments and agencies reporting their results?
- Are departments and agencies meeting international and national reporting obligations?
- Is the information of good quality and accurate?
Is any independent review or assurance provided?

Chapter 3: Examples of fisheries audits

The main objective of this chapter is to give SAIs information about fisheries audits from around the world and to illustrate possible audit approaches and methodology. Whenever possible, the examples include information on the history, audit objectives, scope, criteria,

findings and recommendations, follow-up or post-audit action by government or SAI, and the internet reference to the full report.

Exhibits 8 – 20 represent examples of audits on fisheries from various INTOSAI regions. Most of the examples are performance audit related.

Exhibit 7 Examples of fisheries audits

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EXHIBIT	COUNTRY	TYPE OF AUDIT	TITLE OF AUDIT REPORT
8	Australia	Performance audit	Illegal, Unreported, and Unregulated Fishing in the Southern Ocean, Australian Customs Service.
9	Botswana	Performance audit	The Report of the Auditor-General on management of fisheries by Fisheries Division. Department of Wildlife and National Parks. 2005.
10	Canada	Performance audit	Performance Audit of fish habitat protection. 2009.
11	Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden	Performance and compliance audit	Joint final report on the Audit of Environmental Monitoring and Fisheries Management and Control in the Baltic sea. (Co-ordinated/Parallel audit)
12	European Court of Auditors	Compliance audit	Special report on the control, inspection, and sanction systems relating to the rules on conservation of community fisheries resources.
13	Japan	Regularity	Contribution of subsidies for a project to dispose of unnecessary fishing boats/fishing equipments and calculation of subsidies for a support project to encourage suspension of fishing, 2007. (Available in Japanese only)
14	Morocco	Performance audit	Performance audit of the department of fisheries, 2006. (Available in French and Arabic.)
15	Netherlands	Performance audit	Sustainable fisheries.
16	New Zealand	Performance audit	Information requirements for the sustainable management of fisheries. 1999. Ministry of Fisheries: follow-up report on information requirements for the sustainable management of fisheries, 2005.
17	Norway and Russia	Performance audit	The Office of the Auditor-General of Norway's investigation of the management and control of fish resources in the Barents Sea and the Norwegian Sea, 2007.
18	South Africa	Performance audit	Report of the Auditor-General to Parliament on a performance audit of the handling of confiscated abalone at the Department of Environmental Affairs and Tourism, June 2009.
19	United Kingdom	Performance audit	Fisheries enforcement in England, April 2003.
20	Norway	Performance audit	Study of the management of fish resources 2003.

Exhibit 8

Australia. Illegal, Unreported and Unregulated Fishing in the Southern Ocean, Australian Customs Service, 2009.

History

Since late 1997, the Australian Customs Service (Customs), the Department of Defence (Defence), and the Australian Fisheries Management Authority (AFMA) have been patrolling Australia's Southern Ocean Exclusive Economic Zones (EEZs) and apprehending fishing vessels operating there illegally. Following an incursion into Australia's extensive Southern Ocean EEZs by an illegal fishing vessel in August 2003 the then Government announced a program to deter, detect, and apprehend vessels conducting illegal, unreported and unregulated fishing in this zone. The Government contracted an armed vessel capable of year round patrols in the challenging conditions of sub-Antarctic weather (the *Oceanic Viking*).

Audit scope and objective

The objective of the audit was to assess whether Customs had implemented effective measures to control illegal, unreported and unregulated fishing in the Southern Ocean. The audit examined Customs' management and co-ordination of enforcement operations in the Southern Ocean, with particular emphasis on:

- the approach to assessing and reporting program performance, and whether outcomes are being met;
- co-ordination with other stakeholder agencies to meet program outcomes;
- the operational planning framework, management of human and physical resources and contract management; and
- the management of the deployment and operation of program maritime assets.

Conclusion

Customs procured and operates a vessel capable of patrolling. Customs has consistently exceeded its target of at least 200 sea days patrolling annually, and has performed that work within its budget. Customs completed negotiations with France (which shares common Southern Ocean maritime boundaries with Australia) to patrol the Southern Ocean Patagonian Toothfish fisheries. This has improved patrolling effectiveness for both countries by reducing the likelihood that patrols in the Southern Ocean are duplicated, and increasing the number of patrols, and time spent patrolling, the Southern Ocean. One illegal, unregulated, and unreported vessel has been sighted and apprehended in Australia's Southern Ocean EEZ. This low level of illegal, unregulated, and unreported activity indicates that one of the original desired outcomes of the program to protect Australia's Patagonian Toothfish Fishery from illegal, unregulated and unreported fishing is being achieved. Customs has successfully implemented measures to control illegal, unregulated, and unreported fishing in the Southern Ocean. It is important that Customs continues to update its assessment of the threat of illegal, unregulated and unreported fishing. To enable Customs to provide this assurance and to support policy decisions about the future shape of the program, it should: develop an approach which provides an assessment of the program's performance and the extent to which the program's activities contribute to the intended outcomes; and develop a strategic plan for Southern Ocean patrolling, identifying patrolling options for government after the conclusion of the program on 30 June 2010.

Customs receives services and advice from other Australian Government agencies. Customs leases the *Oceanic Viking* from a private firm. The measures Customs has introduced to manage the contract could be improved by specifying clearly the roles and responsibilities of Customs' Contract Manager.

Reference

Australian National Audit Office. 2008-09. Illegal, Unreported and Unregulated Fishing in the Southern Ocean. Available at: www.anao.gov.au/uploads/documents/2008-9_Audit_Report_06.pdf

Exhibit 9

Botswana. The Report of the Auditor-General on Management of fisheries by Fisheries Division Department of Wildlife and National Parks, 2005.**SAI of Botswana: Audit on freshwater fisheries**

In 2005, the Office of Auditor-General of Botswana conducted a performance audit of the fishing industry to determine how unregulated fishing activities, the absence of a policy framework, and operational mechanisms have affected the sustainability of fisheries and the environment.

Audit objectives

To determine whether the Fisheries Division of the Department of Wildlife and National Parks had adequate guidance and operational mechanisms to manage and protect the fishing industry by determining the following: (1) whether the Division had a policy framework with clear objectives; (2) how much information was collected to devise long term management plans and usage strategies for the fisheries to provide protection, regulations, and the sustainable use of resources; (3) how much open fishing affected fish stocks; (4) whether routine inspections were carried out; (5) whether the Division fulfilled its obligations to protect the aquatic environment, as specified in the Southern African Development Community Protocol on fisheries; and (6) whether there was appropriate monitoring in place.

Scope

The audit covered policy aspects, planning, fish stock assessment activity, fish and habitat protection controls, inspections, manpower and staff training and monitoring and reporting.

Criteria

- Fish Protection Act of 1975 and draft Fisheries regulations.
- Strategic plans.
- Southern African Development Community (SADC) Protocol on fisheries.

Findings

- The Division had not developed a policy framework to provide the necessary direction and guidance to the fishing industry.
- The Fish Protection Act of 1975 had become obsolete, since it did not provide for all aspects of fishing, such as managing fish stocks.
- There was no data in the database on the number of fish (the “catch”) and the effort needed for traditional (hook, line, and basket) fishing, recreational, and competition fishing, to measure how much of the total catch is the result of these activities.

