



SUPREME AUDIT INSTITUTION OF INDIA
लोकहितार्थं सर्वनिष्ठा
Dedicated to Truth in Public Interest



2023

COMPENDIUM on Blue Economy



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Comptroller and Auditor General of India
2023

FORWARD



Foreword

I am delighted to present the Compendium on Blue Economy at the SAI20 Summit at Goa.

Water, a fundamental element throughout human history, has had a profound impact on ancient civilizations and continues to shape our modern economy. The ability to harness water for irrigation allowed ancient societies to cultivate crops and ensure food production, while rivers served as natural trade routes, facilitating cultural exchange between diverse regions. Coastal areas became hubs for fishing, providing sustenance, and opening avenues for maritime trade and exploration.

In our present world, the concept of Blue Economy refers to sustainable use and management of marine and freshwater environments for economic growth and development. It operates as an economic system that not only generates food and energy but also supports livelihoods and drives overall economic progress and well-being. The Blue Economy extends beyond the vast oceans, embracing a diverse array of water bodies, including lakes, rivers, canals, dams, and brackish water bodies, all of which hold immense value as resources. The essence of the Blue Economy lies in striking a balance between unlocking prosperity and safeguarding the fragile equilibrium of our marine and freshwater ecosystems.

Recent reports have shed light on the pivotal role of the Blue Economy in confronting climate change and safeguarding biodiversity. Oceans, acting as extraordinary carbon sinks, absorb substantial amounts of carbon dioxide and heat from the atmosphere, thereby playing a vital role in mitigating the adverse effects of greenhouse gas emissions. Within the Blue Economy, sustainability takes center stage through the adoption of ecosystem-based approaches and the interweaving of sustainability principles.

However, the implementation and governance of the Blue Economy present complex challenges due to its cross-cutting nature and diverse regulatory landscapes. Balancing long-term sustainability and short-term growth becomes a delicate tightrope walk. As we navigate the waters of progress, we must remain steadfast in our commitment to responsible practices and ensure that the Blue Economy continues to be a beacon of hope for the preservation of our planet's most precious resource: water.

Auditing the Blue Economy poses several challenges due to its complexity and multifaceted nature. The interconnected sectors and a diverse regulatory landscape make it challenging to establish a unified auditing framework. Moreover, finding a middle ground between sustainability and growth requires careful evaluation of the management and regulation of businesses within the sector, while also emphasizing the importance of protecting the livelihoods of communities in coastal areas and addressing the impact of unplanned and unregulated development. Overcoming these challenges necessitates specialized audit teams with expertise in different domains of the Blue Economy, capacity-building efforts, and the development of auditing guidelines tailored to the demands of this dynamic sector.

In line with the Goal 3 of INTOSAI of encouraging SAI cooperation, collaboration, and continuous improvement through knowledge development, knowledge sharing and knowledge services and its motto of "Mutual experience benefits all", this compendium aims to serve as a medium for sharing the audit experiences of SAIs on diverse areas of Blue Economy.

I am grateful to the SAIs and the panelists for generously sharing their rich audit experience and knowledge, without which this Compendium would not have been possible. I hope that this Compendium spurs greater interest in the INTOSAI community on audit of Blue Economy and results in closer cooperation amongst SAIs in working together in this area with immense potential



(GIRISH CHANDRA MURMU)

Comptroller & Auditor General of India

INDEX

Section Number	Contributor	Topic	Page Number
1	Preface		9
		Blue Economy and the Role of SAIs	11
2	Voices		17
	Sanjeev Sanyal	One Blue Planet, One Blue Future	19
	Girish Chandra Murmu	Blue Print for a Blue Economy	21
	Quotes	What Leaders Think	24
3	Case Studies		27
	Management of Coastal Areas		28
	SAI Australia	Regulation of Great Barrier Reef Marine Park Permits and Approvals	29
	SAI Egypt	Coastal Erosion Phenomenon and the Impact of Sea Level Rise in the Mediterranean Sea	33
	SAI India	Management of Coastal Areas	36
	SAI Spain	Audit Report on Program 456D "Coastal Action"	42
	SAI Turkiye	The Planning and Audit of The Coastal Utilization	46
	Preservation of Biodiversity		51
	SAI Canada	Protecting Aquatic Species at Risk	53
	SAI India	Preservation of Biodiversity	57
	SAI Norway	The Authorities' Work to Safeguard the Environment and Fisheries during Petroleum Related Activities in the High North	62

	Tourism and Recreational Activities Around the Oceans		65
	SAI Indonesia	Eco-Tourism	67
	Sustainable Fishing / Aqua-culture		71
	SAI Argentina	The Fisheries Policy of the Patagonian Shrimp	73
	SAI Mauritius	Performance Audit Report on Moving Towards Sustainable Artisanal Fishery	76
	SAI Morocco	Audit of the National Plan of Fisheries Development	79
	SAI Oman	Fisheries Sector Audit	83
	SAI USA	Federal Fisheries Management and Climate Change	87
	Prevention of Ocean / Coastal Pollution		89
	SAI China	Audit of Eco-environmental Protection in the Bohai Sea region.	91
	SAI Korea	Audit on Collection and Management of Marine Litter	93

Chapter 1



PREFACE

Blue Economy and Role of SAIs

Preface

SAI India

Blue Economy: Global Perspective

Coastal areas are home to 40% of the world's population, and over 3 billion people rely on the oceans for their livelihoods. In addition, the oceans, seas, and coastal areas contribute significantly to food security and poverty eradication. "Blue Economy" has emerged as a critical concept in recent years in response to the various challenges confronting the world's oceans and coastal areas. Initially introduced by the United Nations at a conference in 2012, it emphasized the importance of sustainable management for the health of marine ecosystems. However, there is no precise definition of the Blue Economy, and its scope varies depending on the country or organization that employs it.

While there is no single definition of the Blue Economy, it can be broadly understood as an economic approach that prioritizes the sustainable use and management of ocean resources. The Blue Economy encompasses a range of activities, including fisheries, shipping, renewable energy, tourism and coastal development, among others. The objective of the Blue Economy is to promote economic growth while safeguarding the ecological health of oceans and coastal areas.

Recognising the interconnectedness of ocean ecosystems, there is need for coordinated efforts among nations encompassing technology transfer and capacity building to optimize the sustainable benefits of the Blue Economy.

Blue Economy: Indian Perspective

India has a long history of recognizing the potential of its oceans, as it established a Department of Ocean Development in 1981, now known as the Ministry of Earth Sciences. With a 7,517 km long coastline and over 4 million fishermen and coastal communities, India's Blue Economy is vital for the nation's economic growth. The Government's Vision for India 2030 includes the development of the Blue Economy as one of its ten dimensions, stressing the need for a coherent policy integrating different sectors. The draft policy on India's Blue Economy focuses on seven thematic areas, including national accounting

framework for the Blue Economy and ocean governance; coastal marine spatial planning and tourism; marine fisheries, aquaculture, and fish processing; manufacturing, emerging industries, trade, technology, services, and skill development; logistics, infrastructure and shipping including transshipment; coastal and deep-sea mining and offshore energy; security, strategic dimensions, and international engagement. These initiatives are critical to strengthening India's maritime interests and accelerating development and employment for coastal communities.

The Government of India has embarked on an ambitious project, the Jal Jeevan Mission, with the aim of providing potable drinking water to every rural household. The mission focuses on providing functional tap connections and ensuring water of prescribed quality on a regular basis. Its components include piped water supply, reliable sources, water quality interventions, grey water management, and support activities. The mission supports states in planning participatory strategies, creating infrastructure, developing institutions, and raising awareness about the significance of water. Notably, the mission has achieved a remarkable increase in functional household tap water connections, rising from 32.3 million to 1.1 billion in just two and a half years.

Artificial Intelligence and Blue Economy

The potential for using Artificial Intelligence (AI) in the Blue Economy is immense. One key application of AI is in ocean monitoring and management, where it can play a pivotal role. AI-powered systems have the capability to analyze large volumes of real-time data obtained from satellites, buoys, and underwater sensors. By doing so, they can effectively detect harmful algal blooms, illegal fishing activities, and pollution levels. These valuable insights enable prompt decision-making and effective resource allocation, leading to more efficient and sustainable practices.

Another area where AI can make a significant impact is in marine resource exploration and sustainable fisheries management. Machine learning algorithms have the ability to analyze historical fishing data, weather patterns, and oceanographic information. By leveraging these datasets, AI can predict fish stocks and guide sustainable fishing practices, thereby helping to prevent overfishing and in maintaining the balance of marine ecosystems. Additionally, AI-driven autonomous underwater vehicles (AUVs) could revolutionize marine habitat mapping and the identification of biodiversity hotspots. These AUVs can efficiently and cost-effectively explore and map marine environments, providing valuable data for conservation efforts.

Overall, AI has the potential to empower the Blue Economy by optimizing resource management, promoting sustainable practices, and safeguarding marine ecosystems. By harnessing the potential of AI technologies, we can work towards a more sustainable and prosperous future for the Blue Economy.

Challenges and Opportunities

The oceans are under severe threat from human activities, with economic profits often coming at the expense of environmental degradation. The consequences of these activities include acidification, pollution, ocean warming, eutrophication, and fishery collapse, all of which are detrimental to the planet.

The Blue Economy is linked to Sustainable Development Goal 14, which aims to conserve and sustainably use oceans, seas, and marine resources. The United Nations proclaimed a Decade of Ocean Science for Sustainable Development from 2021 to 2030 to promote the use of ocean science and knowledge for achieving the Sustainable Development Goals, across all stakeholders. The decade seeks to encourage integrated and interdisciplinary approaches to sustainable ocean management through collaboration of scientists, policy makers, local communities, industry, civil society.

The Blue Economy presents a unique opportunity to create economic growth while also protecting the environment. For example, businesses can develop ways to utilize Sargassum, a seaweed that has been washing up on many Caribbean beaches, to create new economic opportunities. Revitalizing the aquaculture and local fishing industries can create jobs and enhance livelihoods while promoting sustainable fishing practices. The construction of offshore wind farms can promote the use of renewable energy sources and decrease dependence on fossil fuels. Addressing marine pollution and debris can aid in the preservation of marine ecosystems while also creating jobs in waste management. Enhancing coastal resilience in response to climate change can safeguard coastal communities from its impacts while also promoting sustainable development.

However, conserving underwater ecosystems is not an easy task, as humans have only explored a fraction of the ocean. AI-powered marine technologies can help by providing more accurate and real-time data from oceans and coasts. For example, underwater cameras on remotely operated vehicles have greatly improved the collection of marine ecology data in the past decade. But this data needs to be processed and analyzed effectively, which is where AI can play a role.

In this context, one of the most significant challenges to Blue Economy is the lack of coordinated international action and regulation. While some countries have made progress in developing policies and initiatives to support the Blue Economy, there is still a need for greater collaboration and cooperation at the global level.

Role of Supreme Audit Institutions

The Supreme Audit Institutions (SAIs) have a critical role to play in achieving the United Nations' Sustainable Development Goal 14, which aims to reverse the damage done to our oceans and promote the development of the Blue Economy. Through scaling up their audits, conducting marine audits, and developing study papers on the condition of the Blue Economy, SAIs can provide valuable insights for nurturing sustainable Blue Economy development. SAIs can also

collaborate on joint research papers on marine health, share practical knowledge and expertise through guidelines, toolkits, and surveys, and conduct joint audits to enhance global efforts towards achieving SDG-14.

Supreme Audit Institutions can play a crucial role in shaping the future of our oceans and the Blue Economy. As custodians of public accountability and performance, SAIs possess a unique ability to ensure that governments take the necessary actions to protect our marine ecosystems and promote sustainable development. By acting now, SAIs can make a lasting impact on the well-being of our planet and future generations. A good beginning could be made by identifying the focus areas for audits relating to Blue Economy. This for instance could be (a) management of coastal areas (b) preservation of biodiversity (c) Tourism and recreational activities (d) sustainable fishing/aquaculture (e) prevention of ocean/coastal pollution (f) Transport (g) energy production and minerals (h) climate change etc.

Challenges and Suggestions for Audit Institutions

Auditing the Blue Economy poses unique challenges for SAIs due to its diverse and multidimensional nature. The complex interplay of sectors such as fisheries, aquaculture, maritime transportation, renewable energy, and ecosystem conservation demands a holistic approach to audits. SAIs face the challenge of collecting and analyzing data from multiple sources, including government agencies, research institutions, and industry stakeholders. Moreover, the dynamic nature of the Blue Economy requires SAIs to adapt their audit methodologies and techniques to keep pace with emerging trends and technologies. Collaboration among SAIs is essential to share best practices, develop common audit frameworks, and enhance knowledge exchange in the field of Blue Economy auditing. This collaborative effort can lead to the development of comprehensive guidelines covering various aspects of audit planning, execution, reporting, and impact assessment, ensuring effective and consistent audits across different jurisdictions.



Chapter 2



VOICES

One Blue Planet, One Blue Future

Sanjeev Sanyal

Member, Economic
Advisory Council to the
Prime Minister

Government of India



Voices

In today's digitally linked world, it is often forgotten that geography still matters. Specifically, the oceans continue to have a very important influence on how the world works. As the only country with an ocean named after it, India is acutely aware of this. Fortunately, there is now a growing appreciation that a maritime worldview must be an integral part of all aspects of managing the world economy and the global commons. Subsumed in the term "Blue Economy", this maritime perspective provides a distinct framework for looking at supply-chains, geo-strategic relationships, cultural linkages, environmental impact and so on. Therefore, it is important that a platform like G20 takes the maritime perspective seriously.

Maritime linkages have driven human history from ancient times. For instance, there is plenty of archeological evidence of trade between India and the Middle East during the Bronze Age (circa 2500 BCE) when merchants from the Indian state of Gujarat sailed to what is now Oman, Bahrain and Iraq to trade with the emerging urban centres in these places. By the first century BCE, there was a busy maritime trade route that extended from the eastern Mediterranean, through the Red Sea to India, and then onward to South East Asia and China. Goods, people and ideas flowed in both directions. In subsequent centuries, different groups would in turn dominate these trade routes – the Indians, the Arabs, and eventually the Europeans. Today's world remains heavily influenced by the thousands of years of maritime interaction.

Of course, the current generation of world leaders, particularly those representing G-20 countries, need to manage the maritime commons for today's challenges. Perhaps the first and most obvious step is to ensure the openness of the world's sea-lanes, the freedom of navigation in international waters and unimpeded commerce based on accepted principles of international law.

This point was succinctly made by Prime Minister Narendra Modi at the Shangri-La Dialogue in Singapore in June 2018: "We should all have equal access as a right under international law to the use of common spaces on sea and in the air that would require freedom of navigation, unimpeded commerce and peaceful settlement of disputes in accordance with international law. When we all agree to live by that code, our sea lanes will be pathways to prosperity and corridors of peace. We will also be able to come together to prevent maritime crimes, preserve marine ecology, protect against disasters and prosper from Blue Economy."¹

The second important issue with regard to the Blue Economy is that of long-term management of the environmental commons. This includes preservation of global fish stocks, coral reefs and marine life threatened with extinction. The rapid accumulation of pollutants, particularly of plastic waste and harmful chemicals, is a matter of grave concern. These threaten an important asset shared by humanity that we need to preserve for future generations.

The third issue that needs attention is that of providing support for the large number of small island nations faced with economic, geo-political and climate-related threats. India takes its responsibilities seriously and, in the last few years, it has made a special effort to help island countries in its neighbourhood such as Sri Lanka and Maldives during times of distress. The G-20 represents the world's largest economies and needs to take the lead in creating a safety-net for the small island nations.

The Blue Economy is vast subject and there are many other issues that can also be brought to the table. However, the above three areas would be a very good place to begin. While individual perspectives of countries may differ, all global leaders and maritime experts will agree that these three broad areas need serious deliberation.

¹ https://mea.gov.in/Speeches-Statements.htm?dtl/29943/Prime_Ministers_Keynote_Address_at_Shangri_La_Dialogue_June_01_2018

Blue-Print for a Blue Economy

Girish Chandra Murmu

Comptroller and Auditor
General of India



Under the Indian presidency, G20 leaders will address urgent policy needs for collective progress, equity and inclusive growth when they meet in New Delhi this year. With the summit theme of “One Earth, One Family, One Future”, India has set the tone and perspective for commitment to green development, circular economy and lifestyle behaviour changes as an actionable plan for achieving the 2030 Sustainable Development Goals. A slew of events will also be held across the country to focus on solutions to a wide range of issues from climate finance and technology sharing to financial inclusion and digital public infrastructure.