Recommendations

- A policy specific to fisheries should be developed.
- The Fish Protection Act should be reviewed to identify any deficiencies and differences between the Act and current operational requirements.
- Establish clear objectives and targets for the managing and protecting fish.
- Develop reliable mechanisms to track and report on the sustainable use of resources.
- Develop and implement the fisheries regulations.
- Development of both short-term and long-term management strategies.
- Operational plans be prepared at all levels.
- Improve quality of data.
- Analyse fish stock data in a timely manner.
- Relevant, consistent and quality reports are produced.
- Initiatives regularly reviewed to determine effectiveness.

Reference

Republic of Botswana: Performance audit report no 1. 2005. Available at: www.environmental-auditing.org

Exhibit 10

Canada. Performance audit of fish habitat protection, 2009.

History

Canada's federal government is responsible for sea coast and inland fisheries under the Constitution Act, 1867. The Fisheries Act contains two provisions directed at protecting fish habitat from certain human activity:

- the fish habitat protection provisions that prohibit the harmful alteration, disruption, or destruction of fish habitat; and
- the pollution prevention provisions that prohibit the deposit of deleterious or harmful substances into waters frequented by fish.

Audit objective

To determine whether Fisheries and Oceans Canada and Environment Canada could demonstrate that they were adequately administering and enforcing the Fisheries Act, and applying the Habitat Policy and the Compliance and Enforcement Policy in order to protect fish habitat from the adverse effects of human activity.

Scope and approach

The audit included the programs and activities supporting the administration and enforcement of the two provisions and the two government policies. It also included certain arrangements with provinces and others that support the administration and enforcement of these provisions. The approach included interviewing management and employees, examining documents, databases, a sample of project proposals referred to Fisheries and Oceans Canada, a sample of enforcement actions, and analyzing departmental procedures.

Criteria

The audit focused on:

- Administering and enforcing the two provisions of the Fisheries Act in a fair, predictable, and consistent manner to achieve the policy objectives.

- Accountability arrangements for specific responsibilities administered by provinces and others on behalf of the two departments.
- An adaptive approach for modernization of the habitat program.
- Measuring and reporting on the extent that the programs and activities contribute to the achievement of the policies.

Recommendations

These focused on:

- interdepartmental co-operation;
- actions needed to fully implement the Habitat Policy;
- the need for indicators to assess progress on the Habitat Policy's long-term objective to achieve an overall net gain in fish habitat;
- implementing risk-based quality assurance for project referrals;
- monitoring effectiveness and compliance;
- how effective accountability mechanisms are in arrangements with other parties;
- the need for clear objectives, results expectations, and accountability for achieving the desired results for the Fisheries Act pollution prevention provisions;
- the need for a risk-based approach to administering the Fisheries Act pollution prevention provisions;
- enforcement quality assurance and control practices; and
- the adequacy, relevance, and enforceability of four Fisheries Act regulations.

Reference

Office of the Auditor-General of Canada. 2009. 2009 Spring Report of the Commissioner of the Environment and Sustainable Development. Available at: www.oag-bvg.gc.ca/internet/English/par_cesd_200905_01_e_32511.html

Exhibit 11

Joint final report on the Audit of Environmental Monitoring and Fisheries management and control in the Baltic Sea. Carried out by the National Audit Office of Denmark, the National Audit office of Estonia, the National Audit Office of Finland, the German Federal Court of Audit, the State Audit Office of Latvia, the State Control of the Republic of Lithuania, the Supreme Chamber of the Republic of Poland, the Accounts Chamber of the Russian Federation, and the National Audit Office of Sweden, 2008.

History

In 2008 the Supreme Audit Institutions of Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, and Sweden conducted an audit of environmental monitoring and fisheries management and control in the Baltic Sea.

Audit objective

The overall objective of the first part was to assess whether the signatory states of the Helsinki Convention are complying with the standards of the Co-operative Monitoring in the Baltic Marine Environment (COMBINE) and how the Baltic Sea Action Plan (BSAP) will affect national monitoring. The overall objective of the second part was to conduct a review of fisheries management and control in the Baltic Sea.

Scope

The audit was divided into two parts: Germany, Latvia, Poland, and Denmark participated in the first part which is about environmental monitoring in the Baltic Sea. Estonia, Finland, Lithuania, Russia, Sweden, and Denmark participated in the second part about fisheries management and control in the Baltic Sea.

Criteria

- Helsinki Convention
- Standards of the Cooperative Monitoring in the Baltic Marine Environment (COMBINE)
- Baltic Sea Action Plan (BSAP)

Audit findings and recommendations

The review of environmental monitoring in the Baltic Sea (first part of the report) has shown that:

In their national monitoring programmes, the participating countries have paid due regard to the requirements set by the COMBINE programme, thus implementing the Helsinki Commission (HELCOM) recommendation no 19/3. The COMBINE measuring network is not based on scientific research. As a result, the number and distribution of the COMBINE measuring stations vary considerably among the HELCOM countries. There is a serious risk that measuring stations which are important for the Baltic Sea ecosystem as a whole will not be monitored adequately.

The agreements on the timely communication of data to the International Council for the Exploration of the Sea (ICES) are fulfilled only in part. The data held at ICES, especially on the biological parameters and on dangerous substances, are incomplete. The participating countries should ensure that the agreed reports and data are provided in the stipulated data format and on time.

- Regular reviews of the accreditation of laboratories by independent bodies serve to check compliance with the quality standards which are important for monitoring. The current requirements contained in the COMBINE manual do not ensure compliance.

In order to ensure that monitoring meets uniform standards of quality assurance, the participating countries should agree that all laboratories involved in monitoring must be accredited according to ISO 17025.

- The audited countries carry out intercomparison exercises concerning chemical analysis to an adequate extent. Intercomparison exercises in biological monitoring are only carried out in isolated cases, for instance with respect to biological effects.
- The COMBINE programme is limited to monitoring eutrophication and contaminants of the Baltic Sea. The ecosystem approach of the Baltic Sea Action Plan will lead to additional requirements to biodiversity monitoring. Therefore it will be necessary to enhance the monitoring of ecological status indicators. This approach will overlap with other international monitoring obligations also calling for biological monitoring.

Exhibit 11

The participating countries should review the COMBINE programme. Following the lines of the national status reports on monitoring, it should be considered to produce an overall status report describing all monitoring activities and obligations and looking for interfaces for the entire Baltic Sea. Furthermore, a scientific analysis should be conducted to determine which parameters should be monitored at which intervals and on which locations.

The review of fisheries management and control in the Baltic Sea (second part of the report) has shown that:

- All the countries involved operate with elements of risk assessment (for example, unregistered landings) and performance indicators and measurements of effectiveness of fisheries control. They all have legal frameworks governing the fisheries control bodies and requirements for sanctions in case the legal regulation of fisheries in the Baltic Sea is infringed. A major obstacle for fisheries controls is a lack of effective fisheries monitoring systems that support a risk-based control.

Considering the need to establish a more effective fisheries control in the Baltic Sea, it is crucial to implement more risk-based control strategies and to measure the use of fisheries control resources. Consistent and reliable data and performance indicators are essential and a prerequisite for effective fisheries control and evaluation of the effect of fisheries control strategies.

- Catches are entered in logbooks and the fisheries control data are being cross-checked to some extent, for example catch registrations are checked against sales notes. Often the cross-checking of fisheries control data is not systematic and is not being effectively supported by electronic fisheries information systems.

It is important to focus on development and implementation of electronic logbooks and support of cross-checking of fisheries control data by electronic fisheries information systems that function well.