The Comptroller & Auditor General of India (CAG) will chair SAI20, the Engagement Group for Supreme Audit Institutions (SAIs) of G20 countries in Goa in June. Two priority areas have been selected for SAI20 deliberations — Blue Economy and responsible Artificial Intelligence. The engagement of SAIs in advising executives is crucial in balancing key developmental concerns while ensuring sustainable development. SAIs’ role in promoting inter-generational equity and addressing climate change concerns highlights their importance in ensuring that the benefits of economic growth are shared fairly across generations.

For SAI20, the CAG is to prepare technology-driven tools to assess authorised development in coastal stretches and track marine water quality. SAI20 member countries are being engaged in a collaborative exercise to evolve globally relevant audit toolkits along with a

compendium of case studies and challenges in the broader framework of auditing coastal spaces, which, inter-alia, include legal and institutional frameworks, compliance to coastal regulation, biodiversity conservation, capacity building and compliance to SDGs.

Interest in the Blue Economy has been steadily gaining traction in recent years. In 2018, the United Nations Environment Programme (UNEP) had for the first time laid out the Sustainable Blue Economy Finance Principles, a framework investors can use to fund ocean-based industries. Financiers can use it as a reference point to see how marine investment can impact livelihood and poverty eradication.

The four goals and 23 targets set out in the global biodiversity framework of COP15 aim to conserve and sustainably use the planet's biodiversity. These objectives focus on topics such as reducing the rate of loss of biodiversity, ensuring the fair and equitable sharing of benefits arising from the use of genetic resources, and restoring degraded ecosystems. The framework aims to strengthen cooperation and coordination among countries and stakeholders to effectively conserve biodiversity and promote its sustainable use. The biodiversity framework of COP15 serves as a blueprint for countries to work together and make progress in addressing the global biodiversity crisis. In this article, I shall touch upon the Blue, or Ocean Economy, whose global annual value is an estimated \$2.5 trillion. About 90 per cent of global trade is carried out through sea routes.

The Blue Economy encompasses an array of coastal activities, including fishing and tourism. The measurement of the Blue Economy is challenging due to conflicting definitions and issues while classifying different sectors and sub-sectors. Existing international economic classifications are unable to properly differentiate between land-based and ocean-based activities, and even the System of National Accounts (NAS) does not provide a clear understanding of the Blue Economy. Given these difficulties, a new accounting framework is needed that can objectively identify production, trade, and services related to the various segments of the Blue Economy.

As a public audit authority, the CAG values independence, accountability and transparency — ideals that shall remain the hallmark of SAI20. Our institution is a constitutional authority with wide responsibilities to strengthen democracy and governance. We have been steadfast in our commitment to improving audits performance and compliance concerning state finances, local governance and environmental auditing. Last year, the CAG released the first-ever country-wide Compendium of Asset Accounts of Natural Resources, prepared in line with the UN system of Environmental and Economic Accounts. One of the few exhaustive natural resource accounting methodologies anywhere in the world, the handbook is a guide for the government to utilise natural resources optimally.

Setting compliance standards and a national accounting framework for the Blue Economy is a long-term priority for the CAG. India has marked the Blue Economy as one of the 10 core sectors for national growth and a National Blue Economy Policy that aims to harness maritime resources while preserving the country's rich marine biodiversity has been prepared by the Ministry of Earth Sciences.

In August last year, the CAG tabled its Conservation of Coastal Ecosystem report in Parliament, which contained its observations on how the Coastal Regulation Zone (CRZ) notification for 2011 and 2019 have been implemented between 2015 and 2019. It looked at the underlining efficiency of development drivers such as project clearances, construction activity, institutional capacity to curb land and forest violations, community livelihood support mechanisms, as well as

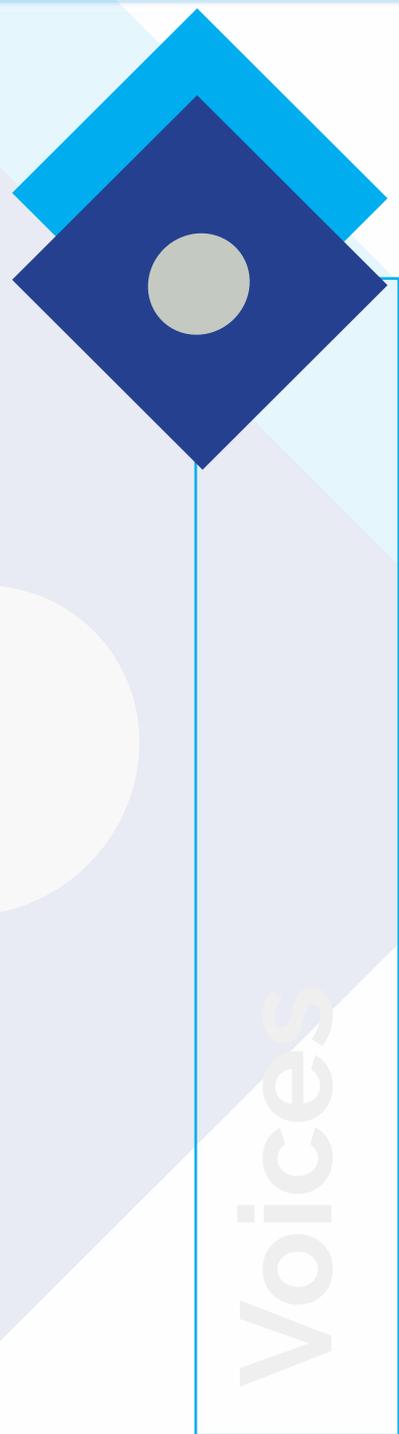
mitigation management plans to conserve biodiversities such as mangroves and near-shore coral reefs that protect us from weather vulnerabilities like storms and coastal floods. The audit resulted in focused recommendations to help improve the CRZ ecosystem.

Sea-level rise, water temperature, storm surges and wave conditions are some of the signs of climate change. We already know how unbridled land use changes, sand mining and deforestation impinge on the coastal ecosystem. In the context of India, studies indicate that hazards of cyclones and sea-level rise are likely to be higher in the coastal regions. According to one study, GIS maps from the European Space Agency indicate that 15 per cent of India's coastal areas have witnessed changes between 1992 and 2018 due to agriculture, depleting forest cover and urbanisation. Besides that, the population living along the country's coastal areas is expected to rise from 64 million in 2000 to 216 million by 2060.

Disaster-resilient infrastructure along coasts that can withstand the impacts of hurricanes, typhoons, and tsunamis is the need of the hour. This is particularly important for coastal communities that are vulnerable to the effects of sea-level rise and increasingly intense storm events. The executives should be adequately equipped with infrastructure, especially ICT hubs in place for early warning systems. The development of disaster-resilient infrastructure has implications for the auditing community, as auditors are responsible for ensuring that organisations comply with relevant regulations and standards.

The toolkits being prepared by SAI20 under the leadership of the CAG of India will be presented at the SAI20 Engagement Group meet. This will provide a unique opportunity for constructive dialogue and agreement to improve auditing of performance in specific areas of ocean-based activities. This collaborative effort would not only build capacity of auditors across SAI20 member countries initially but would also help regional auditing communities such as ASOSAI and AFROSAI by providing a common and replicable auditing tool.

This will help in the assessment of how clearly the policy goals are planned and implemented, and how resource efficiency is maintained while leveraging economic opportunities towards a truly sustainable Blue Economy-based global development model.



What Leaders Think

"The sustainable Blue Economy has many promises. Offshore wind energy, where the small island developing States could be at the forefront could provide all the energy that we need on this planet."

- Peter Thomson, UN special envoy for the ocean



"Ocean health is a moral imperative, a business imperative and a matter of global and national security. It should be recognized as a vital building block of peace and prosperity."

-H.M. Queen Noor of the Hashemite Kingdom of Jordan

"We heard of White and Green Revolution but now we need a Blue Revolution & harness the potential in fisheries sector."

- PM Narendra Modi, Prime Minister of India

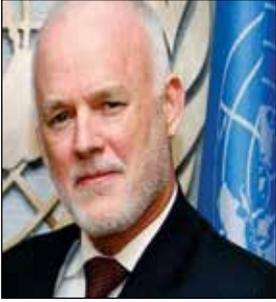


"The ocean and nature can live without us, but humanity can't live without nature."

-Gloria Fluxà Thienemann, Vice-Chairman and Chief Sustainability Officer, Iberostar Group

"The reality is that we're all deeply connected. Not only to each other, but to the ocean and the planet as well."

-Marc Benioff, Chair and Chief Executive Officer, Salesforce

"You cannot have a healthy planet without a healthy ocean."

-Peter Thomson, UN special envoy for the ocean

"The Blue Economy allows countries like Seychelles to put oceans at the center of our finances. We are not a small island state-we are a large ocean nation!"

-Ronald Jumeau, Seychelles Ambassador to the UN




"If the Ocean were a country, it would have the seventh largest economy in the world."

-World Wildlife Fund



Chapter 3



CASE STUDIES



MANAGEMENT OF COASTAL AREAS

Coastal land management involves the sustainable use and conservation of land resources in coastal areas, considering the unique challenges and vulnerabilities associated with coastal environments. It encompasses strategies for protecting and preserving coastal ecosystems, managing land use activities and addressing the impacts of climate change and coastal hazards.



SAI Australia

Regulation of Great Barrier Reef Marine Park Permits and Approvals

Introduction of Area Audited

The Great Barrier Reef (the Reef) extends along the east coast of Queensland from Cape York to Bundaberg (approximately 2300 kilometres) and makes up around 10 per cent of the world’s coral reef ecosystems. In 1981, the Reef was declared a World Heritage Area. The Great Barrier Reef Marine Park Authority (GBRMPA) estimates that the Reef contributes approximately \$6.4 billion each year to the Australian economy and around 64,000 full time jobs.



GBRMPA has primary responsibility for implementing the Great Barrier Reef Marine Park (the Marine Park) regulatory framework. This framework includes a permit system for particular activities within the Marine Park. Permits must be obtained prior to commencement of these activities. GBRMPA imposes permit conditions that it considers are necessary to manage the risks to the Marine Park posed by proposed activities. As a

Source: GBRMPA.

Case Studies

consequence, permit holders' continuing compliance with permit conditions is a key means by which risks to the Marine Park are managed.

Effective regulation of permits and compliances in the Marine Park is critical to provide for the long-term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region.

The Australian National Audit Office (ANAO) has performed two audits of the regulation of the Great Barrier Reef Marine Park permits and approvals:

1. Regulation of Great Barrier Reef Marine Park Permits and Approvals | Australian National Audit Office (ANAO)² – August 2015
2. Regulation of Great Barrier Reef Marine Park Permits and Approvals — Follow-up | Australian National Audit Office (ANAO)³ – June 2021

Key Audit Objectives

The objective of the August 2015 audit was to assess the effectiveness of the Great Barrier Reef Marine Park Authority's regulation of permits and approvals within the Great Barrier Reef Marine Park.

To form a conclusion against this objective, the ANAO assessed the following:

- Whether an effective process to assess permit applications and attach enforceable conditions has been established;
- Whether a structured risk management framework to assess and manage compliance risks has been implemented;
- Whether an effective risk-based compliance program to communicate regulatory requirements and to monitor compliance with permit conditions and regulatory objectives has been implemented; and
- Whether arrangements to manage non-compliance are effective.

Key Findings

The ANAO concluded that, in relation to the regulation of permits, there were shortcomings in the Authority's regulatory processes and, more particularly, its regulatory practices. These shortcomings had undermined the effectiveness of the permitting system as a means of managing risks to the Marine Park.

As part of the audit the ANAO considered whether an effective risk-based compliance program to communicate regulatory requirements and to monitor compliance with permit conditions and regulatory objectives had been implemented.

² <https://www.anao.gov.au/work/performance-audit/regulation-great-barrier-reef-marine-park-permits-and-approvals>

³ <https://www.anao.gov.au/work/performance-audit/regulation-great-barrier-reef-marine-park-permits-and-approvals-follow-up#footnote-110-backlink>

The ANAO found that compliance monitoring is undertaken within the Marine Park through field compliance operations based on intelligence and an analysis of strategic and emerging risks. Nevertheless, GBRMPA's monitoring of post-approval reporting requirements and the conduct of field compliance operations, in isolation, did not sufficiently address all aspects of potential permit non-compliance. The delivery of supplementary compliance monitoring activities, such as risk-based site inspections, provides additional assurance relating to certain types of permitted activities, including sub-surface infrastructure. The use of supplementary monitoring had, however, been limited, with weaknesses evident in the delivery and documentation of these monitoring activities. While the limited numbers of site inspections that had been conducted provided insights into permit holders' compliance, they had not been delivered as part of a coordinated, risk-based program.

To improve GBRMPA's regulation of Marine Park permits and to inform the work being undertaken to enhance compliance management practices, the ANAO made five recommendations to strengthen the:

- processing of permit applications;
- rigour of the permit application assessment and decision-making processes;
- effectiveness of permit conditions;
- effectiveness of permit compliance monitoring; and
- response to instances of non-compliance.

Impact of Audit

GBRMPA accepted all five audit recommendations. This included a five year plan intended to address these recommendations by the end of 2019–20.

In 2016, the Joint Committee of Public Accounts and Audit (JCPAA) examined this audit report in an inquiry. The JCPAA noted the audit conclusion and made three recommendations to GBRMPA.

In June 2021 the ANAO conducted a follow-up audit to examine the effectiveness of GBRMPA's regulation of permits and approvals, including its implementation of recommendations from the August 2015 audit. The rationale for this audit was the need for assurance that GBRMPA had implemented appropriate systems to manage risk and preserve the environmental, social and economic significance of the Marine Park and its World Heritage listing.

The June 2021 audit concluded that GBRMPA's regulation of permits and approvals is partially effective. It found that arrangements for managing and monitoring permissions are partially appropriate. Key components of a compliance monitoring framework were not implemented until 2021. Further improvements are required to fully implement recommendations from the August 2015 audit in respect of implementing a coordinated, risk-based program of compliance monitoring activities.

Once fully implemented, changes to permissions monitoring and non-compliance management introduced in early 2021 have the potential to improve regulation of permits and approvals. GBRMPA has not fully implemented the recommendations from the August 2015 audit.

This audit made seven further recommendations. These included a recommendation for the GBRMPA to establish a performance framework that includes clear external and internal performance measures, including regulator performance reporting. This framework should incorporate efficiency measures.



Innovative/ good practices, followed in the audit.

In undertaking the August 2015 audit, the ANAO reviewed GBRMPA's files and records, including those related to sampled permit application assessments, monitoring activities and enforcement actions. The ANAO accompanied departmental staff on compliance monitoring activities and assessed the controls for the two IT systems that support GBRMPA's assessment, monitoring and enforcement activities. Staff assigned to the Joint Field Management Program, were also interviewed. In addition, the views of relevant stakeholders were sought on GBRMPA's regulation of Marine Park's permits and approvals.

One of the patrols observed by the ANAO is illustrated in Figure 6.1 in the audit report: Helicopter Patrol—Cairns to Townsville

Source: ANAO images and map prepared using Google Earth.

Coastal Erosion Phenomenon and the Impact of Sea Level Rise in the Mediterranean Sea



Introduction of Area Audited

According to the Intergovernmental Panel on Climate Change (IPCC), Egypt is considered one of the highly vulnerable countries to climate change, and the future projections indicate that Egypt will suffer from the impacts of the consequences of climate change in terms of sea level rise, water scarcity, increase in the frequency and intensity of extreme weather phenomena such as heat waves, floods, heavy rains, and sand and dust storms.

Above factors will lead to significant impacts on the infrastructure, beaches and fertile lands of the Nile Delta because they are exposed to erosion, salt water intrusion and flooding, a matter of which entails the need to follow strict policies to address the beach erosion's phenomenon and the shore line corrosion. It was a given fact that preserving sea level benefits the citizens' safety, and preserves industrial, agricultural, tourism and sustainable fishing projects on the Egyptian coasts, in a manner that enables the economic development in those areas. In addition, it helps preserving the archaeological areas

located on the Egyptian coasts, in a way that allows achieving future economic and social development and preserving the natural resources for future generations.

Key Audit objectives

Audits were conducted for:

- Evaluating policies addressing the phenomenon of coastal and shoreline's erosion and the impacts of the rise in sea level, in light of Egypt's commitments to Goal 13 of the SDGs "Take urgent action to combat climate change and its impacts" and Goal 14 "Conserve and sustainably use the oceans, seas and marine resources" to achieve sustainable development, as well as Paris Agreement to strengthen global action to address climate change under the United Nations Framework Convention on Climate Change UNFCCC.
- Evaluating the preservation of the natural capital of various marine and coastal ecosystems, and sustainable fisheries, which present a challenge for achieving food security and climate adaptation, as one of the elements of moving towards the Blue Economy. Assessing the contribution of the activities that take place in this regard and evaluate their performance by providing information to the beneficiaries.