- There are major differences between the countries, for instance in expertise, training, and control strategy.

It is important that the Baltic Sea countries continue to work closely together, share knowledge, and build on and further develop the positive experiences gained within fisheries surveillance and control activities.

- The EU Member States regulate quotas and lay down structural policies in compliance with EU regulations. There are significant differences between the national quota regulations and structural policies. Strategies for sustainable and multipurpose use of fish resources are developed, supported and controlled by national fisheries policies and the European Union's Common Fisheries Policy (CFP).

In order to establish sensible and effective co-operation in the area of fisheries and conserving living marine resources in the Baltic Sea, it is essential that the Russian Federation and the EU sign an agreement on co-operation in the area of fisheries and conservation of living marine resources in the Baltic Sea.

- The countries perform scientific investigations of sustainable fisheries stocks and provide this information to ICES.

It is crucial for effective fisheries control and sustainable fisheries policy in the Baltic Sea that data are reliable and valid.

Reference

National Audit Office of Denmark, National Audit Office of Estonia, National Audit Office of Finland, German Federal Court of Audit, State Audit Office of Latvia, State Control of the Republic of Lithuania, Supreme Chamber of Control of the Republic of Poland, Accounts Chamber of the Russian Federation, and National Audit Office of Sweden .2009. *Joint Final Report on the Audit of Environment Monitoring and Fisheries Management and Control in the Baltic Sea*.

Available at: www.environmental-auditing.org

Exhibit 12

European Court of Auditors. Special report on the control, inspection, and sanction systems relating to the rules on conservation of community fisheries resources, 2007.**Background**

In a compliance audit report published in 2007 the European Court of Auditors (ECA) assessed systems in place in the Commission and in the six principal fishing Member States: Denmark, Spain, France, the Netherlands, Italy and the United Kingdom.

Objective

To find out if the Commission and the Member States are taking the necessary steps for an effective system of control, inspection and sanctions for the conservation of fisheries resources.. Four specific audit objectives were investigated: (a) are catch data reliable and monitored effectively (without stating an opinion as to the quality of individual declarations); (b) are the inspection systems as effective as possible; (c) are the systems for following up infringements appropriate and effective; and (d) how far is the inherent risk constituted by overcapacity in the fishing industry dealt with in reality.

Scope

The ECA assessed mainly the data of 2006, but looked also at more recent data (2007). The scope included: (a) catch data reliability and effectiveness of the monitoring; (b) effectiveness of the inspection systems; (c) appropriateness and effectiveness of the systems for following up infringements; and (d) actions related to the overcapacity in the fishing industry.

Criteria

In the absence of specific regulatory requirements the criteria adopted were the standards recognised by international organisations and generally applicable to this area.

Findings

Catch data are neither complete nor reliable, due mainly to weaknesses in the Member States. The inspection systems do not provide assurance that infringements are effectively prevented and detected. The procedures for dealing with infringements mean that not every infringement is followed up and, even when they are, they do not always attract penalties. Therefore penalties have a limited deterrent effect. The European Commission does not have enough instruments at its disposal to take action against Member States for failure to comply with European Community legislation. Overcapacity detracts from the profitability of the industry and incites non-compliance.

Recommendation

The report recommended that the present control, inspection and sanction systems must be strengthened considerably if the Common Fisheries Policy of the European Community is to achieve its objective of sustainable exploitation of fisheries resources.

Reference

Official Journal of the European Union. 2007. Special report No 7 of 2007 on the control, inspection and sanction systems relating to the rules on conservation of Community fisheries resources together with the Commission's replies. Available at: <http://eca.europa.eu/portal/pls/portal/docs/1/673627.PDF>

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Exhibit 13

Japan. Contribution of subsidies for a project to dispose of unnecessary fishing boats/fishing equipments and calculation of subsidies for a support project to encourage suspension of fishing, 2007.**History**

The Board of Audit of Japan (the BOA) does not have a history of this case separately from the full text described in the Audit Report for Fiscal 2007. All the information concerning this case is written only in Japanese.

Background

In 2007 the BOA conducted a regularity audit towards the payment of subsidies to Japanese fishers. These subsidies were intended for fishers that disposed of unnecessary fishing boats or equipment.

Objective

The objective of the audit was to evaluate the regularity of the national fisheries policies.

Scope

The BOA's audit activities covered "a project to dispose of unnecessary fishing boats and equipment" implemented by the Fisheries Agency between the fiscal years 2003-2006.

Criteria

The criteria used are set in the national expenditures for fisheries.

Findings

Funds were not allocated to the appropriate parties. Subsidies were paid even though fishers did not meet requirements. Even if the fixed costs of fleet eligible for subsidies decreased due to the decreased number of boats, the same amount of subsidies were paid as before disposal of boats. As a result, the subsidies were overpaid.

Recommendations

The audit report does not contain recommendations as the auditee took remedial measures in response to the management letter or auditor's inquiries.

Follow up or post-audit action by government or SAI.

BOA made a follow-up audit in 2008 and 2009.

Exhibit 14

Morocco. Performance audit of the department of fisheries, 2006.**Objectives**

To ensure that the Department of Marine Fisheries:

- has a clear strategy for the conservation of fishery resources;
- has adequate means for the implementation of measures to control illegal fishing on the Moroccan coast;
- proceeds with the application of sanctions for violations of regulations on fisheries; and
- is seeking alternative means in order to safeguard fishery resources (aquaculture)

Scope

- included the Ministry of Fisheries, Ministry of Finance, National Office of fisheries;
- the audited period was from 2000–2006. Prior periods were taken into account where relevant; and
- covered the management, the structure, and the regulations.

During the audit following methods were used

- examining physical documents;
- interviews and questionnaires;
- activity reports of auditee, annual reports; and
- risk analysis.

Audit criteria were based on

- law, regulations, standards and indicators, international benchmarking;
- indicators and parameters set by government;
- the fisheries Policy Objectives outlined during the audited period; and
- international conventions.

Audit findings

The Court of Accounts issued a series of observations and has criticized the Department for failing to translate the objective of preserving fish stocks into concrete actions.

Recommendations

In this regard, the Court has set some recommendations for protecting national fishery resources better.

The main recommendations made by the Court are:

- to strengthen the effective agents of control and surveillance, and ensure their proper geographic distribution;
- to conduct a review of the extent of “gel des investissements” in the fleet for better conservation of fishery resources while complying with the laws and regulations; and
- to proceed to establish an institutional, legal, economic, social, and commercial aquaculture which helps to preserve coastal biodiversity and fisheries, as well as fish stocks.

Follow-up actions

No follow-up or post-audit actions by government or SAI were taken.

Exhibit 15

The Netherlands. Sustainable fisheries, 2008.**History**

There is worldwide concern about the consequences of intensive fishing at sea. Many species of fish are being overfished. EU policy to combat overfishing in European waters is directed at the “sustainable management” of marine life, taking account of both environmental and economic interests. The Netherlands Court of Audit investigated whether the Netherlands was succeeding in implementing and enforcing EU fisheries policy and whether the sustainability goals were being achieved.

Audit objectives

The study sought insight into the causes of failure or inadequate realization of policy goals and tried to find recommendations for improving policy and implementation.

Scope (lines of enquiry)

The audit questions were:

- What are the results of the fisheries policy in terms of sustainability?
- What causes lack of success?
- How is the European Fisheries Policy enforced in the Netherlands?
- How effective has the fleet reduction policy been in terms of economic sustainability?
- What are the results of innovation policy for the reduction of ecological damage?

Criteria

- European legislation on Common Fisheries Policy
- Dutch legislation on fleet reduction
- Standards of the Netherlands Court of Audit for quality of policy information, for policy effectiveness, and for supervision and enforcement

Audit findings

The Netherlands is not fulfilling its ambitions of protecting fish stocks and biodiversity in the North Sea. Economic interests take precedence in policy decisions. Both the economic position of the fishing industry and the ecological condition of the North Sea suffer as a result.

Four factors play a role:

- The EU policy on catch quotas is ineffective. The policy is directed solely at maintaining species of fish that are sold for consumption and takes no account of the undesirable impact on the ecosystem.
- Compliance with and enforcement of regulations are under pressure. The enforcement capacity formally satisfies EU regulations but there are shortcomings in practice. There is large-scale evasion of the rules by fishers. The Dutch Minister of Agriculture, Nature and Food Quality has not taken a decision on the required compliance rate. There is therefore no criterion to assess the adequacy of enforcement capacity.
- Innovations in fishing methods could reduce damage to the North Sea. Although the problems and the potential solutions have been known for many years, innovation policy did not get off the ground until 2007, partly on account of rising fuel prices.

Exhibit 15

- Rationalisation of the fishing industry would help the industry remain profitable despite the catch quotas.

Although the Dutch cutter fleet has fallen in number since 1994, it is uncertain how effective the rationalisation has been in terms of profitability of the remaining vessels. This is because the rationalised vessels retain their fishing rights and the remaining vessels must buy or rent them.

Recommendations

- At national level, measures should be taken to protect biodiversity in the North Sea. The responsible Minister should actively encourage innovation in the fishing industry, and should also decide on the optimal size of the sea fishing fleet in relation to the catch quotas. Furthermore, the Minister should set a required compliance rate in order to decide on the necessary enforcement capacity. At EU level, the Minister should bring pressure to bear in Brussels to co-ordinate fisheries policy, nature policy and water policy. The Minister should also call at European level for an amendment of the regulations on landing fish in order to address the discard problem. In other areas, European rules should be simplified in order to increase fishermen's willingness to comply with them.

Follow-up or post-audit action by government or SAI

Response of the Minister

The Minister of Agriculture, Nature and Food Quality considered most of the conclusions and recommendations seriously, but did not accept the recommendations about the required enforcement capacity and optimal fleet size.

Current status

The report was submitted to the House of Representatives on 30 October 2008.

Reference

Netherlands Court of Audit. 2008. Duurzame Visserij/ Sustainable Fisheries.

Available at: www.courtsofaudit.com/english/News/Audits/Introductions/2008/10/Sustainable_Fisheries (English version)

www.rekenkamer.nl/zoekresultaten?freetext=Sustainable+fisheries++&zoek-submit=Zoek (Dutch version)

Exhibit 16

New Zealand. Ministry of Fisheries: Information requirements for the sustainable management of fisheries, 1999 (and follow-up report, 2005).

Background

The Office of the Auditor-General of New Zealand audited whether the agency managing fisheries, the Ministry of Fisheries (the Ministry), had enough information to ensure that the fisheries were being managed in a sustainable way, and to their full economic potential.

The risks were two-fold:

- particular stocks could be over-fished, risking the survival of the stocks; and
- particular stocks could be under-fished, depriving New Zealand of export income, employment opportunities in the fishing industry, and tax revenue.

The Ministry maintained it had sufficient information to manage the nation's fish stocks without necessarily knowing their status in detail. Specifically, it considered that it had enough data on productivity, growth rates, and commercial catches to advise the Minister of Fisheries on management approaches.

Audit objectives

To audit the sustainable management of a natural resource such as fisheries requires determining:

- what information needs to be known about the resource;
- how information can be obtained; and
- what information has been obtained.

The audit developed expectations of the type of information that the Ministry would need to use to give advice to the Minister of Fisheries for the purpose of setting annual catch levels for each fish stock.

The audit assessed the information used to support management decisions for 8 key species (hoki, orange roughy, snapper, ling, bluenose, paua, rock lobster, and squid) and the 44 fish stocks containing these species against the expectations. The species in those 44 fish stocks represented 60% by value of all fish caught in New Zealand's exclusive economic zone.

Audit findings

The audit found that the Ministry was unable to be certain if 31 of the 44 fish stocks examined were being managed to their potential, or in some cases, whether they were being utilized in a sustainable way at all.

Because of the significant information gaps, the audit found that the Ministry managed most fish stocks without being sure if the management was sustainable.

Exhibit 16

New Zealand. Ministry of Fisheries: Information requirements for the sustainable management of fisheries, 1999 (and follow-up report, 2005).

The audit considered that scientific understanding of the complex biological, ecological, and environmental factors that affect fish stocks would always be incomplete. These uncertainties, the audit said, should be explicitly stated so that decision-makers were aware of the limitations of the information they used to make decisions on the size of the total allowable catch.

The audit also found that the Ministry had been slow to fulfill the environmental requirements of the Fisheries Act 1996 (the Act).

Recommendations

The audit recommended that the Ministry should:

- ensure that all information on the status of the fish stocks clearly specified the level of uncertainty in that information;
- recognize and address the level of uncertainty of the status of fish stocks in its annual research and management documents;
- ensure that it gathered enough research-based data to allow stocks to be fished for maximum sustainable yield – that is, the largest amount of fish that can be harvested over time without damaging the productive capacity of the stock; and
- give greater priority to its legal obligations to protect the marine environment from any damage that might be caused by fishing operations. This would also require more research-based information.

Follow-up actions

A follow-up audit in 2005 looked at whether the Ministry had acted on the recommendations in the 1999 report.

The follow-up audit found that the Ministry had:

- provided clear assessments of the limitations of the information held on the majority of New Zealand's fish stocks. However, a small number of assessments were either contradictory or did not know whether existing catch levels were sustainable. The audit said that the Ministry should state the level of risk to such stocks;
- prepared a series of 3- to 5-year research plans for the major fish species, to address the gaps in its research; given greater priority to fulfilling the environmental requirements of the Act. Some fishing areas had been closed to fishing methods that damaged the seabed. Action had also been taken to limit the by-catch of New Zealand sea lions, dolphins, and seabirds;
- started to prepare environmental standards for the management of New Zealand's fisheries, and their marine environment; and

- begun work on a website that would contain up-to-date information on how our fisheries were being managed, conveyed through a set of environmental performance indicators.

Recommendations

For further improvement, the follow-up audit recommended that:

- In all cases, the Ministry of Fisheries should provide in its annual stock assessment reports consistent, up-to-date, and complete information on the sustainability of fish stocks.
- Where it was not known if current levels of fishing, or the current total allowable commercial catch, were sustainable, the Ministry should provide an assessment of the risk to the stock if current fishing and catch levels were maintained.
- The Ministry should improve its proposed strategy for managing the environmental effects of fishing by:
 - implementing the improvements to its reporting on the status of species and habitats affected by fishing;
 - implementing environmental risk assessments for fisheries;
 - completing the environmental performance standards for the management of fisheries as soon as possible; and
 - ensuring that when the standards for the management of fisheries and their marine environment were finalized, they were written in sufficient detail to be measurable, and that it would be clear to all parties when a breach of the standards had occurred.
- The Ministry should complete the work on its website for the environmental performance indicators programme for fishing and the marine environment. The Ministry would also need to ensure that data for the website is kept up to date.