Key Findings

Audit made the following important observations:

- Insufficient global funding, as the actual implementation of mitigation and adaptation measures and the orientation towards the Blue Economy is linked to the provision of adequate and appropriate international funding through grants and finance on very concessional terms as needed.
- The need for capacity building and technology transmission.
- The necessity to implement control systems that would protect beaches from encroachments and inability to achieve the progress according to the required rates.

Impact of Audit

Audit observations led to:

- Directing the government through the audit recommendations towards addressing deficiencies through carrying out financial, performance and compliance audits, as well as providing information for governments and stakeholders to benefit thereof and work towards the full implementation of the 2030 Agenda.
- Building a national system for monitoring, reporting and verification, helps in following up and planning climate action and heading to wards

the Blue Economy by protecting beaches and applying sustainability standards by the competent entities in identifying new projects and involving stakeholders.

- Developing an Integrated Coastal Zone Management (ICZM) plan capable of adapting to climate for the northern coast of Egypt linking land use development plans with coastal protection work.

Innovative/good practices, followed in the audit

- SAI Egypt has developed a model and framework for implementing a program for financial audit of coastal protection projects, following up and evaluating performance during the implementation process, identifying deviations and correcting them, and ascertaining the extent of compliance with laws, plans, programs and protocols signed with countries, donors and lenders.
- The technical opinions of some specialists and experts were also used with regard to technical aspects and the use of efficient systems to analyze data related to geographic information systems, satellite data, and early warning systems.

Other related matters

- Audit conducted a series of interviews to obtain some inquiries and replies related to the operations that are being implemented and field visits.
- Audit verified the existence of environmental impact assessment studies, and associated economic feasibility studies, and the availability of funds necessary for implementation in addition to evaluating the environmental impacts of the implemented projects.
- Audit noticed that to avoid the accumulation of plastic waste in the marine and terrestrial environment and to increase the production of environmentally friendly petrochemicals, two programs were planned; viz. Manufacture of biodegradable plastic bags and conversion of plastic waste into oil as an intermediate product for the production of polyethylene.

Management of Coastal Areas

Introduction of Area Audited

The coastal zone of India with a coastline of about 7,516 kms stretches across nine states. It comprises of coastal land, intertidal area, coastal ecosystems including rivers, estuaries, marshes, wetlands and beaches that are home to major ecosystems like Mangroves, Coral reefs, Sea Grass, Mud Flats, Estuaries/backwaters Lagoons, Sand Dunes etc. Increasing human population, urbanisation and accelerated developmental activities near the coastline has put considerable pressure on the fragile coastal ecosystems of India.

The Government of India formulated the Coastal Regulation Zone Notifications under the Environment Protection Act, 1986 to regulate the activities in coastal space with an objective of conserving and protecting coastal stretches and promoting development in a sustainable manner. Coastal Regulation Zone Notifications aim to classify the coastal area into different zones and manage the activities in an integrated manner. Ministry of Environment, Forest and Climate Change (MoEF&CC) and Ministry of Earth Sciences (MoES) are the two nodal Ministries that are primarily responsible for the regulation and management of coastal and ocean areas in India.

Pre-audit studies conducted to understand the risks in coastal zone management revealed that there were large scale violation of the CRZ notifications in the coastal stretches. Incidence of illegal construction activities, effluent discharges by local bodies, industries and aquaculture farms had been recorded in various data sources. It was imperative to assess the implementation of Coastal Zone Regulation Notifications 2011 in order to evaluate the success of the efforts of Government of India towards protection and conservation of coastal environment.

Key Audit Objectives

Based on the above, SAI India decided to take up a Performance Audit on “Conservation of Coastal Ecosystems” with the following objective to examine:

- whether institutional mechanism exists at Centre as well as State to regulate the activities in CRZ areas as per the provisions of CRZ notification 2019?

- whether CRZ clearances granted by the Government are as per due procedure, to conserve coastal ecology?
- whether post clearance monitoring as well as enforcement of CRZ notifications safeguarded coastal ecosystems?
- whether the project development objectives under Integrated Coastal Zone Management Programme were achieved?

Key Findings

- **Creation and functioning of the institutional mechanism for conservation of coastal ecosystems**

National Coastal Zone Management Authority (NCZMA) at the central level is the key institution for enforcing CRZ notification and conserving coastal bio-diversity. We noted that MoEF&CC had not notified NCZMA as a permanent body. In the absence of defined membership, it was functioning as an ad-hoc body and could not effectively take up issues related to coastal conservation.

- **Project Clearances under CRZ Notifications**

Expert Appraisal Committees (EAC) of MoEF&CC is responsible for examining project proposals and Environment Impact Assessment (EIA) reports submitted for consideration of clearances. Audit noticed instances wherein domain experts were not present during the project deliberations by EAC. Also, cases were noted where the members of EAC were less than half of the total prescribed strength during the deliberations as there was no fixed quorum for EAC members. Projects were approved despite inadequacies in the EIA Reports which included non- accreditation of the consultant involved with the preparation of the EIA Report, usage of outdated baseline data, non- evaluation of environmental impacts of the project, non- addressal of disasters which the project area was prone to. Activities forming a part of the mitigation plans like mangrove conservation/ replantation, biodiversity conservation plan, rainwater harvesting plan failed to be included in the Environment Management Plan as the same was left to the project proponent to be carried out.

We observed projects where MoEF&CC relied on the information submitted by the Project Proponent with respect to potential ecological risks due to the project activities, without verification.

Instances were observed where the State level Coastal Zone Management Authority (SCZMA) rather than recommending the projects to relevant authorities, granted clearance on its own. Further, SCZMAs recommended many projects without the submission of mandatory documents.

- **Post Clearance Monitoring and Enforcement of CRZ Notifications**

SCZMAs in every coastal state and union territory and District Level Committees (DLCs) in every district are the institutions responsible for the implementation of the CRZ notification at local level. We noticed that SCZMAs/DLCs was not reconstituted in many of the coastal states and there was delayed reconstitution in others. SCZMAs held meetings without fulfilling the quorum requirements and lacked representation from relevant stakeholder bodies. In few

states DLCs did not have participation from local traditional communities. SCZMAs in many states did not have sufficient manpower to perform their mandate.

The gaps in the institutional framework at local level resulted in weaker enforcement of CRZ notification.

Instances were observed where the Project Proponent failed to comply with conditions mentioned in the Clearance and did not submit the mandatory half yearly compliance reports to the Regional Offices of MoEF&CC. There were cases where the projects commenced without obtaining mandatory permissions from the concerned State Pollution Control Board.

The enforcement of CRZ provisions by SCZMAs and DLCs were reviewed and instances were observed where SCZMAs/DLCs failed to take action against CRZ violations.

- **Sustainable Development Goals**

The stakeholder map prepared for the Sustainable Development Goal-14 misses out a few significant stakeholder organisations like the Indian Coast Guard and Ministry of Ports, Shipping and Waterways. The State Indicator frameworks had not been prepared by some states. Coastal states adopted the national indicators as developed by Ministry of Statistics and Programme Implementation without adapting them to the state specific environmental aspects. Also, further localization to District levels had been done only in one district by notifying District Indicator Framework (DIF).

Impact of Audit

During the Exit conference, most of the recommendations made by audit have been accepted by the Ministries and necessary administrative orders and notifications have been issued to the concerned management authorities for implementation of the CRZ notifications.

Innovative/good practices, followed in the Audit

This report focussed more on the technical and environmental side of the management than on financial aspects.

During the audit, the team used GIS tools to demonstrate that effective follow up of irregular developmental activities across the coastline is possible with use of technology and limited but trained manpower. The innovation introduced by the audit revolved around the post clearance monitoring and enforcement of CRZ regulations. Monitoring is an essential component for sustainability of any developmental project.

In addition to cases of reported violations, wherein a complaint was made, we obtained the approved Coastal Zone Management Plans (CZMPs) of all the nine coastal states. These CZMPs are in shape of a map and identify the various zonations of the given area. Depending upon the type of zonations, developmental activities are prohibited or allowed in a given area. The second step was to convert these static maps into a geo-referenced file which could interact with GIS software. Audit team used an open-source software (QGIS) to transform these static maps into a spatial file, using the geo coordinates mentioned in the CZMPs. Once these files were georeferenced, the team imported and superimposed these files in Google Earth software as a layer. These georeferenced files served as a criteria in the background and the satellite imagery from Google Earth provided the ground condition. These two layers, put together revealed a

large number of unidentified violations across the coastline. Audit examined a large number of hotspots in different coastal states to identify such violations and have included some important instances in our audit report. Some photographs of these cases are given below:



Fig 1.: Satellite Image (October 2011) of area before construction of jail complex showing empty land within the red marked area



Fig 2.: Satellite Image (December 2020) of Jail complex at Bangar within the red marked area



Fig 3.: Approved CZMP of the area on left and satellite image from 2021 for the area on right



Fig 4.: Approved CZMP of Pattipulam area indicating CRZ 1A zone in green shade and No Development Zone in yellow shade.



Fig 5.: Satellite image (March 2021) of racetrack constructed in CRZ 1A and No Development Zone area



SAI Spain

Audit Report on Program 456D "Coastal Action", Fiscal Year 2019⁴

Introduction of Area Audited

Environmental actions are significantly influencing Spain's budget. The Ministry of Finance has published in 2021 and 2022 a report on the alignment of the Budgets to the Sustainable Development Goals (SDGs) of the 2030 Agenda, which includes a specific chapter on environmental actions directly linked to the Green Budget. It is expected that by 2024, the General State budgets will be accompanied by the green budget report.

The Court of Audit already incorporated its interest and concern for environmental aspects in the planning of the 2015 fiscal year, with the modification of Article 9 of Organic Law 2/82, of May 12, 1982, of the Court of Audit, which includes, among others the principles according to which the economic financial activity of the public sector must be subject to the cross-cutting objectives of environmental sustainability and gender equality.

In recent years, the Court of Audit's concern for environmental actions has been increasing. The Plenary of the Court of Audit has approved several reports dedicated to environmental issues such as the Audit Report on (a) provision by the managing entities of the service of production and distribution of drinking water in the seven Canary Islands, period 2007-2011; (b) actions carried out by the Ministry of Agriculture, Fisheries, Food and Environment and by the Ministry for Ecological Transition in relation to climate change, Fiscal year 2018; (c) actions for the defense against desertification and prevention and extinction of forest fires, fiscal year 2018; (d) management of greenhouse gas emission rights, fiscal years 2017 and 2018; and (e) Program 456D "coastal action", fiscal year 2019.

This case study refers to the "Audit report on Program 456D "coastal action", fiscal year 2019.

⁴ [Link to the Report](#)

Spain shares the concern for the environmental challenges of the marine and coastal ecosystem, given its geographical condition and long tradition of relationship with the marine environment. The country has 8,000 kilometers of coastline of great diversity, which is a great wealth in many areas, also requires the commitment and responsibility to seek sustainable forms of exploitation that ensure its proper conservation and subsequent transmission to future generations.

Key Audit Objectives

The audit carried out was of an operational and compliance nature. It aimed at analyzing the systems and procedures applied by the National Administration for the protection of the coast and the marine environment, including the management of related economic resources, from the perspective of the principles of legality, efficacy, efficiency and economy, and of environmental sustainability.

In particular, the following aspects have been analysed:

- The plans approved by the National Administration for the protection of the coast and the marine environment (Adaptation Strategy against Climate Change of the Spanish Coast, Strategies Marinas, among others) in order to assess the suitability and rationality of objectives, procedures and indicators, as well as the degree of achievement of its objectives.
- The actions carried out on the terrestrial and marine environment within the framework of the functions attributed by the applicable regulations to the bodies included in the subjective scope for the protection of the coast and the sea, including the revision of the procedures of hiring.
- The procedures and computer systems used in the tasks of protection of the coast and sea, as well as in the preparation of statistics and in the management of related procedures.
- The procedures applied for the control, monitoring and management of the maritime-terrestrial public domain (DPMT), including economic management and computer applications used for this purpose.
- In addition, issues related to the forecasts contained both in the Organic Law 3/2007, of March 22, for the effective equality of women and men, and in the Law 19/2013, of December 9, on transparency, access to public information and good governance, in everything that, in accordance with said regulations, could be related to the object of audit.

Key Findings

Budgetary execution

The budget program 456D "Action on the coast" lacked indicators to monitor the degree of progress in achieving its objectives.

The budget allocation for the 456D program has been reducing in recent years. In addition, the degree of execution of the same is low, which makes it difficult to carry out the planned activities. In fact, in 2019 this circumstance was aggravated by the application of the criteria on the execution of extended budgets, adopted by the Council of Ministers, and developed in Order

HAC/101/2019, of January 31, which granted the Secretary of State for Budgets and Expenditures the power to authorize the approval of spending on all budget programs, including 456D, once 50 percent is reached in the degree of execution. This attribution excessively conditioned the exercise of the competences of the Ministry for the Ecological Transition and the Demographic Challenge in what concerns the execution of the budgetary program object of this audit (heading II.1.2).

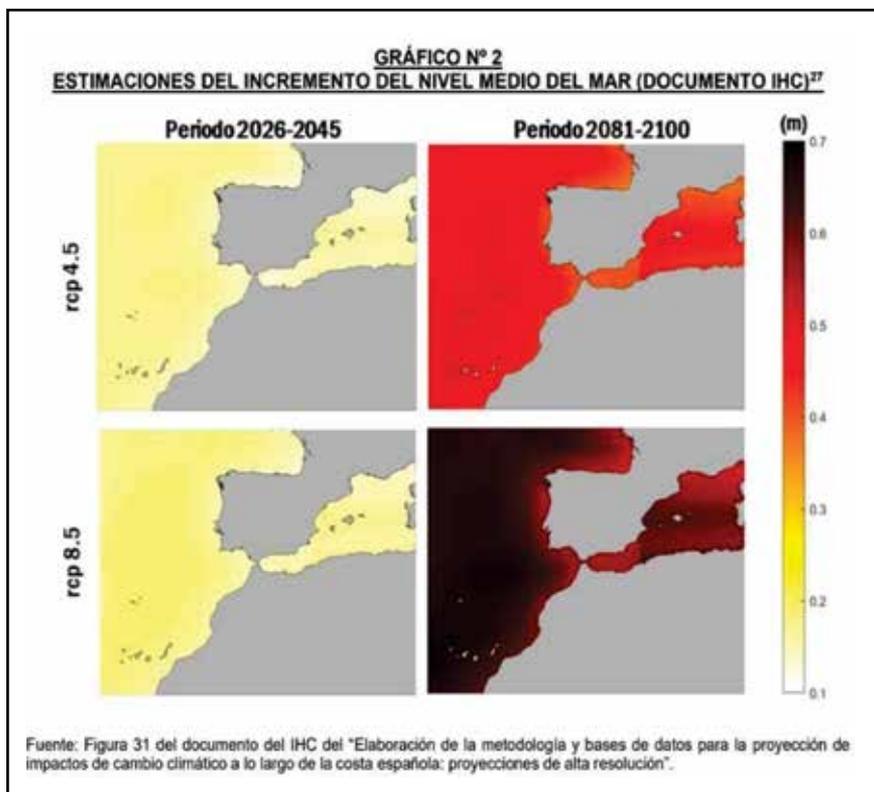
After the audited period, Order HAC/641/2020, of July 14, which dictated the rules for the preparation of the General State Budgets for 2021, incorporated into the instructions for the preparation of the General Budget among its three transversal axes of analysis and presentation: "orientation to Sustainable Development Goals", which resulted in the incorporation of information in this regard in the blue book. According to the information included in the Alignment Report of the General State Budgets with the Sustainable Development Goals of the Agenda 2030, the 456D program is mentioned in the actions of SDG 13 "Adopt measures urgent measures to combat climate change and its effects, in particular" and in SDG 14 "Conserve and sustainably use the oceans, seas and marine resources for the sustainable development". However, regardless of the estimates of "effort budget", which are not broken down, this information is merely descriptive, with no indicator or quantifier or analysis nor mention of the degree of progress or compliance (section II.1.3)

Protection of the coastline

The phenomenon of climate change has a direct impact on the coast and the marine environment, to the extent that the increase in average temperature of the planet causes a rise in the level of the sea, mainly due to the melting of the polar ice caps, and a change in the chemical conditions of the water (acidity, degree of salinity). In this regard, studies of Intergovernmental Panel of Experts on Climate Change contain future projections of the effect of climate change in relation to the increase in mean sea level. The Models predict that by 2040 the beaches of the Cantabrian Atlantic

coast and the north of the Canary Islands will experience average setbacks close to 3 meters, 2 meters in the Gulf of Cádiz and average values between 1 and 2 meters in the rest of the seafronts on a most conservative analysis. In this sense, the Spanish Coastal Climate Change Adaptation

Estimates of Mean Sea Level Rise (Document IHC)



Source: Figure 31 of the IHC document "Elaboration of the methodology and databases for the projection of Climate change impacts along the Spanish Coast: High-resolution projections"

Strategy (EACCE) approved by the then General Directorate for Sustainability of the Coast and the Sea in July 2017, is the main planning instrument that supports the actions of the General Administration of the State for the defense and adaptation of the coast against the phenomenon of climate change. This Strategy, which is included in the National Plan for Adaptation to Climate Change, was provided for in the eighth additional provision of Law 2/2013. The structure and content of the Strategy suffers from certain deficiencies that affect its effectiveness (heading II.2.1).