References

Office of the Auditor-General. 1999. Information Requirements for the Sustainable Management of Fisheries. Available at: www.oag.govt.nz/central-govt/5th-report-1999/docs/part5.pdf

Office of the Auditor-General. 2005. Ministry of Fisheries: Follow-up report on information requirements for the sustainable management of fisheries. Available at, www.oag.govt.nz/2005/fisheries/

Exhibit 17

The Office of the Auditor-General of Norway's investigation of the management and control of fish resources in the Barents Sea and the Norwegian Sea: Parallel audit conducted by the Office of the Auditor-General of Norway and the Accounts Chamber of the Russian Federation, November 2007.

History

Illegal and unregistered fishing in the Barents Sea and the Norwegian Sea has been a serious problem. Norway and Russia jointly manage the fish stocks of North-East Arctic cod, North-East Arctic haddock and capelin through the Joint Norwegian-Russian Fisheries Commission. The parties have agreed that the problem of illegal and unregistered fishing is serious, but have not reached agreement on the extent of the activity. Therefore, The Office of the Auditor General of Norway (OAG) and the Accounts Chamber of the Russian Federation conducted a parallel performance audit of the management of fish resources in the Barents Sea and the Norwegian Sea.

Objective

The objective of the parallel audit was to assess the efficiency and effectiveness of national follow-up and implementation of bilateral agreements between Russia and Norway and decisions made by the Joint Norwegian-Russian Fisheries Commission.

Scope

The audits were conducted in parallel in the sense that common general audit questions and audit criteria were defined and a common structure for the two reports was developed. The SAIs wrote separate audit reports. Common findings were presented in a joint document, a memorandum. The OAG audit report covered six topics. One of them was an analysis of the execution of the joint Norwegian-Russian programmes for research on living marine resources, adopted by the Fisheries Commission.

Common audit criteria

Bilateral fisheries agreements between Norway and Russia and protocols of sessions of the Joint Norwegian-Russian Fisheries Commission. More detailed audit criteria were derived for the Norwegian investigation.

Common findings

The Office of the Auditor-General of Norway and the Accounts Chamber of the Russian Federation agreed that the execution of scientific expeditions is a necessary prerequisite for acquiring reliable assessments of the state of joint stocks and for preparing a scientific basis for the setting of quotas for sustainable and rational fishing. Estimates of the stock size of a living marine resource are based on data from research expeditions and fisheries statistics. The large unregistered figures for fishing make the fisheries statistics unreliable, which increases the importance of the research data as a basis for estimating stocks. When the actual catch level additionally exceeds the precautionary limit, it becomes even more necessary to monitor stock developments closely through research expeditions.

Scientists from both Norway and Russia had problems carrying out their research expeditions as planned in 2004–2005. The Office of the Auditor General of Norway and the Accounts Chamber of the Russian Federation acknowledged that this situation was unsatisfactory since the conducting of expeditions is vital to enable reliable stock estimates to be drawn up as well as scientifically-based quota recommendations.

Recommendations

None.

Follow-up actions

The Office of the Auditor General of Norway and the Accounts Chamber of the Russian Federation agreed to follow up the parallel audit over three years (2007-2010) to assess whether the results of the audit have contributed to a more efficient and effective management of shared living marine resources in the Barents Sea and the Norwegian Sea and whether the audit has helped to solve the problems of illegal fishing and trans-shipment in these ocean areas.

Reference

Office of the Auditor General of Norway. 2007. The Office of the Auditor General's investigation of fish resources in the Barents Sea and the Norwegian Sea – a parallel audit conducted by the Office of the Auditor General of Norway and the Accounts Chamber of the Russian Federation.

Available at: www.riksrevisjonen.no/en/Reports/Pages/Dokumentbase_Eng_Doc_3_2_2007_2008.aspx

A memorandum to the report is available at: www.riksrevisjonen.no/en/SiteCollectionDocuments/Dokumentbasen/Engelsk/Document%203/Doc_3_2_2007_2008_eng_Memorandum.pdf

Exhibit 18

South Africa. Report of the Auditor-General to Parliament on a performance audit of the handling of confiscated abalone at the Department of Environmental Affairs and Tourism, June 2009.

History

On 18 March 2008 the Auditor-General engaged with the accounting officer (AO) of the Department of Affairs and Tourism (DEAT) to perform a performance audit on the handling of confiscated abalone. The audit was requested by the Standing Committee on Public Accounts (SCOPA).

The Marine and Coastal Management (MCM) branch of the DEAT is tasked with managing the development, sustainable use and orderly exploitation of our marine and coastal resources, as well as protecting the integrity and quality of our marine and coastal ecosystems.

The MCM has identified the combating of illegal harvesting of abalone as a key objective in terms of its mandate. The MCM discharges this objective via the monitoring, control and surveillance subprogramme, which is responsible for ensuring compliance with environmental laws and regulations.

In order to deal effectively with the threat of poaching, the DEAT has entered into co-operation arrangements with South African Police Service (SAPS), local authorities, the Directorate of Special Operations, South African Revenue Service (SARS), border units, the National Prosecuting Authority, the National Port Authorities and the Asset Forfeiture Unit.

MCM, furthermore, appointed an independent project monitoring team (PMT) to facilitate the project management in respect of monitoring, control, inspection and verification related to the tasks assigned to the processors.

Objectives

The purpose of the audit was to facilitate public accountability by bringing the findings of the performance audit to the attention of the executive authority and Parliament. Audit work was performed to provide sufficient audit evidence for the findings.

Scope

Owing to the shortcomings identified regarding the management and policing of the abalone industry, as well as the ineffective handling of confiscated abalone, the SCOPA recommended that the Auditor-General do a cost-benefit audit of the abalone industry.

Criteria

- Constitution of the Republic of South Africa, 1996
- Public Audit Act, 2004 (Act No. 25 of 2004)
- Marine Living Resources Act, 1998 (Act No. 18 of 1998)

Findings

A formal policy and/or guidelines regulating the receiving, storage, processing and disposal (handling) of confiscated abalone did not exist. While a draft policy was compiled in June 2007, it was not approved or communicated to all the role players involved in the handling of confiscated abalone. Furthermore, the draft policy was not comprehensive as it did not specify the following:

- The process to be followed to ensure that the quality of the confiscated abalone is not compromised during the period from confiscation to the time it is handed over to MCM officials.

- A requirement that service level agreements be concluded between the MCM and the other government agencies involved in the handling of confiscated abalone. Therefore, the sharing of communication and information between the MCM and other government agencies was not structured.
- Monitoring activities or management information that need to be maintained regarding the handling of confiscated abalone as well as the functions that should be performed by the MCM.
- The norms and standards for the processing of abalone (for example, the acceptable weight loss during processing). The acceptable selling methods and the circumstances under which each selling method should be used.

The DEAT did not monitor the progress of court cases relating to abalone that had been confiscated, and, therefore, did not know which court cases had been finalised and whether the samples kept for court purposes could be released for processing. Furthermore, the DEAT's records of samples of confiscated abalone kept for court purposes were incomplete. Details regarding the police investigations were not maintained for some of the samples of confiscated abalone, which could complicate the monitoring and follow-up of court cases.

Recommendations

- A policy for the handling, storage, processing and disposal of confiscated abalone, which supports the achievement of the MCM's objectives and complies with all legislation, should be approved and implemented.
- Norms and standards should be developed for the handling of confiscated abalone.
- The co-ordination and communication between the DEAT and other government agencies, as well as external agencies, should be formalised and structured.
- Control measures should be implemented to ensure that the reported cases of confiscated abalone are timeously followed up and reported.
- The MCM should ensure that tender contracts are timeously renewed or awarded to prevent unnecessary delays in the processing of confiscated abalone and the resultant loss of potential income to the MLRF.
- A costing methodology should be investigated and the prices of service providers/processing plants should be standardised in accordance with the adopted costing methodology.

Reference

Auditor-General of South Africa. 2009. Report of the Auditor-General to Parliament on a performance audit of the handling of confiscated abalone at the Department of Environmental Affairs and Tourism. Available at: www.agsa.co.za/Reports%20Documents/91172%20Abalone%20-%20DEAT.pdf

Exhibit 19

United Kingdom. Fisheries enforcement in England, April 2003.

Background

In 2003 the National Audit Office conducted an audit of the role of the Department for Environment, Food and Rural Affairs in enforcing fisheries regulations on vessels fishing in the waters around the English coast and in respect of fish landed at English ports.

Objectives

The report examined:

- the Department's role in enforcing fisheries regulations;
- the effectiveness of the Department's methods in detecting, dealing with and deterring infringements of regulations; and
- the management of its enforcement activity, which ultimately sought to maintain the economic viability of the fishing industry.

Scope

- covered the effectiveness of enforcement activities in detecting, dealing with and deterring infringements of the regulations the effectiveness of the Department's management of enforcement activity;
- focused on the fishing fleet of vessels over 10 metres long (>80% of the fishing activity in England),
- covered the work of the Department, the Sea Fisheries Inspectorate and Sea Fisheries Committees as they related to England; and
- examined data primarily for the period 2000 to 2002.

Criteria

- status of fish stocks
- numbers of inspections;
- expenditure on enforcement;
- enforcement staffing levels and distribution;
- numbers of infringements and outcomes (for example prosecutions);
- good practice approaches on compliance and deterrence;
- good practice approaches of fisheries enforcement agencies in other countries;
- good practice approaches of enforcement agencies outside the fisheries sector;
- and principles established by the Better Regulation Task Force.

Findings

- some fish stocks were under threat of total collapse and sustainability was essential for the economic survival of the fishing industry;
- the likelihood of detecting and prosecuting any particular offence was low,
- as were the penalties imposed by comparison with the potential gains from infringements;
- the department lacked flexibility in the way it deployed resources and people to improve enforcement.

Recommendations

- Make more use of landing patterns and surveillance data to target vessels suspected of breaking regulations;
- increase the options for pursuing and penalising infringements;
- maximise the likelihood that illegal landings of fish will be detected;
- enforce legislation;
- use the Regional Advisory Councils to help inform the development of enforcement practice,
- encourage more widespread support from the industry; and
- promote co-operation with others.

Reference

House of Commons Committee of Public Accounts. 2003. *Fisheries enforcement in England*.

Available at: www.nao.org.uk and www.environmental-auditing.org

Also, the executive summary of the report is available there.

Exhibit 20

The Office of the Auditor General of Norway's study of the management of fish resources 2003

Background

In 2003 the Office of the Auditor General of Norway conducted a performance audit of the Ministry of Fisheries, where it evaluated whether the management of the fishery resources was in accordance with the goal of ensuring the basic conditions for a sustainable and profitable fisheries industry.

Objectives

Four main issues were studied:

- The extent to which the resource management was in accordance with the goal of ensuring sustainable fish stocks and a lasting high return from the resources
- The extent to which the Administration's use of instruments promotes the goals of a profitable, geographically diverse and varied fishing fleet
- The extent to which the authorities' monitoring activities have helped achieve the goal of a more effective resource management
- The extent to which the Ministry has observed the requirements in the Financial Management Regulation for the Central Government concerning definition of targets and performance requirements and obtaining reports about achieved results and effects, in the areas of resource management, distribution of resources and resource control.

Approach

The management of fisheries was assessed from a resource and socio-economic perspective. Other environmentally related issues associated with fisheries, such as biological diversity, marine pollution, etc., were not included in the analysis. The audit was aimed primarily at the Ministry of Fisheries and the Directorate of Fisheries. The principal time period that was covered was the five-year period from 1998 to 2002.

- The analysis was limited to the management of wild fish in the sea and oceans and did not include freshwater and farmed fish. Analysis of the management of resources was limited primarily to the Norwegian administration's contribution to setting sustainable total quotas based on scientific advice.
- The analysis of the distribution of resources was based on three measures that contribute to the profitability of the Norwegian fishing fleet:
 - limitation of the number of fishing vessels in different fisheries and regulation groups,
 - quota allocation, and
 - adjustment of the fleet capacity to the level of resources;
- Analysis of resource control had an overall perspective with emphasis on planning, control strategies and

resource allocation. The analysis focused on the control work that takes place prior to inspections and control activities.

- Audit Criteria

Audit criteria were based on:

- the Law of the Sea Convention
- budget proposals
- reports to parliament (white papers)
- other documents prepared by government agencies
- national laws and regulations
- resource management objectives used as audit criteria: sustainability, management should be based on scientific recommendations, implementation of a precautionary approach and ecosystem-based management, facilitation of exploitation which provides a lasting high return

The Ministry of Fisheries had not succeeded in reducing the total catch capacity in the Norwegian fishing fleet. The quota agreements for the important stocks of Norwegian Arctic cod and haddock had been above the maximum harvest recommendations, but the estimates of the stocks indicated that they were now in a biologically sustainable condition. The Ministry's risk assessments in the control efforts, the monitoring of the sales organisations and the evaluation of key policy instruments, had been unsystematic and insufficiently documented.

The study showed that the Ministry of Fisheries had not followed up its own priorities concerning revising the exploitation strategies that indicate the optimal level of exploitation for the most commercially important species of fish each year. The Office of the Auditor General thus found grounds for questioning why these kinds of bioeconomic analyses are not undertaken more frequently, when it had been found that both biological and commercial sustainability are improved through a lower-level exploitation of the resources.

The study showed that the technical capacity of the fishing fleet has increased considerably, even though the number of vessels has decreased. Against this background, the Office of the Auditor General queried whether the instruments being used are appropriate in relation to the objective of reducing capacity in the fishing fleet.

Reference

Office of the Auditor General of Norway 2003 Study of the management of fish resources The full report (English version) is available at www.riksrevisjonen.no/en/SiteCollectionDocuments/Dokumentbasen/Engelsk/Document%203/Eng_Doc_3_13_2003_2004.pdf

Appendix 1: Potential methodology - Data gathering and analysis

INTRODUCTION

This is an example of a methodological approach to gather and analyze data relevant to fisheries, compiled by the SAI of Canada. The tool identifies information that can address:

- **the importance of fisheries and fisheries resources to a country**

The tool sets out questions or information required on the economic, social and cultural (for example for indigenous peoples), and environmental importance of marine and freshwater fisheries, and aquaculture to a country. While all sources of data could be important, trends over time (from data collected over a period of time) are likely to be more relevant to gain a good understanding about fisheries.

- **the fisheries governance and management framework**

The tool sets out questions intended to gather information about the country's participation in international fisheries treaties/conventions, and regional fisheries management bodies. It gathers information about legislative and policy framework for fisheries. In addition, it gathers the overview information about the fisheries administrative, scientific, monitoring, control and surveillance, and enforcement processes. This information focuses on roles and responsibilities, and cost to government.