Protection of the marine environment

- The resources allocated to the protection of the marine environment are scarce. In fact, aside from the personnel assigned to these tasks, the obligations for actions on the marine environment only represent 6% of the total amount of that chapter, including the actions planned for prevention and action in marine pollution emergencies.
- Regarding the objectives and indicators defined in the Marine Strategies, it has been warned that in relation to the South Atlantic demarcation, chosen as a sample, there have been identified certain indicators that are not directly related to the objectives, as well as others that are imprecise or difficult to measure, which makes it difficult to analyze the degree of achievement of the set objectives.
- Moreover, coordination at the technical level between the bodies involved in the management and protection of the marine environment of the National Administration and the autonomous communities is insufficient, since no specific channels have been foreseen, with regard to this medium and the exercise cannot ignore the powers of the autonomous communities, particularly in multiple matters that affect them (discharges, territorial planning, environment, among others) (subsection II.4).

Impact of Audit and innovative/good practices followed in the audit

The audit carried out had a significant wide scope from the perspective of an operational and compliance nature. It looked at the budgetary execution, at systems and procedures, and at management from the perspective of the principles of legality, efficacy, efficiency and economy, and of environmental sustainability. It aimed to add value by presenting recommendations for the adoption of an action plan to address issues that have been pending for long time, and to contribute to the Strategy of adaptation of the Spanish Coast to Climate Change in order to update and adapt it to the evolution of the phenomenon.



SAI Turkiye

Planning and Audit of The Coastal Utilization (2006)⁵

Introduction of Area Audited in 2006

Türkiye has a coast line of 1785 km in Black Sea Region, 1089 km in Marmara Region, 2805 km in Aegean Region, 1577 km in Mediterranean Region and 1067 km in islands. The coasts, which are one of the most important natural resources of our country, are used for various purposes such as industrial and tourism investments, water products, construction of domiciles, ports and docks. Thus, due to dense construction activities; coasts were facing with the threat of destruction of the natural environment. Deterioration of the natural structure of our coasts shall pave the way for the risk of threat to our revenues from tourism and economy in the near future.

The legal definition of coast in Turkish Law System and the principles of coastal protection were first stated in the Civil Code No: 743 adopted in 1926. The comprehensive arrangements regarding coasts was started to be realized in 1970s. With the Ministerial Decree No: 7/52 dated 01.12.1970; the sale of the public lands at sea sides and by lakes, allocation of these lands for camping, transfer to real and legal persons by means of right of easement are forbidden. The first legal arrangement concerning the zoning legislation about the development and planning on coastal strip was made with the Additional Article 7 added to the Law No: 1605 dated 07.11.1972 and coastal zones are included in the physical plan. With the statement in Article 43 of the 1982 Constitution that “Coasts are under the sovereignty and disposal of the state. In the utilization of sea costs, lake shores or river banks and of the coastal strip along the sea and lakes, public interest shall be taken into consideration with priority. The width of coast and coastal strips according to the purpose of utilization and conditions of utilization by individuals shall be determined by law.”; the protection and utilization of the coasts are safeguarded under the Constitution. The Coastal Law

⁵ <https://www.sayistay.gov.tr/reports/download/ZwoR9VkyLJ-the-planning-and-audit-of-the-coastal-utilization-full-report>

no: 3086 was adopted on 12.01.1984. During the period passed until the adoption of the new Coastal Law No: 3621 dated 04.17.1990; the practices regarding the coasts were conducted under the Circular No: 110 and dated 07.15.1987 issued by the Ministry of Public Works and Settlement. Afterwards, due to the frequent amendments to the coastal legislation so far several institutions have been put in charge of coastal activities in terms of different aspects. Thus, a unified coastal administration could not be established and within the legal arrangements made at that time, only what type of buildings and at which distance they could be constructed was defined.

In this audit report, the efficiency of the activities towards the planning and audit of coastal utilization was evaluated. The focus was to study;

- To what extent the practices at the coastal regions are planned, whether the plans are appropriate for the coastal features, what type of problems occur during the planning activities,
- To what extent the shore edge line detections, that is the first step of planning and implementation, are made soundly,
- Whether the practices at coasts are audited effectively.

Key Audit Objectives

The objectives of this audit were;

- To find out the problems encountered during the planning activities concerning coasts and developing solutions for them,
- To set out the guiding recommendations with a view to taking the necessary legal and administrative measures in order to ensure that our coasts are used efficiently without their natural structure being destroyed,
- To set the measures required to be taken in order to carry out an effective audit with a view to preventing illegal utilization of coasts and the deterioration in the natural structure.

Key Findings

The key findings of this audit were as follows;

- A separate management model specific to coastal zones had not yet been produced in our country.
- The Environmental Physical Plans, which laid down the principles that were to be applied by planners, implementing institutions, investors and individuals in the planning of coastal lands, had not been finalized.
- In the protection of coastal lands, the balance between protection and utilization could not be secured and it was seen that mostly the purpose of utilization was focused on.
- There were problems in the designation of the Coast Edge Lines (CELs), which was the first and foremost element for the planning, and implementations in the coastal lands. Updated and compiled data on which coasts the edge line was designated did not exist.

- There were no arrangements that include the scientific criteria that form the basis of the work of the commission established for the designation of CELs. This situation led to faulty designations and incorrect implementations in planning and structuring.
- The actions for rescission of the title deeds concerning the private ownership in the coasts, which were under the sovereignty and disposal of the state, was generally implemented long time after the designation of CELs.
- There were many legal arrangements relevant to coastal lands. These legal arrangements held different institutions responsible for the coastal lands and these institutions performed audit activities in terms of different aspects without any coordination among themselves; thus, this situation was reducing the effectiveness of the audit.
- It was observed that the institutions which had the function to control the acts at the coastal lands, especially the municipalities, were in need of personnel who were eligible and well informed about the coastal legislation.



Recommendations

Some important recommendations made in this audit report are as follows;

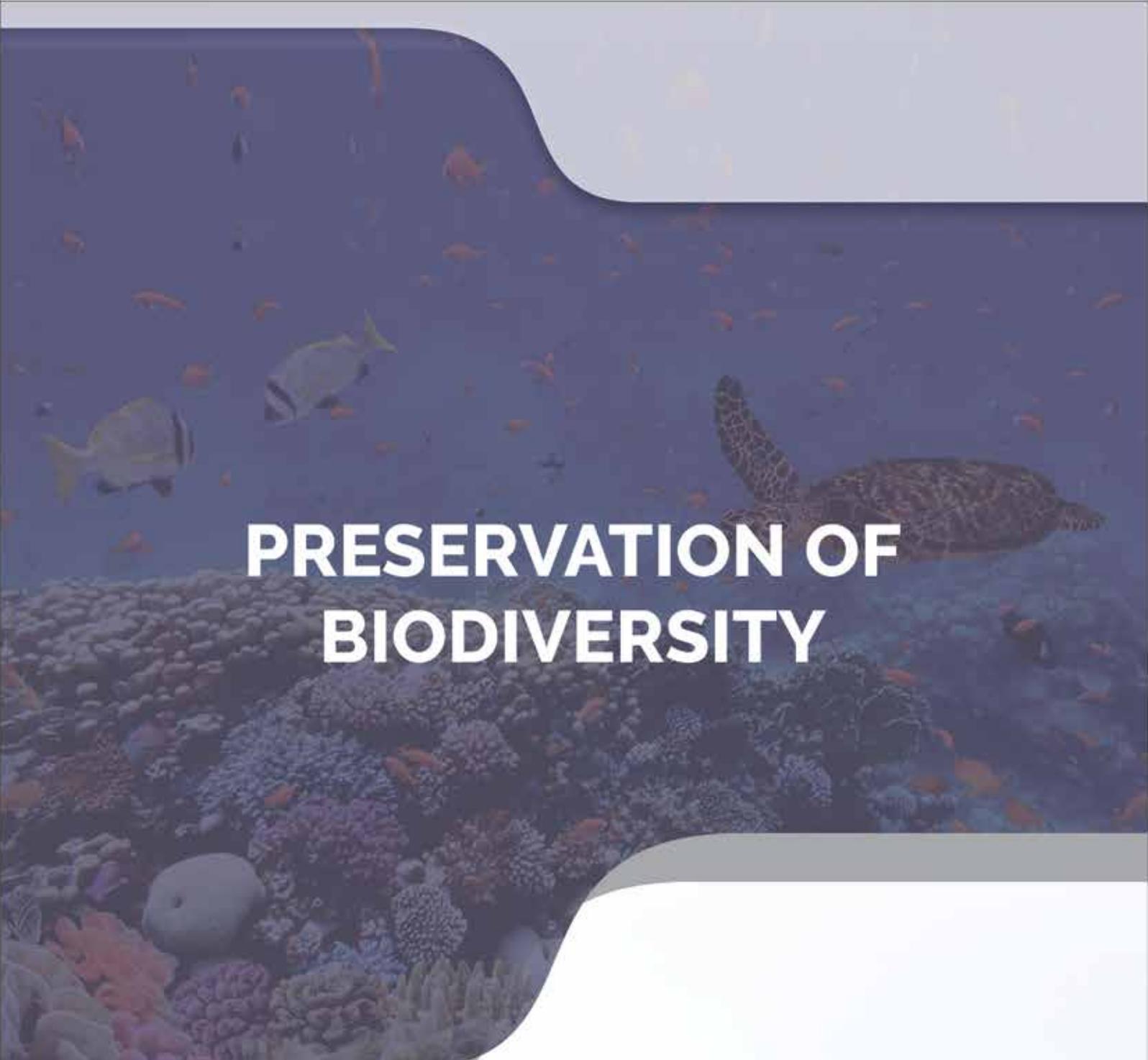
- It was necessary to make regulations that were to rearrange and simplify the separation of powers on planning.
- The characteristics of the coasts and which type of utilization was appropriate for them should be identified and large scale plans should be produced. An information system should be established which shall ensure that the institutions take correct decisions and which shows all the characteristics and priorities of the coasts. The up-to-date maps and information required for the planning studies must be ensured to be stored within a system open to the access of all the relevant institutions.
- The provisions of the legislation on the protection of the coasts must be executed in the planning studies. In order to ensure the balance between the protection and utilization of the coasts; what shall be the effects of the types of utilizations provided for in the plans to the coasts and how the negative effects can be decreased must be searched and accordingly, measures must be taken.
- At which coasts the studies on the detection of CELs had been completed must be identified by the Directorate of Public Works and Settlement and these detections must be communicated to the Ministry of Public Works and Settlement and at which coasts these studies had not yet been finalized must be clearly seen.
- With a view to conducting healthy studies for detecting the CELs; the scientific criteria must be established regarding the determination of the natural borders of the areas formed with movements of water by taking the opinions of the scientists who were conducting studies and researches on coastal issues.
- In order to carry out an effective audit over the implementations at coasts, legal arrangements should be made so as to prevent the institutions to abstain from their duties regarding the prevention of infringements at coasts and to simplify the audit system and it was necessary to define the powers and duties clearly.
- The personnel of the local administrations responsible for the control of the practices at coastal zones must be provided with training services on the issues such as which types of practices can be performed at which conditions, how the audit should be performed, which procedures were to be applied for the irregular acts that damage and destroy the natural structure of the coasts.
- The number and nature of the acts that destroy the natural structure at coasts, at which regions they were more common, their increasing

and decreasing trends and reasons must be identified by the governorships and municipalities within cooperation, measures should be identified and implemented in the light of the data obtained and the infringements must be detected at initial phase and ensured to be prevented.

- It was considered that the necessary sensitivity shown by the public institutions regarding the compliance with coastal legislation and removal of the existing occupations shall be a role model and had positive effect on the studies towards the prevention of other infringements at coastal lands.

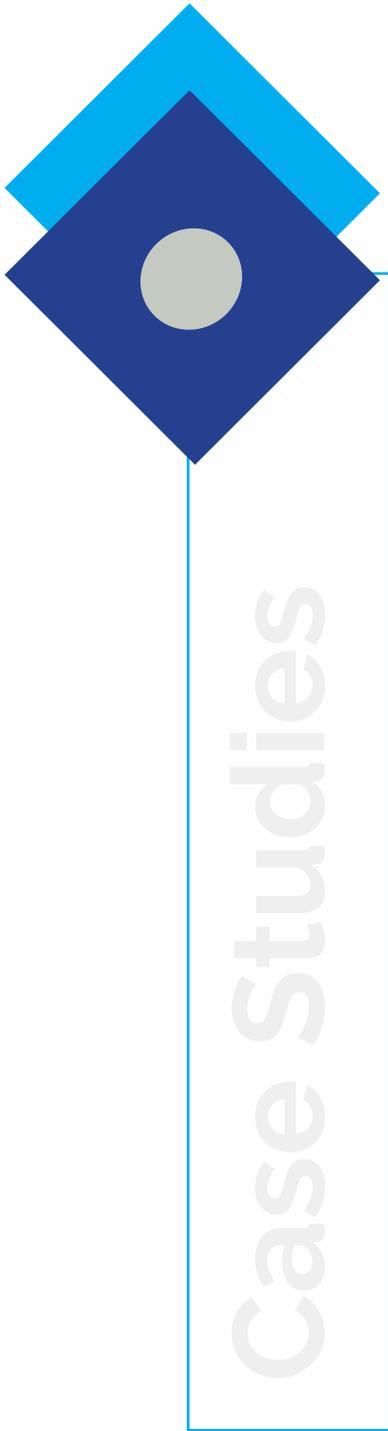
Impact of Audit and innovative/good practices, followed in the audit

The audit carried out had a significant positive impact on the coastal utilization in Türkiye. This report lays down the findings of that 2006 period and cannot be considered up to date, however it is considered to provide a great case study on management of coastal areas for the context and methodology of audits. Since the publication of this report, new regulations have entered into force and most of the recommendations in the report have been followed.

An underwater scene featuring a vibrant coral reef in the foreground, with various colorful fish swimming around. A large sea turtle is visible in the upper right portion of the frame. The background is a deep blue ocean with a light sky visible at the top.

PRESERVATION OF BIODIVERSITY

Preservation of biodiversity is essential for maintaining the delicate balance of ecosystems and safeguarding the variety of species and habitats on our planet. It involves conservation efforts to protect and restore biodiversity, promoting sustainable practices and raising awareness about the importance of biodiversity for the well-being of both nature and humanity.