APPLICATION AND LIMITATIONS

For those countries where fisheries resources are obviously significant, much of the information identified below may be readily available. Often the government organization(s) responsible for the fisheries have this information and can provide it to the SAI. For developing countries or areas where fisheries are only regionally significant, quantitative data may not be easily acquired or may not be reliable. However, other qualitative sources of information could be available and can reveal meaningful information about the importance and state of the jurisdiction's fisheries and fisheries resources. Sources of qualitative information include academic studies, political debates, media reports, indigenous community concerns, and other sources that may only apply to individual jurisdictions.

SAIs should review the conclusions reached with the government organization(s) responsible for the fisheries. Given the complex nature of the various factors that impact fisheries, government organization(s) and/or independent fisheries experts may be able to provide additional insight into the sustainability of the resource.

Please note that this Appendix must be read in conjunction with **Appendix 2** and the conceptual framework (**Exhibit 5**), as well as the four steps mentioned in **Chapter 2 (Exhibit 6)**.

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	FACTORS TO CONSIDER	EXAMPLES OF SPECIFIC DATA OR INFORMATION THAT CAN BE GATHERED	DOCUMENTATION
1) THE IMPORTANCE OF FISHERIES AND FISHERIES RESOURCES TO A COUNTRY			
Economic	Contribution to gross domestic product (GDP)	Fisheries GDP/National GDP	
	Harvest value	Total landed value	
	Harvest	Volume of landings by species, by area	
	Export value	Value of exports as either value added or harvest value	
	Employment	Total employment in harvesting and processing	
	Subsidies paid	Grants, tax rebates, concessions	
	Royalties earned	Revenue from fishing arrangements – either domestic or foreign	
	Investments	Market or replacement value of the fleet	
	Harvest capacity	Number of fishing vessels, and by fishing capability and equipment used.	

	FACTORS TO CONSIDER	EXAMPLES OF SPECIFIC DATA OR INFORMATION THAT CAN BE GATHERED	DOCUMENTATION
1) THE IMPORTANCE OF FISHERIES AND FISHERIES RESOURCES TO A COUNTRY			
Economic	Recreational fisheries	Direct and value added economic impact. Numbers of participants	
	Aquaculture	Similar indicators can be used as for the wild fishery without the emphasis on the harvest factor.	
	Qualitative information	Examples include media reporting, political debate, and fishing industry journals or meetings.	
SUMMARIZE THE INFORMATION GATHERED ABOUT THE ECONOMIC IMPORTANCE OF FISHERIES:			
Social	Employment	Employment by region, by subgroups	
	Income contribution	Percentage of fishers below poverty level	
	Food source	Percentage of protein sourced from fisheries. Per capita fish consumption.	
	Cultural values	Indigenous peoples use of fisheries for cultural and food. Importance of historical approaches to managing approach to fishery.	
	Qualitative information	Examples include media reporting, political debate, and academic reports.	
SUMMARIZE THE INFORMATION GATHERED ABOUT THE SOCIAL IMPORTANCE OF FISHERIES:			
Environmental	Size and health of stocks	Key stocks that are depleted, overexploited, fully exploited, or underexploited. Size of stock biomass. Size of spawning stock biomass. Catch efficiency rate (e.g. catch per unit of fishing effort). Scientific stock assessment reports.	
	Biodiversity and ecosystem interdependence	State of oceans reporting. Reporting as part of international biodiversity agreements and processes.	
	Health of habitat (e.g. coral reefs, mangroves, freshwater systems, and seagrass beds)	Same as 2. above. Indication of direct effects of fishing on habitat	
	Qualitative information	Examples include media reporting, political debate, and academic reports.	
SUMMARIZE THE INFORMATION GATHERED ABOUT THE SOCIAL IMPORTANCE OF FISHERIES:			
2) THE FISHERIES GOVERNANCE AND MANAGEMENT FRAMEWORK			
International governance	International agreements	Signatory to or acceptance of the following international fisheries agreements or codes: <ul style="list-style-type: none"> • United Nations Convention on the Law of the Sea (UNCLOS) 1982 • United Nations Implementing Agreement on Straddling Stocks and Highly Migratory Stocks (UNIA) 1995 • FAO Code of Conduct for Responsible Fisheries (1995) 	
	Regional fisheries management organizations (RFMO)	Membership and active participation in regional fisheries management organizations (only applicable where stocks significant to a nation are managed through a RFMO).	
SUMMARIZE THE INFORMATION GATHERED ABOUT THE INTERNATIONAL GOVERNANCE OF FISHERIES:			
National fisheries governance and management framework	Legislation	Fisheries legislation that establishes the requirements agreed to through international agreements and sets out the legislative framework for the agreed upon fisheries objectives and principles.	
	Policies	National fisheries policies (for example access to and allocation of fisheries resources) that consider social, economic and conservation objectives. Overview of the overall fisheries policy approach.	
	Fisheries management authority	A national fisheries management authority with the mandate to perform specified management functions set out in legislation and policy, including the capability to understand the social and economic dynamics of the fishery, and the markets in which it trades. Countries with subsistence fisheries may rely on existing institutional structures (that is, they may not have a specific fisheries management authority) and culture to manage its fisheries. Cost of providing the fisheries management function.	

	FACTORS TO CONSIDER	EXAMPLES OF SPECIFIC DATA OR INFORMATION THAT CAN BE GATHERED	DOCUMENTATION
2) THE FISHERIES GOVERNANCE AND MANAGEMENT FRAMEWORK			
SUMMARIZE THE INFORMATION GATHERED ABOUT THE INTERNATIONAL GOVERNANCE OF FISHERIES:			
National fisheries governance and management framework	Fisher organizations	Role played by fisher organizations in the management of fisheries (indicator of maturity in fisheries management approach). If a co-management approach is followed, fisher organizations may bear some or all of the costs of managing the fishery.	
	Science function	Science capability to understand the status, trends, cause-effect relationships of fisheries resources, and the environment in which they live. Cost of providing the scientific function.	
	Monitoring, control, and surveillance	Monitoring, control, and surveillance approaches appropriate to the fishery. Cost of providing the monitoring, control, and surveillance function.	
	Enforcement	Effective enforcement and sanction. Cost of providing the enforcement function.	
SUMMARIZE THE INFORMATION GATHERED ABOUT THE NATIONAL GOVERNANCE OF FISHERIES:			

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Appendix 2: Auditing fisheries management - Audit design matrix

The information in this appendix will provide possible ways to design the audit. The aim is to guide the auditor through the steps explained in Chapter 2. Please note that this appendix

also needs to be read in conjunction with Appendix 1 and the conceptual framework (see Chapter 1, part 7).

This audit design matrix is compiled by the SAI of Canada.