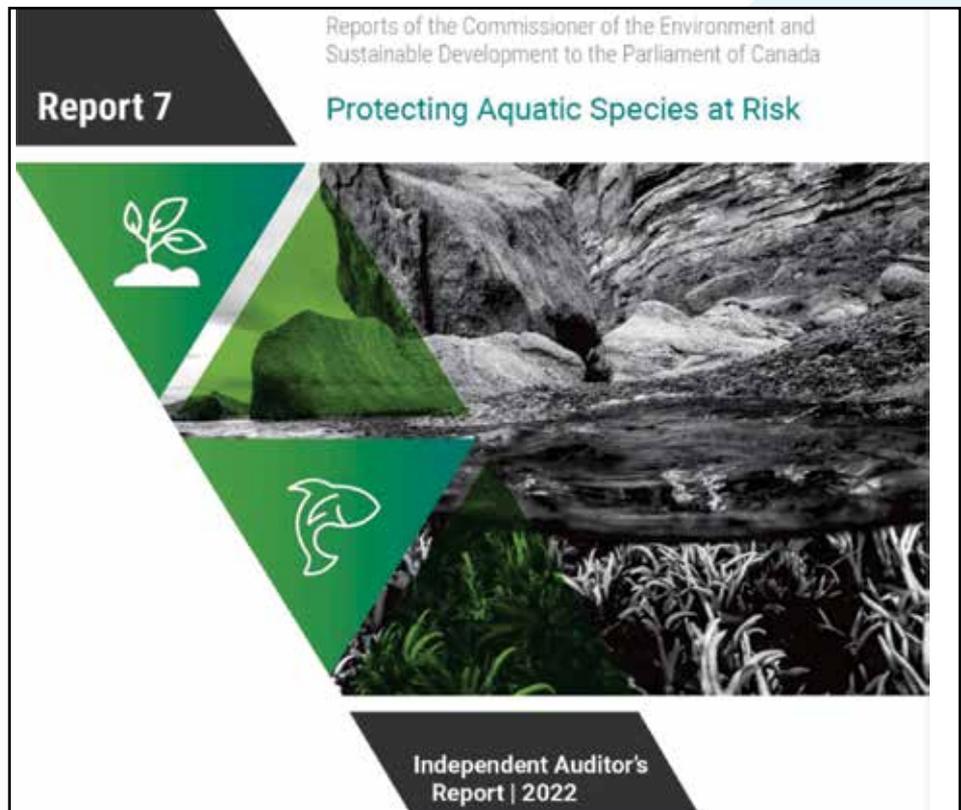
SAI Canada

Protecting Aquatic Species at Risk

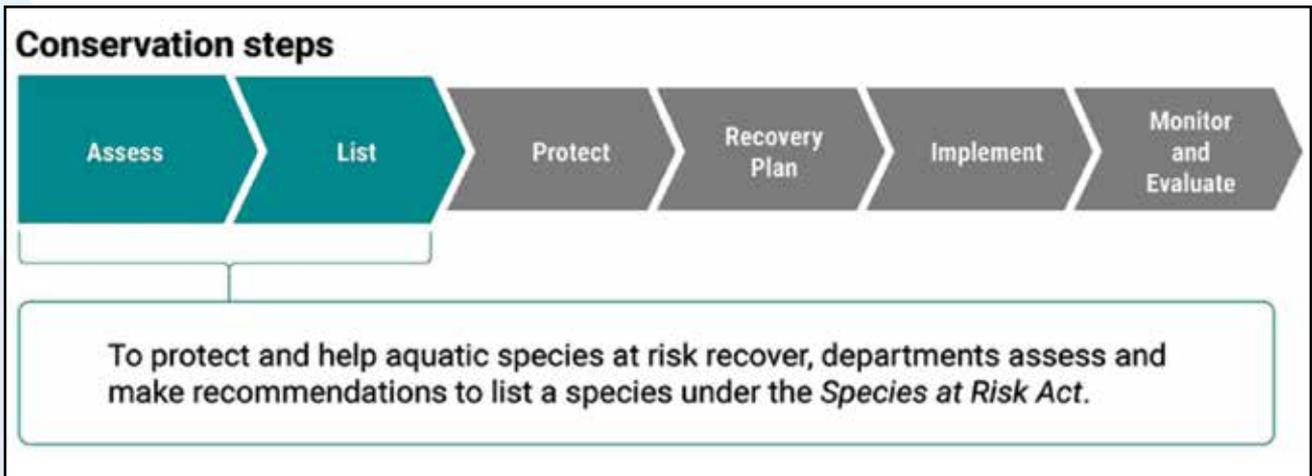
Introduction of Area Audited

Canadian waters are home to more than 2,000 aquatic species. However, some aquatic species are already extinct, while the populations of many others are declining. These declining species are at risk and in need of protection. Timely action is key to the recovery of these species.

There are 2 main federal laws for conserving and protecting biodiversity in Canada’s waters. The Species at Risk Act and the



Fisheries Act. The audit focused on the Species at Risk Act, which aims to prevent animals, plants, and other organisms (except bacteria or viruses) in Canada from disappearing, by listing species to be protected. Specifically, the audit looked at the first steps of the conservation process (see the following illustration).



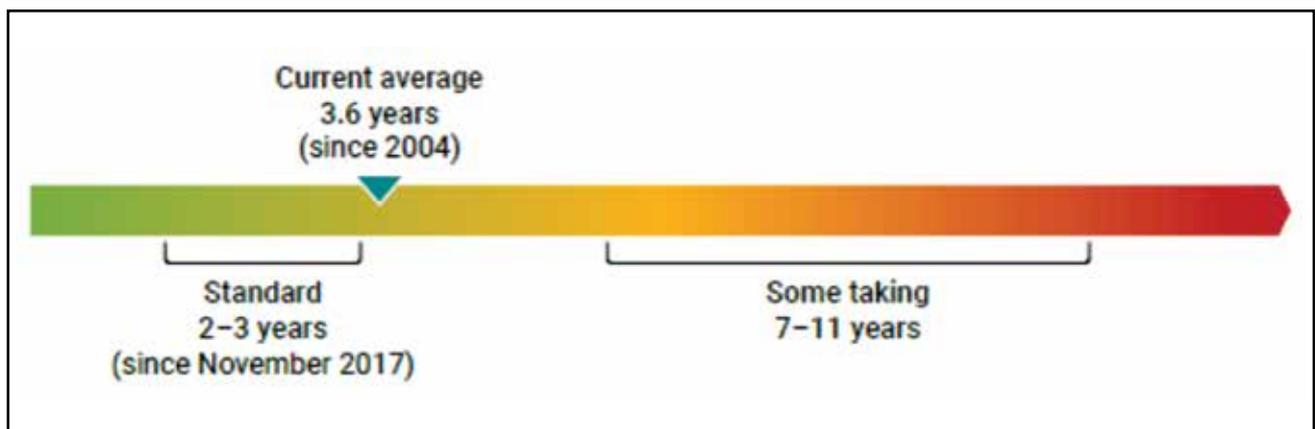
Fisheries and Oceans Canada is responsible for managing fisheries and ocean resources and for helping to ensure healthy and sustainable aquatic ecosystems through habitat protection and the use of science.

Audit Objective

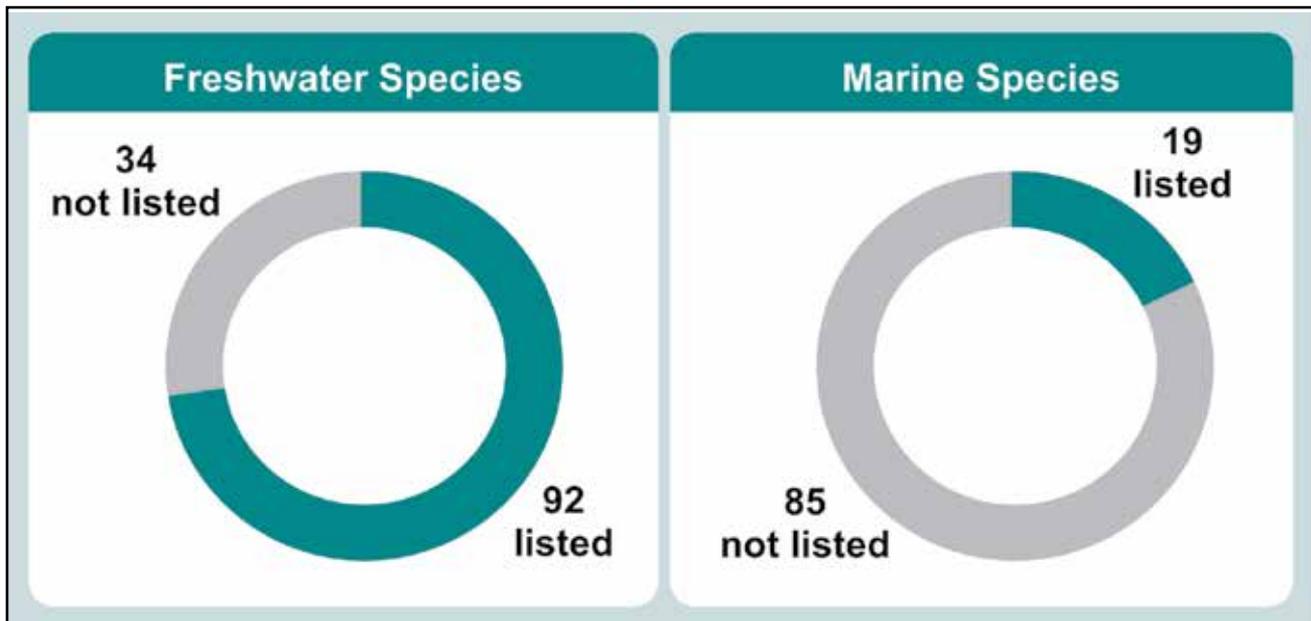
The audit focused on whether Fisheries and Oceans Canada, in collaboration with others, protected selected aquatic species assessed as at risk.

Key Findings

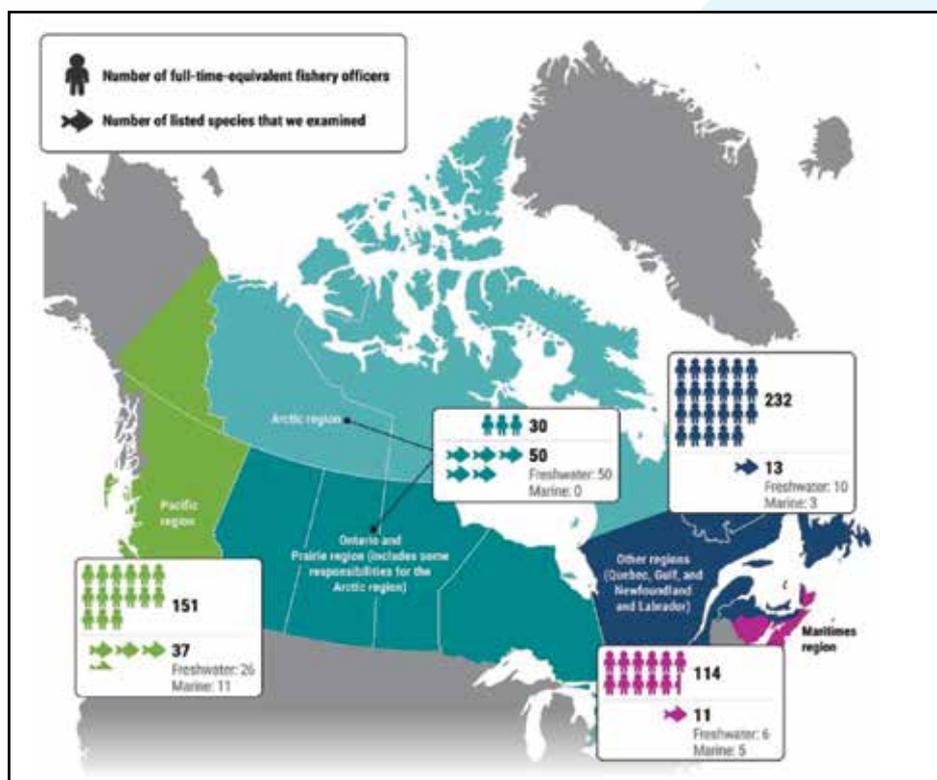
- Fisheries and Oceans Canada focused its knowledge-building on species of commercial value (which are mostly marine). There was little knowledge-building on data-deficient species as the focus was on knowledge-building on fish stock.
- Fisheries and Oceans Canada had yet to develop listing advice for half of the aquatic species assessed as being at risk and analysis to support listing advice was sometimes unclear or insufficient.
- There were significant listing delays and decisions not to list species with commercial value. It took an average of 3.6 years to list a species for protection under the Species at Risk Act (see the following illustration).



- We found that many aquatic species, especially marine species, that had been assessed as at risk by the Committee on the Status of Endangered Wildlife in Canada and covered by our audit, were not listed under the Species at Risk Act (see the following illustration).



- The analysis to support the advice to listing a species for protection was sometimes unclear or insufficient.
- Fisheries and Oceans Canada did not have enough capacity to enforce compliance with the Species at Risk Act and the Fisheries Act (see the following illustration).



- Overall, we concluded that Fisheries and Oceans Canada, in collaboration with others, did not adequately protect selected aquatic species assessed as at risk.

Audit Impact

Fisheries and Oceans Canada agreed with the recommendations contained in the audit report and prepared related action plans. The audit is scheduled to be discussed at an upcoming Parliamentary Committee where Department officials are expected to provide details regarding their commitment to implementing actions to help protect aquatic species at risk and provide an update on progress.

The audit received media attention in Canada and even abroad, which helps to keep the focus on this important sustainable development issue.

Good Practices Followed in the Audit

The approach and methodology used in this audit did not differ greatly from how performance audits are conducted at the Office of the Auditor General of Canada. We note that the audit team held considerable stakeholder consultations at the beginning of the audit to increase knowledge of the subject and properly define the audit scope. Additionally, external advisors who were experts in the area audited were engaged during the audit.



Preservation of Biodiversity

Introduction to the audit area

The coastal zone of India comprising of rivers, estuaries, marshes, wetlands and beaches hosts major coastal ecosystems viz. Mangroves, Coral reefs, Sea Grass, Mud Flats, Estuaries/backwaters, Lagoons, Sand Dunes, etc. To control and minimise the impact of expanding anthropogenic activities on the fragile coastal ecosystems of India, Central Government has notified the Coastal Regulation Zone (CRZ) Notifications with the larger objective of protecting coastal ecosystems.

Audit objective

Taking cognisance of the reports of effluent discharges by the civic bodies, industries and aquaculture farms, SAI India examined the health of coastal ecosystems in the sampled areas as part of the Performance Audit on “Conservation of Coastal Ecosystems” which also focussed on implementation of the CRZ notification. The key objective was to assess the health of vulnerable and fragile marine ecosystems due to impact of anthropogenic activities.

Key Findings

Threats to Biodiversity

Coral reefs are classified as Ecologically Sensitive Areas under CRZ Notifications. The key coastal habitats in the Gulf of Mannar are coral reefs, sea grass and mangroves. In 1989, the entire Gulf of Mannar area covering 10,500 sq. km was declared as the Gulf of Mannar Marine Biosphere Reserve by Government of India. The Gulf of Mannar Biosphere Reserve Trust (GoMBRT) was formed in 2002 to implement the UNDP-GEF (United Nations Development Program – Global Environmental Facility) funded project on the conservation and sustainable use of the marine resources of the Gulf of Mannar Biosphere Reserve. Audit observed that despite serious reduction and degradation of the live coral cover in the Gulf of Mannar Islands, no viable strategy to mitigate the propagation of the invasive species had been devised by the Government.

Gulf of Mannar-Palk Bay region is home for Dugongs, also called Sea Cows. They are classified under 'vulnerable' category in the International Union for Conservation of Nature (IUCN) red list and is a Schedule-I animal of the Wildlife Protection Act, 1972. As Seagrass is the primary food source for them, a healthy seagrass ecosystem is an indispensable requirement for a thriving Dugong (Sea Cow) population. Audit highlighted shortfalls in the effort to conserve the ecosystem for the preservation of Dugong population.



Fig 1.: Dead coral covered with algae

As per the World-Wide Fund for Nature (WWF) India survey of coral reefs at Grande Island in 2018, one of the few coral sites in Goa, a long-term periodic monitoring system for the protection and conservation of the reefs was required. We observed in audit that the mapping or identification of the areas inhabited by corals had not been done and as a result, a management action plan for their protection was also not prepared. No guidelines had been issued to regulate water sports activities around Grande Island, with an aim to preserve the Corals in the area. Further, WWF-India, in its survey, had found rare marine species in these reefs. However, no guidelines to regulate the fishing activities around these reefs had been issued to protect and conserve such species.

Olive Ridley turtles are legally protected in India under Schedule I of the Wildlife Protection Act, 1972, It is the only species of sea turtle known to nest at the beaches of Goa. As per CRZ notifications, management plans for turtle nesting sites was required to be prepared. Audit observed that management plans for these sites were not prepared. Further, as per the provisions of the notification, no development activities were permitted in these turtle nesting sites. However, we observed shacks being allowed at some of the nesting sites.



Fig. 2: Olive Ridley Turtles



Fig. 3: Beach beds in intertidal zone (turtle nesting sites) at Morjim Beach

A **coastal sand dune** is a mount, hill or ridge of sand formed mainly by aeolian action that lies behind the beach affected by tides. They provide natural coastal protection against storm surge and high waves, preventing coastal flooding and structural damage, as well as providing important ecological habitat. Dressing or altering the sand dunes for beautification, recreation has been declared as prohibited activities within the CRZ. Audit observed that despite existence of sand dunes, permissions had been given for infrastructure development and construction of hotel and residential houses in these areas.



Fig. 4: Destruction of sand dunes for new beach shacks

Mangroves are salt tolerant plant community found in tropical and sub-tropical inter tidal regions and are unique eco-systems which provide breeding and feeding ground for many aquatic species. Mangrove forests have also proved to be capable of acting as a protective belt against the tsunami waves and as such require effective conservation and scientific management intervention.

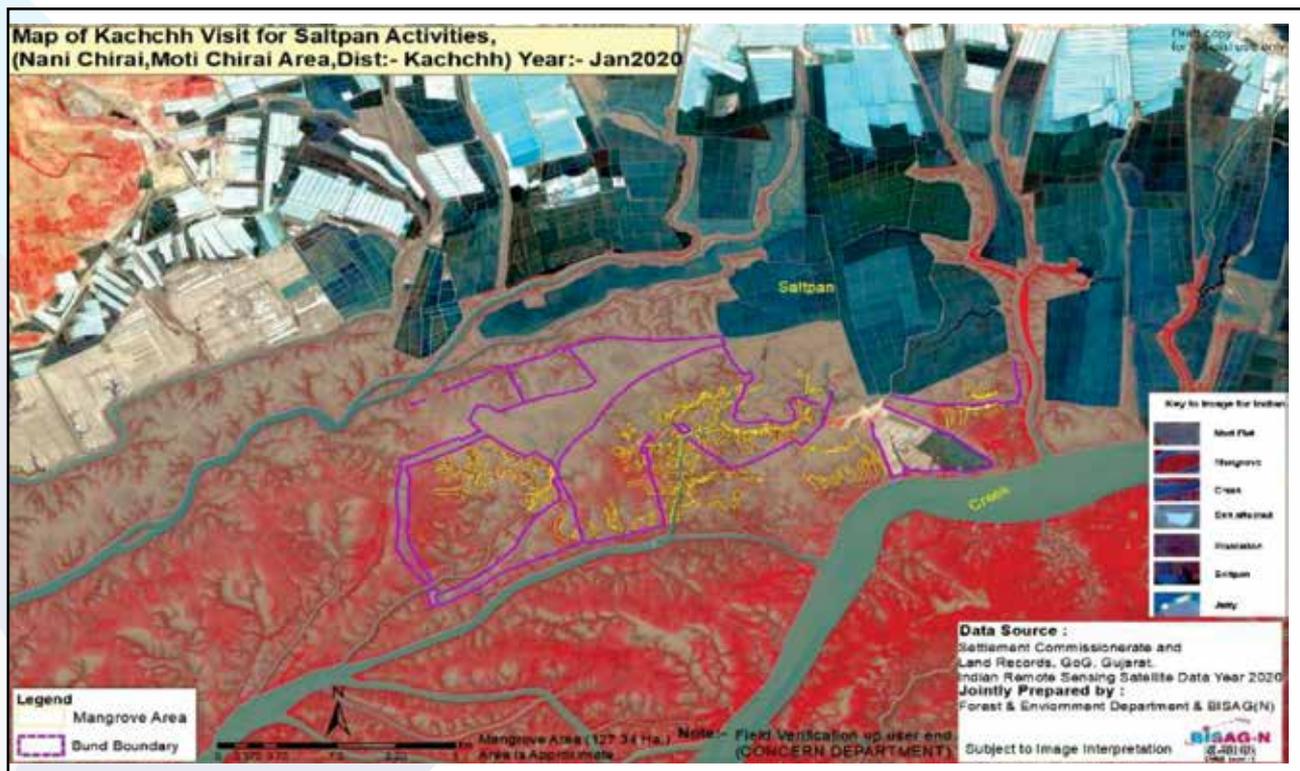


Fig. 5: Mangrove area (indicated in red shade) reduced to 127.34 hectares in the year 2020

They are designated as Ecologically Sensitive Areas and their cutting and felling was banned. We, however, noted several instances of cutting of mangroves and where permission was granted for felling of mangroves for developmental projects on the condition that new plantations of the mangroves would be carried out, it was not done. The destruction of mangroves also posed threat to the unique breed of “Kharai” camels which were dependent on the mangroves in the area for grazing.

Pollution caused by untreated municipal waste and fish processing industry

The CRZ Notifications prohibit activities leading to the disposal of untreated wastes and effluents into coastal waters and dumping of city and town wastes like construction debris, industrial solid wastes in CRZ areas. Instances were observed by Audit where the sewage treatment plants were either altogether absent or were functioning without any monitoring leading to discharge of harmful effluents into coastal waters. Processing and preserving of fish, crustaceans in India annually generate 70 million m³ waste/ effluents. In audit of one of the Fishing Harbours, Audit observed it was operating without Composite Consent and Authorisation and discharging untreated effluent into the Sea despite the directions issued by Pollution Control Board.

Aquaculture Waste Discharge at Coringa Wildlife Sanctuary (CWLS)

Audit observed that eleven aqua/shrimp units located around CWLS were discharging untreated effluents into the drains which eventually joined the Coringa river which resulted into abnormally higher PH value than the standards prescribed. Further, it is also observed that five of the above units were operating without a ‘Consent to Operate’. However, no penalty or legal action was taken by the local Pollution Control Board. Audit also observed that aquaculture units had been established within 100 meters from the high tide/flood line from the Coringa which was in contravention to the CRZ Notifications.



Fig. 6: Flow of untreated sewage from wet wells of the western area of Mangalore City to the Arabian sea

Impact of Audit

Most of the recommendations made by audit have been accepted by the Ministries and necessary administrative orders and notifications have been issued to the concerned management authorities. Further, Government has assured to declare a Reserve for conservation of Dugong.

Innovative/good practices, followed in the Audit.

We examined a large number of biodiversity hotspots in different coastal states to identify possible violations. Joint physical inspections were made to substantiate the concerns highlighted through GIS analysis.

SAI Norway

Safeguarding the environment and fisheries during petroleum related activities in the High North



Photo: Equinor/Ole Jørgen Bratland

Introduction of area audited

There are substantial potential of oil and gas resources in the Barents Sea. The petroleum activities have increased in recent years. The Barents Sea has a high population of sea birds, and is an important spawning and living area for cod and other fish species. While the current impact of petroleum activities is considered limited, they may potentially have a negative impact on the environment through oil and chemicals spills, as well as through seismic activities. The area around the Arctic ice edge has a very rich biodiversity, and is considered particularly vulnerable to oil spills.

Key audit objectives

The audit objective was to evaluate the authorities' work to safeguard the environment and fisheries during petroleum activities in the High

North, and to identify the cause of any deficiencies.

The audit included the work of several ministries and their agencies:

- Ministry of Petroleum and Energy
- Ministry of Climate and Environment
- Ministry of Trade, Industry and Fisheries
- Ministry of Transport and Communications
- Ministry of Labour and Social Affairs

Key findings

- When awarding licenses, the Ministry of Petroleum and Energy emphasises petroleum resource management, in line with the Petroleum Act
- The Ministry of Climate and Environment does not do enough to ensure a better basis for assessing risk-mitigating measures
- There is insufficient interaction between the Ministry of Climate and Environment and the Ministry of Petroleum and Energy
- The advice provided by the authorities on the impact of seismic activities on fish and fisheries, is not sufficiently systematic and knowledge-based
- The authorities have not ensured that oil spill preparedness is adequately adapted to the specific conditions in the High North
- The Ministry of Transport and Communications has not done enough to strengthen research which can contribute to new oil spill preparedness technology which is efficient in the High North
- The coordination of oil spill preparedness in the Barents Sea is insufficient
- The Environment Agency and the Coastal Administration do not utilise each other's competence well enough to ensure a robust and efficient preparedness

Impact of audit

The Office of the Auditor General of Norway conducted a follow-up audit in 2022, and took note of the following improvements:

- The Environment Agency has initiated measures to undertake a more active role in an early phase of the planning of development projects in the petroleum sector
- The Environment Agency has improved its work on evaluations of environmental risks and preparedness, and has strengthened the cooperation with other agencies and the industry
- The Coastal Administration has taken initiatives to improve its knowledge about oil spill preparedness in cold and icy sea areas

⁶ Dokument 3:1 (2022–2023).

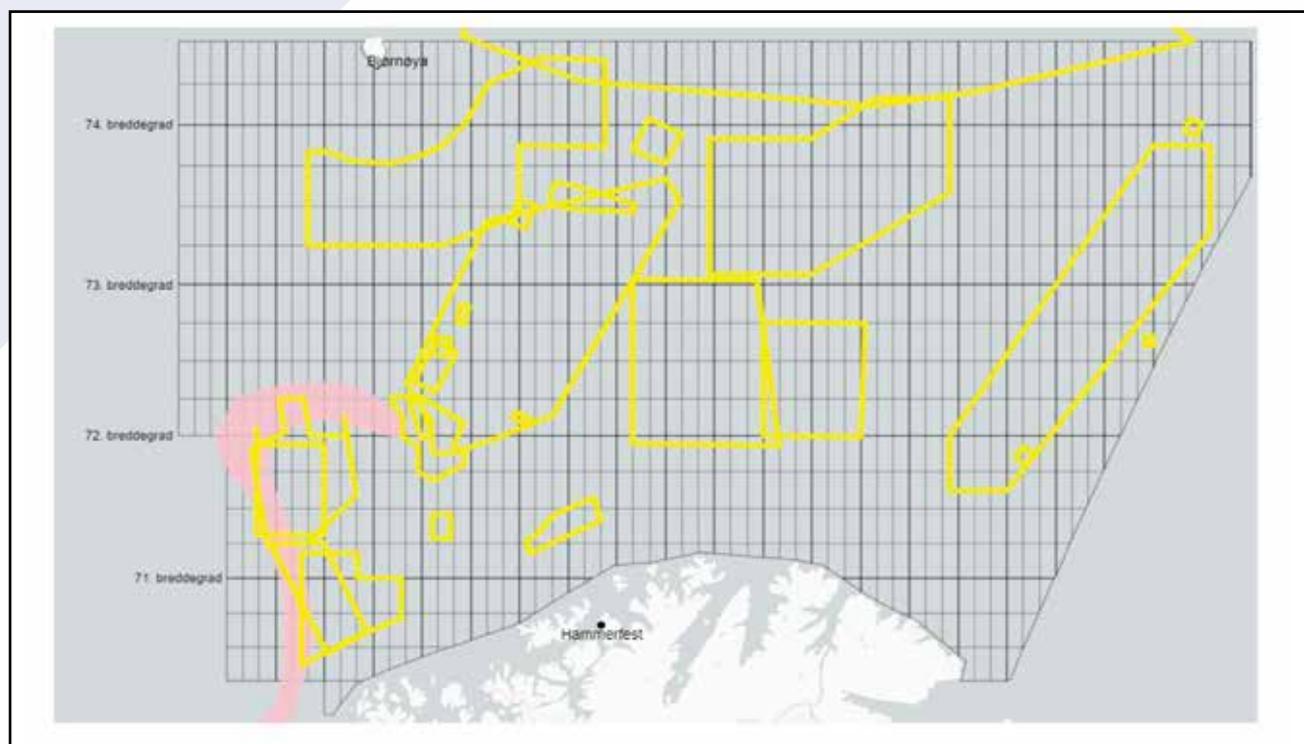
- The national responsibility for oil spill preparedness has been transferred from the Ministry of Transport and Communications to the Ministry of Trade, Industry and Fisheries
- The responsibility for follow-up of the municipal responsibility for oil spill preparedness has been transferred from the Environment Agency to the Coastal Administration
- The system for notification of seismic activities is improved, and the scientific advices now include sea mammals in addition to fish

Innovative / good practise followed in the audit

The audit report was the first digital report issued by the Office of the Auditor General of Norway. The report format was adapted to be read on screen, not on paper. It is easy to navigate, and includes several interactive presentations of data in maps.

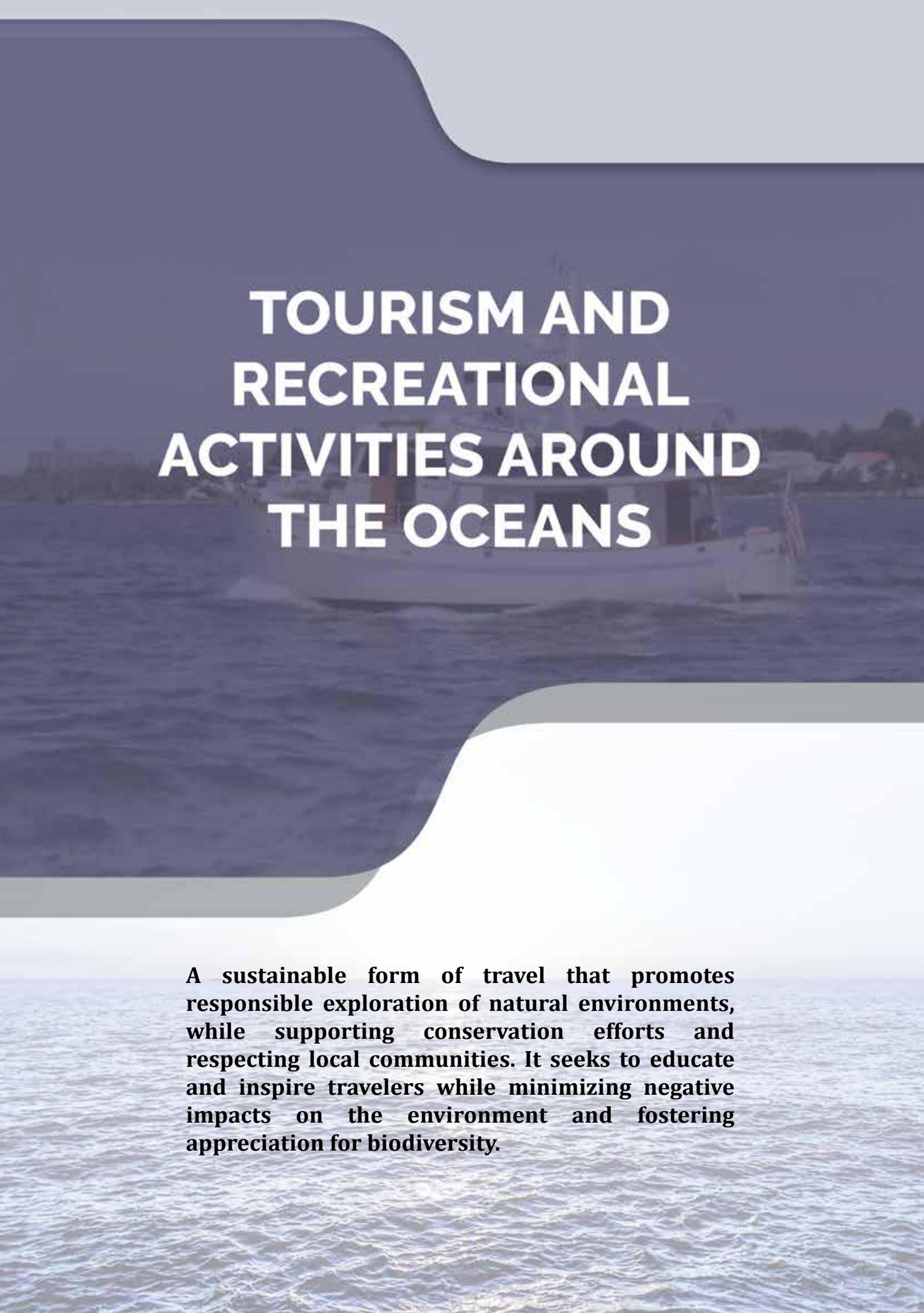
For example, we compared the spawning area of fish with areas where seismic surveys have been carried out. The map shown in Figure 1 has an interactive functionality in the digital report, where the reader can choose other fish species and years. Also, by clicking on the map, the actual dates for spawning and seismic activities are displayed. We investigated the overlap seen in Figure 1 further, and found that the seismic survey was not carried out during spawning.

Figure 1 Spawning areas for haddock (pink) and seismic activities (yellow) in 2017



Kilde: Norwegian Petroleum Directorate and the Institute of Marine Research

Link to audit report: [Undersøkelse av myndighetenes arbeid med å ivareta miljø og fiskeri ved petroleumsvirksomhet i nordområdene \(riksrevisjonen.no\)](https://www.riksrevisjonen.no) (in Norwegian)



TOURISM AND RECREATIONAL ACTIVITIES AROUND THE OCEANS

A sustainable form of travel that promotes responsible exploration of natural environments, while supporting conservation efforts and respecting local communities. It seeks to educate and inspire travelers while minimizing negative impacts on the environment and fostering appreciation for biodiversity.

SAI Indonesia

Eco-Tourism

Case Studies

Introduction of Audit Area

The audit theme is the Performance Audit of Development and Marketing Activities of 10 Priority Tourism Destinations (Destinasi Pariwisata Prioritas - DPP) Year 2020 up to Semester I 2021 at the Ministry of Tourism and Creative Economy/Tourism and Creative Economy Agency.

The Audit Report has been submitted to the respected entities, namely the Ministry of Tourism and Creative



Economy/Tourism and Creative Economy Agency, and included in the Audit Report Summary of Semester II 2021 submitted to the House of Representatives, making it open to the public.