TOPIC	RISK	RESEARCHABLE QUESTION	SUB-RESEARCHABLE QUESTIONS	SUB-RESEARCHABLE QUESTIONS
International governance	<p>Failure to establish exploitation rights over all natural resources within an exclusive economic zone extending 200 nautical miles from shore.</p> <p>Failure to protect and control fisheries stocks that straddle the states exclusive economic zone or that migrate through the zones</p> <p>Lack of recognition or implementation of the guiding principles embedded in the 1995 Code of Conduct for Responsible Fisheries.</p> <p>Lack of protection for national fisheries interests within regional fisheries management bodies</p> <p>Inability to establish the legal framework for establishing fishing agreements and collecting revenue from surplus fisheries resources</p>	<p>Is the country a signatory to:</p> <ul style="list-style-type: none"> The 1982 United Nations Convention on the Law of the Sea (UNCLOS); and The 1995 United Nations Fish Stocks Agreement (UNFA)? <p>Has the 1995 Code of Conduct for Responsible Fisheries been adopted?</p> <p>Is the nation a member of the relevant regional fisheries management bodies?</p> <p>Are there missed opportunities to enter into agreements with other nations to collect revenue from the harvest of surplus stocks?</p>	<p>Are the benefits and responsibilities inherent in UNCLOS being realized by the nation?</p> <p>Has the adoption of UNFA lead to real protection and control over fisheries stocks that straddle the nation's exclusive economic zone or that migrate through the zone?</p> <p>Have the Code of Conduct's guiding principles been incorporated into national fisheries legislation and policies?</p> <p>Does the nation's participation adequately serve to protect the national fisheries interests for specific fisheries stocks being considered by regional fisheries management bodies?</p> <p>Where fishing agreements have been established, do the agreements reflect economic returns commensurate with the value of fish stocks covered by the agreement? Is the revenue due under the agreements actually collected?</p>	<p>Adopt relevant international conventions and agreements to establish exploitation rights and a management regime over fisheries resources, and to provide protection to straddling and highly migratory stocks.</p> <p>Adopt the 1995 Code of Conduct for Responsible Fisheries as the basis for long-term sustainable use of fisheries resources based on the overriding objective of conservation and management.</p> <p>Incorporate the guiding principles of the Code of Conduct for responsible Fisheries within national fisheries legislation and policies.</p> <p>Become a member of regional fisheries management bodies responsible for the conservation and management of fish stocks that have national significance.</p> <p>Establish and implement a legal and management framework for fishing agreements with other nations relating to the fishing of surplus fish stocks. Revenue due under such agreements should be collected.</p>

TOPIC	RISK	RESEARCHABLE QUESTION	SUB-RESEARCHABLE QUESTIONS	SUB-RESEARCHABLE QUESTIONS
<p>Planning, implementing and evaluating the fishery</p>	<p>No controls over access to fisheries resources.</p> <p>Inability to determine sustainable harvest limits.</p> <p>Exposure to illegal, unreported and unregulated fishing.</p> <p>Unsustainable fishing practices.</p> <p>Unsustainable exploitation of fisheries resources.</p>	<p>Do fisheries management plans exist that reflect</p> <ul style="list-style-type: none"> the national fisheries legislation, policy and the social, economic and conservation objectives set for the fishery; the area of operation and jurisdiction; the history and socio-economic importance of the fishery; information about the target species, including interactions within the ecosystem; the effects of the fishery on recruitment, abundance, spatial distribution, and age or size structure of the target species, available monitoring data, and existing management procedures (including past performance evaluation)? <p>Are the fisheries planning processes supported by:</p> <ul style="list-style-type: none"> a science capability that can understand the status, trends, cause-effect relationships of fisheries resources, and the environment in which they live; the capability to understand the social and economic dynamics of the capture fishery, and the markets in which it trades. <p>For small-scale, multi-species fisheries, is there evidence that the traditional management issues are leading to unsustainable fishing practices or overfishing?</p> <p>Is there identifiable fishing overcapacity problem? Is it being addressed by either input controls or through incentive adjusting measures?</p> <p>Has the actual performance of the fishery been evaluated to determine whether the social, economic, and conservation objectives are being met?</p>	<p>Do these fisheries management plans reflect</p> <ul style="list-style-type: none"> critical habitats and the potential direct and indirect impact of the fishery on them; composition of species that are retained or discarded; size of the discards; considerations for how to selectively harvest target species while minimizing unwanted by-catch; consideration of the impact of equipment on habitat and other negative environmental impacts (for example, ghost fishing by lost equipment)? <p>What are the factors that have negatively impacted the effectiveness of the traditional management approach? Can changes be made that would restore the effectiveness of the traditional management approach.</p> <p>What are the nature of the input controls used in the fishery, such as:</p> <ul style="list-style-type: none"> Allowable fishing seasons/days; Open and closed areas; Mesh sizes; Allowable equipments; and Vessel restrictions. Are these controls effective at controlling overcapacity problems? <p>Have incentive adjusting measures, such as rights-based measures been implemented? Are these measures effective at controlling overcapacity problems?</p>	<p>Establish fisheries plans that reflect the national legislation, policies, and fisheries objectives, and which support sustainable fisheries.</p> <p>Establish a science capability to understand the status, trends, cause-effect relationships of fisheries resources, and the environment in which they live.</p> <p>Establish the capability to understand the social and economic dynamics of the capture fishery, and the markets in which it trades.</p> <p>Small-scale, multi-species fisheries should continue to employ traditional management practices should they support the countries social, economic and conservation objectives for the fishery or implement adaptive change should they not be meet these objectives.</p> <p>Measures should be implemented to address fishing overcapacity problems and should be evaluated to determine the effectiveness in addressing the problem.</p> <p>The actual performance of the fishery should be evaluated to determine whether the social, economic, and conservation objectives have been met.</p>
<p>Monitoring, control, and surveillance</p>	<p>Exposure to illegal, unreported, and unregulated fishing.</p> <p>Unsustainable fishing practices.</p> <p>Unsustainable exploitation of fisheries resources.</p>	<p>Do the monitoring, control, and surveillance approaches include:</p> <ul style="list-style-type: none"> Monitoring – Collection, measurement and analysis of fisheries activity information; Control – Specification of the arrangements under which fisheries resources can be harvested; and Surveillance – Overview of fishing activity to ensure that legislation, conditions of access, and approved management measures are being followed by participants. 	<p>Do the monitoring, control, and surveillance approaches adopted have both preventive and deterrent features? The preventive features encourage voluntary compliance with the legislation, conditions of access, and approved management measures. The deterrent features support enforcement in ensuring compliance by participants. The strength of the monitoring, control, and surveillance approaches is reflected in the level of compliance that is achieved.</p>	<p>Implement monitoring, control, and surveillance approaches adapted to the nation's fisheries resource and the socio-economic circumstances in which the fishery is conducted, and which serve to ensure that the national fisheries legislation and policies are being followed.</p>

TOPIC	RISK	RESEARCHABLE QUESTION	SUB-RESEARCHABLE QUESTIONS	SUB-RESEARCHABLE QUESTIONS
Enforcement and sanction	<p>Exposure to illegal, unreported and unregulated fishing.</p> <p>Unsustainable fishing practices.</p> <p>Unsustainable exploitation of fisheries resources.</p>	Is there an enforcement function in place that enforces the national fisheries legislation?	<p>Does the enforcement function have sufficient capacity (financial, equipment, and people in the right numbers and appropriate skills) to enforce the national fisheries legislation?</p> <p>Is the existing enforcement activity sufficient to ensure that voluntary compliance is not undermined should participants see others evading the law and receiving economic returns from their illegal activity?</p> <p>Is use made of administrative sanctions (for example, the temporary loss of the right to fish) as means of promoting voluntary compliance with national fisheries legislation?</p>	<p>Develop and implement enforcement functions, including inspection, investigation, and legal processes to enforce the national fisheries legislation and support the achievement of the social, economic and conservation objectives of the fishery.</p> <p>Enforcement activity should be sufficient to ensure that voluntary compliance with national fisheries legislation is promoted.</p>

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