Key Audit Objectives

The audit aimed to assess the effectiveness of the Development and Marketing Activities of 10 DPP, which cover three aspects, namely:

- The planning and development process of the 10 DPP is in accordance with the authority and responsibilities of the Ministry of Tourism and Creative Economy/ Tourism and Creative Economy Agency;
- The planning and implementation process of 10 DPP marketing activities is in accordance with the authority and responsibility of the Ministry of Tourism and Creative Economy/ Tourism and Creative Economy Agency; and

- The monitoring and evaluation process of the development and marketing of 10 DPP is in accordance with the authority and responsibility of the Ministry of Tourism and Creative Economy/ Tourism and Creative Economy Agency.

Key Findings

The Audit Report contained in LHP Number 212/LHP/XVI/12/2021 dated December 31, 2021, had 14 audit findings. One finding relevant to the Eco-Tourism concept is entitled “Inadequate Development Coordination Activities of Three Authority Executing Agencies in Supporting Priority Tourism Destinations”.

Based on the audit results of the Labuan Bajo Flores Authority Executing Agency (Badan Pelaksana Otorita Labuan Bajo Flores - BPOLBF) East Nusa Tenggara, it was found that there are necessary improvements needed to strengthen the coordination on accessibility and amenity for marine tourism destinations in Indonesia.

- a. Audit sought confirmation to find out whether there is a role of BPOLBF in fulfilling the amenities to the six District Governments (West Manggarai Regency, Manggarai Regency, East Manggarai Regency, Ngada Regency, Ende Regency, and Ngada Regency).

The results of the confirmation showed that the BPOLBF played a role in planning and surveying the construction of the rest areas. The three district governments have stated that the role of BPOLBF in fulfilling amenities in the district needs to be optimized.



- b. Results of observations at one of the 10 DPP supporting tourist destinations in West Manggarai Regency, namely Goa Rangko, showed that there were various factors that needs to be improved by the authorities in amenities, such as the pier leading to Rangko Cave, which is under the authority of the West Manggarai Regency Government, is in need for renovation treatment in order to run safely.

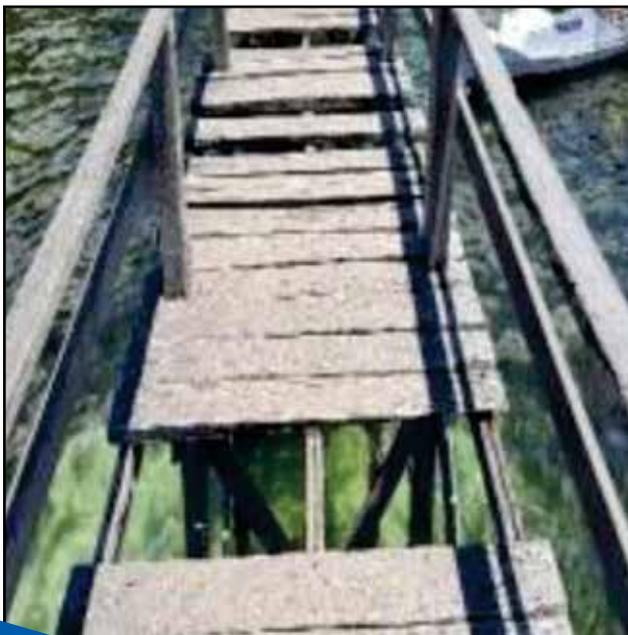
Impact of Audit

Based on the audit results, in relation to the findings of inadequate development coordination activities of three Authority Executing Agencies in supporting Priority Tourism Destinations, BPK provided a recommendation to the Minister of Tourism and Creative Economy/Tourism and Creative Economy Agency, among others, that through the Deputy of Destination and Infrastructure Development, the Director of Destination Management of the Minister of Tourism and Creative Economy/Tourism and Creative Economy Agency must be instructed to optimize the development of the President Director, Director of Finance, General Affairs, Public Communications. Further, related coordination must be carried out by each BPO related to institutions and regional governments in each coordinating area of BPO.

These recommendations are expected to have the impact of taking concrete steps in improving the accessibility and amenity of hospitable/eco-friendly tourist destinations.

Innovative/good practices, followed in the audit

BPK continues to be committed to planning and carrying out audits related to the tourism



sector to increase the country's foreign exchange while still paying attention to environmental sustainability so that the Eco-Tourism targets in the SDGs can be achieved.

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SUSTAINABLE FISHING / AQUA-CULTURE

A method of fishing and cultivating aquatic organisms that aims to maintain healthy fish populations, support the livelihoods of fishing communities through responsible fishing methods, proper management of fish stocks while minimizing bycatch and habitat destruction, focusing on minimizing environmental impacts, promoting responsible resource management, and ensuring the long-term viability of the industry while producing safe and nutritious seafood.



SAI ARGENTINA

The fisheries policy of the Patagonian Shrimp

Introduction

Argentina has a vast continental and maritime territory. It is for this reason that the General Audit Office of the Argentine Nation (AGN) had brought out several reports on the Blue Economy. The audit report on the management of the Patagonian shrimp (*Pleoticus muelleri*) has been one of



the most relevant. The AGN has published in 2022 a report with substantive findings on the management of this species by the enforcement authority, i.e. the National Undersecretariat of Fisheries and Aquaculture (Subsecretaría de Pesca y Acuicultura-SsPyA in Spanish). The report is based on detailed analysis of economic, social, and environmental aspects of fishing of Patagonian Shrimps and it is a comprehensive investigation from the perspective of sustainability of the exploitation of the resource .

Audit Objectives

The overall audit objective was the evaluation of the tools available with SsPyA to ensure sustainable management of the shrimp fishery during 2017-2019. These years were key to detecting the problem of overexploitation of the resource. In 2018 alone, 266 thousand tons were extracted, which was more than five times the volume extracted 10 years earlier (48 thousand tons).

The key audit objectives were to:

- 1.1. Analyze whether the organic structure of the SsPyA is reasonable for the performance of its functions

- 1.2. Identify if the financial planning of the SsPyA has an adequate level of disaggregation for accountability
- 1.3. Analyze if the management measures related to the shrimp species are adequate and sufficient to guarantee the sustainability of its exploitation
- 1.4. Determine whether the catch authorization system allows preventing or eliminating excess fishing capacity and ensuring that fishing effort levels are compatible with the sustainable use of fishing resources
- 1.5. Analyze if the control system is sufficient and representative and if adequate number of inspectors and standardized procedures exist
- 1.6. Analyze how the SsPyA conducts and executes the objectives and requirements related to scientific and technical investigations of the shrimp fishery in order to guarantee that the scientific information is sufficient and complete for decision-making.

Key Findings

Audit noticed several important shortcomings in the management of shrimps and the most important findings are discussed below.

- Argentina does not have a Shrimp Management Plan. In 2001 the problem of overexploitation of the species was detected and it was repeatedly proposed to draw up a comprehensive plan. However, it was several times postponed due to political ups and downs and for not being able to establish, in a consensual way, a council composed of public policy makers, the private sector, academia and workers in the sector.
- Closely linked to the above, there is the difficulty of having accurate information on which to establish a Management Plan. There are two drawbacks here - the scientific-technical and those of control and monitoring. As for the former, resource research campaigns are needed to study the characteristics of the stock in a dynamic way. The second refers to the fact that there are inconsistencies and inaccuracies of information: such as the number of vessels that are fishing in the Argentine Sea, the quantities extracted, the discards and the processing on board.
- The organization structure of SsPyA was significantly reduced in March 2018 which resulted in (a) concentration of multiple functions in some areas without delegation of functions to lower structures (b) existence of areas that began to function informally, without defined managers or clear tasks (c) certain responsibilities conferred to SsPyA were eliminated which were not assumed by any other.
- The current catch authorization system does not prevent or eliminate excess fishing capacity and it does not guarantee that fishing effort levels are compatible with the sustainable use of fishing resources.

⁸ <https://www.infocampo.com.ar/tras-una-auditoria-advierten-por-falta-de-contrroles-en-la-pes-ca-de-langostinos/>

⁹ <https://www.youtube.com/watch?v=sRNlYKTTP-E>

- The number of inspectors is insufficient to supervise the fishing vessels. The number of on-board inspectors inspecting shrimp-fishing vessels decreased year on-year during the audit period (81 in 2017, 72 in 2018 and 56 in 2019). Inspection tasks were carried out with an obsolete procedures manual dating back to 1998 and no training was imparted to the inspectors during the training period.
- The efficiency of the SsPyA in shrimp management is also unclear. The budgetary organization of the Undersecretariat does not allow for detailed accountability and, moreover, it does not have management indicators.

Audit impact and good practices

These findings led to the request for an audit report related to fisheries. Proof of this is a follow-up of the capture activity of the hake species hubbsi or the analysis to the National Institute of Fisheries Research and Development (INIDEP). These conclusive results attracted the attention of the media and were reflected in the written and audiovisual press. Both provoked a growing awareness in the society of the need to take care of marine resources. In this case, the economic management of shrimp has already entered the public agenda.

Finally, it should be noted that the AGN has followed the protocols of good practices in terms of auditing agencies of the National State. It has made a survey and analysis of the current regulations, collected information and data series and then contrasted them with each other. It conducted interviews with key actors in the management of the activity. It should be noted that the audit was successfully completed despite the social isolation measures introduced in the wake of health emergency caused by the COVID-19 pandemic. The dissemination of audit work was effective, and this was reflected in a video that can be found on YouTube .



SAI Mauritius

Performance Audit Report on Moving Towards Sustainable Artisanal Fishery¹⁰

Introduction to the Audit Area

The fisheries sector is the mainstay of the Blue Economy of the Republic of Mauritius. The Ministry of Blue Economy, Marine Resources, Fisheries and Shipping considers Blue Economy as the simultaneous promotion of economic growth, oceanic sustainability (sustaining ocean resources and ecosystems), and social inclusion. The Fisheries sector is an important economic pillar in Mauritius as it generates employment, attracts foreign income and ensures food security. Artisanal fishery is one of the types of fisheries practiced in Mauritius. The main supply of fresh fish to the local market is from artisanal fishery, which also provides employment opportunities in the coastal regions, thereby significantly contributing to poverty alleviation and food security.

Over the years, the Ministry took several measures to sustain artisanal fishery. Despite these measures, the artisanal fishery production during the period 2012-2017 was on the decrease, while total local fish consumption kept on increasing.

Key Audit Objectives

The audit assessed whether measures implemented by the Ministry were effective in supporting sustainable artisanal fishery. It examined whether:

- (i) Incentives and direct support to artisanal fishermen were effective in contributing to reduce pressure on lagoon fishery.
- (ii) Projects implemented to relocate artisanal fishermen met their objectives.
- (iii) Conservation, protection and enforcement activities were adequate and effective to promote sustainable artisanal fishery.

Key Findings

The Ministry had taken laudable initiatives in devising and maintaining

a wide range of interventions targeting artisanal fishermen individually, collectively at community and at national level through the preservation and protection of the lagoon ecosystems. All these interventions were aligned to Target 14.b of the Sustainable Development Goal 'Provide access for small-scale artisanal fishers to marine resources and markets' and the FAO Code of Conduct for Responsible Fisheries which promote sustainable artisanal fishery.

The Ministry had the resources, mechanism, legal framework, and exercises either control or strong influence on key factors required to implement measures effectively. However, it missed opportunities to maximise effectiveness in most of its interventions. This was due to important issues in the design, implementation, monitoring and follow-up of these interventions which were not properly addressed.

Incentives and direct support to artisanal fishermen

The Bad Weather Allowance (BWA) was no longer linked to compensation for fishing revenues foregone during bad weather days. It was paid annually, irrespective of whether the registered fishermen were complying with established criteria. The monthly processing of BWA and monitoring of new applicants were diluting the attention of the officers of the Fisheries Protection Service from their core duties of protection and enforcement. The 'Canotte' Scheme, as a direct support to fish off the lagoon, was not properly designed, implemented and monitored to ensure that benefits were derived from the grants and loans allocated.

Projects implemented to relocate artisanal fishermen

The Fishermen Investment Trust realised little benefit from the projects designed for the community of registered fishermen. Fish Aggregating Device fishery was not appropriately followed up to quantify the number of beneficiaries and the benefits being derived. Lessons learned while implementing pilot cage culture projects were not embedded in the design and management of a new floating cage fish farming project. The outcome did not indicate whether fishermen could switch to small-scale fish farming successfully.

Conservation, Protection, and Enforcement activities

Marine ranching activities to stock the depleted lagoons were not assessed to identify the outcome. Conservation projects in marine parks and fishing reserves had the appropriate legislation and technical support, but were inadequately implemented to ensure that the objectives were met. At Fisheries Posts, tasks were not focused on the core activities of protection and enforcement. Only 8 per cent of total patrols were done in boat at night and 72 per cent were done ashore, whereas the licensed activities required relatively more boat patrols than ashore ones. Patrols

11 <https://blueconomy.govmu.org/Communique/Submission%20of%20application%20for%20financial%20assistance%20Canotte%20Scheme.pdf>

12` <https://nao.govmu.org/Documents/Reports/2023/AuditReportMauritius2021-22.pdf>. Page 507, Follow Up of Matters Raised in Audit Report 2019-20 and 2020-21.

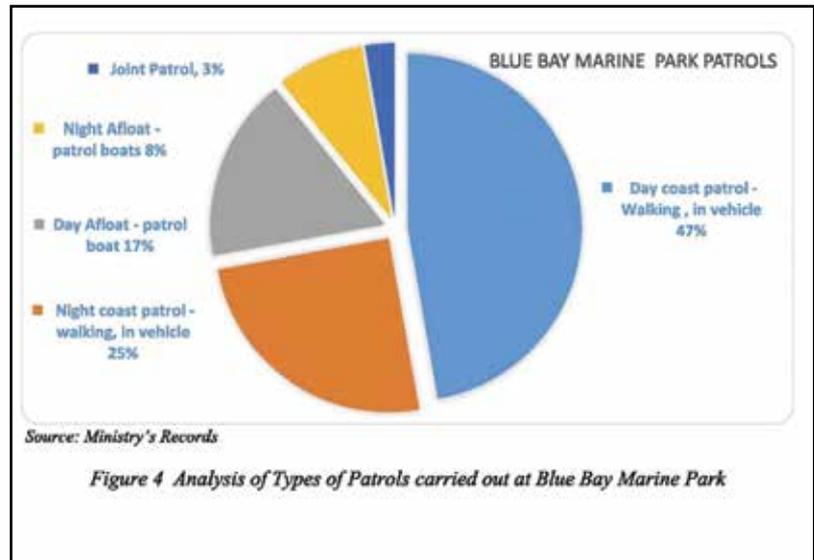
13 Annual Report on Performance for Financial Year 201-2020, Page 31. https://blueconomy.govmu.org/Documents/Annual%20Report%2019_20%20Final%20311221.pdf

15 Annual Report on Performance for Financial Year 2019-2020, Page 45. https://blueconomy.govmu.org/Documents/Annual%20Report%2019_20%20Final%20311221.pdf

were not usually linked to an intelligence-led planning.

Impact of the Audit

The Ministry reviewed the Canotte’ Scheme whereby a Selection Committee would be set up to assess the technical feasibility of applications, and select applications, followed by a financial feasibility exercise. The Fishermen Investment Trust Act was repealed, and one of its fishing vessels will be used for training of fishers after repairs and sea trial .



The Fisheries Protection Service has been reorganised with the reallocation of personnel and patrol vehicles among the fisheries posts in order to enhance interventions against illegal fishing. Compared to 2017, there was an increase in the number of illegal fishing activities detected and reported, and seizure of fishing nets during financial year ending 30 June 2020.

The Ministry intends to enforce the Extension Unit of the aquaculture for proper monitoring of projects and develop a Management Plan for the Coastal Fishery. It will continue to provide training to fishers to empower them with better livelihood and economic status. Long-term monitoring of the coral reef ecosystems and associated marine fauna will be pursued at selected sites and within the marine parks. The plans for the construction of Balaclava Marine Park Centre will be finalised. Also, the Management Plans of Marine Parks will be reviewed.



SAI Morocco

Audit of the national plan of fisheries development

Introduction

Morocco has a maritime area of 1.12 million km² located in one of world's five regions that have the most renewable and richest fishery resources. In the last decade, the country ranks among top 20 world's largest fish producers in the world.



In 2009, the government launched the first integrated national plan "Halieutis 2009-2020" consisting of 16 major projects to modernize the sector, maintain sustainable resources and further develop transformation, commercialization and added value.

Considering the challenges in the sector, the volume of investments involved, the expected economic and social outcomes, the Court of Accounts performed in 2017, an audit of the Halieutis plan.

Fishery sector in Morocco (2021)	
1st	African Producer.
2%	of GDP
238k	Jobs
1.42M tons	Production
15.1B MAD	Value
25.54 B MAD	Exports value
7.75%	Of national exports value

Key Audit Objectives

The audit main objective was to assess the progress of the implementation of Halieutis Plan, to what extent its targeted objectives have been met and consequently to identify the main structural obstacles and barriers to the sector development. The audit focused on the key aspects of the strategy: governance, sustainability, performance and competitiveness.

Key Findings

- The audit revealed delays or weak execution rates in some components of the plan and non-achievements of some goals in terms of world's market share, internal consumption, aquaculture production, infrastructure development and implementation of competitiveness clusters. Other key findings are as follows:

Governance	<ul style="list-style-type: none"> Need to improve the legal and regulatory framework and non-clarity of roles and responsibilities of institutional parties. Management of certain fisheries by simple ministerial decision. Weak monitoring processes and shortcomings in the implementation of integrated control.
Sustainability	<ul style="list-style-type: none"> Insufficient fishing rationalization measures. Increase in production outside management units. Extension of quotas. Dysfunctions in fisheries management. Use of illegal nets. Too wide zoning of fishing areas.
Infrastructure	<ul style="list-style-type: none"> Low adherence to the fishing fleet modernization and upgrading program. Insufficient equipment in landing structures. Non-functioning or unsuitable layout of certain fishing villages and landing points. Insufficient cold preservation equipment.
General Performance:	<ul style="list-style-type: none"> Operational dysfunctions in ports. Unjustified exclusion of deep-sea fishing from the distribution circuit managed. Existence of informal and parallel circuits and Irregularities in first-sale and second-sale marketing structures. Lack of facilitation measures of access to raw materials. Stagnant industrial network with limited processing of fish products causing low valuation of the national resource. Weak incentives and institutional framework for the aquaculture development. Lack of capacity building and attractiveness of maritime fishing professions. Insufficient resources dedicated to research.

Impact of the audit mission

The Court of accounts issued 53 recommendations. The follow up of their implementation revealed a significant positive impact on the whole chain value:

Sustainability



- Contribution to the fight against Illegal, Unreported and Unregulated fishing and increase of traceability.
- Stock recovery of species in a state of overfishing.
- Implementation of a new zoning and protected areas.
- Implementation of boats position tracking system and remote catches declaration from the sea.
- Strengthening the integrated control systems (at sea, on landing, in the value chain and certification of catches)

Structure modernization and tax policy



- Acceleration of the implementation of 12 new generation wholesale markets at ports and their full exploitation.
- New tax policies to encourage modernization.

Chain value



- Valuation improvement of small-scale fisheries and better living conditions of fishermen.
- More compliance with quality and hygienic standards

Research development



- Increase of research funding
- Modernization of oceanographic vessels.

Aquaculture development



- Adoption of the aquaculture code.
- New tax and custom incentives.

Good practices followed in the audit

The mission adopted a whole-of-government and multi-stakeholder engagement approach consistently with the integrated nature of Halieutis strategy and given the complex interrelations between the public stakeholders, the involvement many decision making levels as well the need of alignment and coordination efforts.

The mission considered the sector as value chain. It started with the assessment of the state of the halieutic resource and the fish stock and ended by evaluating the product wholesale marketing, processing and export.

The mission included unusual wide physical observation process of the implementation sites of Halieutis Plan (more than 10 ports and 20 fishing villages).

Rigorous data triangulation was necessary for quantitative and qualitative analysis with use of all potential reliable sources namely the central bank, the High Commission for Planning, the Exchange Office, in addition to international organizations (FAO).

The mission was conducted with an input of external expertise and reinforced quality assurance controls.

A follow-up mission of the recommendations issued was conducted in 2022.

<https://www.courdescomptes.ma/wp-content/uploads/2023/01/Plan-Halieutis-pour-les-annes-2010-2016.pdf>

**SAI Oman**

Fisheries sector audit

Introduction

In September 2015, all UN member states adopted a long-term roadmap to establish sustainable development, social inclusion, equality and poverty eradication, named as Sustainable Development Goals 2015-2030. The 2030 Sustainable Development agenda includes 17 goals with their 169 targets.

The government of the Sultanate of Oman has sought a voluntary commitment to the Sustainable Development Goals adopted by the United Nations, through the formation of national committees and teams concerned with achieving the Sustainable Development Goals and integrating them with national strategies, particularly Oman 2040 Vision.

The Sultanate's progress in the achievement of the fourteenth goal: conserve and sustainably use the oceans, sea and marine resources for sustainable development:

Sustainable development goals represent one of the factors used in the preparation of the tenth five-year development plan 2021-2025 issued by Royal Decree (1/2021) which included a set of sectoral goals related to 2030 SDGs.

The Sultanate of Oman has a coastal line of 3,165 KM; therefore, the country is interested in the so-called "Blue Economy" which includes developing specific plans to conserve fisheries, the sustainability of marine resources and cleanliness of seawater. Oman's efforts in this regard include:

- Develop a national strategy for fisheries up to 2040 in cooperation with FAO and the World Bank.
- Considering the fisheries sector as one of the promising sectors in the ninth five-year development plan.
- Regulating the utilization of fisheries by effectively regulating catches and prevent illegal and overfishing.

The fisheries sector is one of the main sectors that are relied upon in the diversification of economy, as it is a renewable resource that can increase food security, provide job opportunities for citizens and increase gross domestic product.

Strategic position of the subject matter (fisheries sector) of audit:

- Increase the contribution to the GDP: from OMR 225 million in 2016 to 1.3 billion in 2023
- Inject more investments: 80 projects are funded by private sector.
- Increase the quantity of caught fish: from 280 thousand metric tons to 14 million metric tons by 2023.

Activities and operations of the entity subject to audit:

More than 90 initiatives and projects were announced. Those projects included three main activities, namely commercial and artisanal fishing, aquaculture as well as manufacturing and exporting.

Objectives and scope of audit:

- Verify compliance with private sector initiatives.
- Assess lab results of Support and Follow-up Unit.
- Examine investments efficiency and decide whether those investments have realized the targeted returns.
- Check the number of job opportunities provided in those initiatives.
- Verify the contribution of the fisheries sector to the GDP.
- Assess whether there is increase in private sector investments in the field of fisheries.
- Assess the contribution of those initiatives in creating new opportunities for Omanis.

Risk analysis and assessment:

Based on risk assessment, audit identified the following high risks:

- Projects and initiatives are not as planned and not in line with the budget
- Procedures related to granting licenses and approvals and providing suitable lands are cumbersome

Audit methodology:

The audit report was prepared in light of performance audit manual and the INTOSAI Development Initiative model on SDGs audit.

Key findings and recommendations:

Key findings

- Delayed implementation of the initiative aiming to increase the land allocated for future aquaculture projects, which aims to allocate additional plots of lands for aquaculture projects to save the time that is otherwise wasted to find suitable sites for aquaculture.
- The estimated cost for the implementation of some projects is higher than their initial estimated cost in the labs, because of the establishment of multi-purpose ports that serve the economic sector as well as other governmental sectors.
- Lack of marketing and insufficient attraction of foreign investments in the projects to be implemented, in addition to the company's inability to implement most of the projects and the delay in the implementation of some projects.
- Non-compliance of some companies with the specific conditions of the required environmental study, which resulted in incurring additional costs of contracting with another environmental consultancy firm to conduct the studies, in addition to the delay in the implementation of the project as per the proposed work plan and thus a delay in the achievement of the project's objectives.
- Non-commitment of some companies to implement the projects approved within the results of the fisheries sector labs and the withdrawal of some companies despite the Ministry's efforts and its granting of the required licenses.
- Delay of some companies in the utilization of sites allocated to them and the failure of other companies to submit the required feasibility studies.
- Lack of seriousness of some companies investing in the manufacturing and exporting sector and the delayed submission of required documents by the companies to the Ministry, to obtain the required approvals.

Significant Audit Recommendations

- Study difficulties and constraints encountered in the fisheries sector labs' results, and identify any causes of failure to achieve the targeted objectives and results after elapse of one-half of the specified period. Furthermore, develop measures and solutions to avoid such difficulties and constraints to activate the contribution of the fisheries sector to the Sultanate's GDP.
- List all appropriate sites for fisheries sector projects in coordination with all relevant ministries and entities to obtain the required approvals and permits.

- Take necessary measures to establish fishing port infrastructure.
- Take necessary measures towards optimal economic utilization of fish stocks, follow up with companies that have obtained the necessary commercial fishing licenses, and ensure that there are no damages that may result from intensive fishing for certain species of fish.
- Ensure that companies provide specific job opportunities as per the proposed plans and they should be obliged to provide job opportunities for Omanis.
- Study the possibility of obligating companies to sign contracts or submit guarantees to the Ministry to demonstrate the investors' seriousness.
- Require investing companies to contract with international consultants and specialists in the field of environmental studies, due to the high sensitivity of some sites.
- Follow up with the serious investors who have obtained the necessary approvals to start the project, identify any causes of delay in implementation procedures and assist them to achieve the set goals.
- Encourage investors to expand their investments in the fisheries industries with economic returns and added value, and to resolve all difficulties and challenges in this regard.



SAI USA

Federal Fisheries Management and Climate Change

Introduction

In 2022, the U.S. Government Accountability Office (GAO) conducted an audit of U.S. efforts to prepare and adapt federally managed fisheries for the impacts of climate change. The increasing effects of climate change on ocean waters—such as warmer water temperatures and increased ocean acidity—can alter the number, location, and yield of fisheries and have negative economic consequences on fishing-reliant industries and coastal communities. In the U.S, commercial and recreational marine fisheries are managed by the National Marine Fisheries Service (NMFS) and eight Regional Fishery Management Councils (Councils).

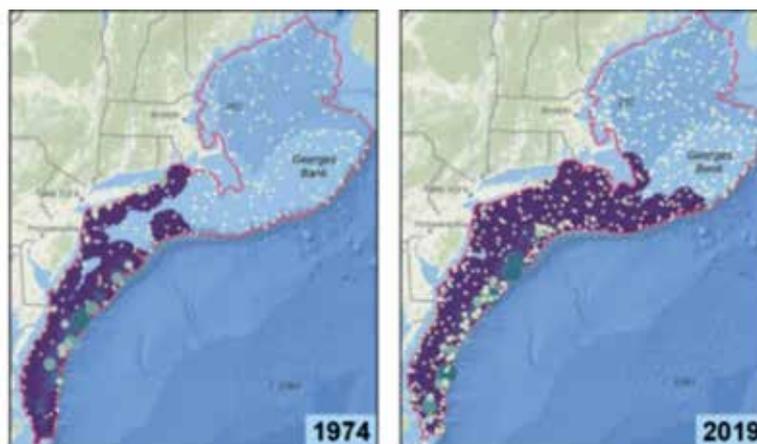
The audit objectives were to examine (1) the actions NMFS has taken to enhance the climate resilience of federal fisheries; (2) the extent to which fisheries managers (NMFS and the Councils) have used climate information; and (3) challenges to enhancing the climate resilience of federal fisheries and opportunities to address challenges.

Overall, GAO found that NMFS has a range of efforts underway to help fisheries managers enhance the climate resilience of federal fisheries. Since 2016, NMFS has developed regional action plans, new climate information, and tools. Such tools include climate vulnerability assessments for fish stocks and national web-based mapping tools that show distributional shifts in certain species (see below for a map on the distribution of black sea bass).

Map from the National Marine Fisheries Service's Distribution Mapping and Analysis Portal Showing Changes in Black Sea Bass Distribution from 1974 to 2019

GAO found that fisheries managers have used climate information to a limited extent in fisheries management. For example, GAO identified 12 out of 46 fishery management plans and amendments that considered climate-related information. Such plans lay out steps for adjusting catch limits or harvest guidelines considering changes in fisheries distribution or abundance due to climate-related changes

Case Studies



Source National Oceanic and Atmospheric Administration | GAO-22-105132

(e.g., changes in ocean temperatures) and other factors. However, many fisheries managers are leading initiatives that could advance the use of climate information in management, including conducting scenario planning or creating a special task force. Six of the nine fisheries managers told GAO that they were not aware of climate-related fisheries management activities taking place in other regions. According to a few stakeholders, fisheries managers could benefit from learning about such activities, but NMFS does not regularly collect or share this information.

GAO also found that fisheries managers face challenges to enhancing the climate resilience of federal fisheries, including limited data and modeling information, and resource constraints. However, opportunities exist to help address these challenges according to literature GAO reviewed and interviews with experts. NMFS also highlighted some of these opportunities in a 2018 guidance document for the Councils. For example, NMFS could partner with the fishing industry to collect data through equipment installed on commercial vessels to help address data challenges. Most NMFS regions (three of five) have taken some actions and shared the 2018 guidance document with the Councils. However, GAO found that NMFS is not actively working with Councils on implementing opportunities that it identifies.

Consistent with principles outlined in GAO's Disaster Resilience Framework, GAO recommended (and NMFS agreed) that the agency should (1) regularly collect and share information on fishery management activities for enhancing climate resilience, and (2) work with federal fisheries managers to identify and prioritize climate resilience opportunities and develop an implementation plan. As of January 2023, NMFS had shared plans with GAO on how it would address these recommendations but had not implemented these yet.

To conduct this work, GAO reviewed relevant laws, regulations, NMFS documents, and tools, and interviewed NMFS and Council officials, as well as relevant stakeholders. GAO also identified opportunities for enhancing the climate resilience of fisheries through a literature search and analysis of over 30 articles that discussed resilience approaches. In addition, the audit team reviewed NMFS' actions for consistency with relevant principles in GAO's Disaster Assistance Framework. Of note, the final report includes a series of appendices with examples of assessments, tools, and reports prepared by NMFS and partners that provide information on climate impacts on fisheries, as well as examples of fisheries management plans that consider climate information.

¹⁶ <https://www.bai.go.kr/bai/result/branch/detail?srno=2438>



PREVENTION OF OCEAN / COASTAL POLLUTION

Prevention of coastal pollution involves implementing proactive measures to minimize the discharge of pollutants, such as chemicals, sewage, and plastics, into coastal waters, thereby preserving the ecological balance and safeguarding the health of marine ecosystems, as well as the welfare of coastal communities and visitors. This includes promoting sustainable waste management practices, implementing stricter regulations, and raising awareness about the importance of responsible coastal behavior.

SAI China

Audit of Eco-environmental protection in the Bohai Sea region

Introduction of the Area Audited

The Chinese government attaches great importance to marine eco-environmental protection and sustainable development of the marine economy, and has carried out continuous comprehensive eco-environmental management of the Bohai Sea. In order to further improve the governance of Bohai Sea, from December 2018 to March 2019, the National Audit Office of China (CNAO) organized an audit of eco-environmental protection in the Bohai Sea region.

Main audit objectives

The audit was based on marine eco-environmental protection laws and regulations and Bohai Sea ecological and environmental protection planning, etc. Priorities were given to the status, changes and trends of the environmental quality of the Bohai Sea, the implementation of policies related to the prevention and control of pollution in the near-shore waters of the Bohai Sea and the performance of fiscal funds. Auditors focused on identifying outstanding problems affecting the improvement of the environmental quality of the Bohai Sea. Audit made recommendations to strengthen and improve the eco-environmental governance of the Bohai Sea, and promoted the high-quality development of the Bohai Sea Rim region.

III. Main audit findings

1. Prevention and control of agricultural surface source pollution is not in place.
2. Pollution prevention and control of industrial point source in key areas are weak.
3. Some important eco-environmental policies have not been fully implemented.
4. Some of the eco-environmental restoration and treatment projects have not been fully effective.

Main audit outcomes

1. Relevant departments have further improved management of the allocation of special funds to enhance the use of fiscal funds.
2. Coastal localities have actively implemented natural shoreline restoration and bay dredging projects, strengthened the protection of coastal wetlands and enhanced biodiversity protection.
3. Land and sea integration, as well as river and sea governance, have been carried out , and the watersheds integrated management of rivers flowing into the Bohai Sea have been strengthened.
4. Some entities have further improved the construction of pollution control facilities in accordance with relevant laws and regulations.



SAI Korea

Audit on Collection and Management of Marine Litter

1. Introduction of Area Audited

Marine Litter refers to any pollutants flowed to or discharged in the oceans that have done or might do harm to the marine environment. The Korean Ministry of Oceans and Fisheries (MOF) or local governments in charge of the waters in Korea can take the following measures to improve the marine environment:

- Installation of facilities to prevent the spread of discarded pollutants in the oceans;
- Collection and processing of pollutants; and
- Collection of contaminated sediment.

Marine Litter is classified as the land-based marine debris and ocean-based marine debris. Land-based marine debris are the litter from land-based sources entering into the oceans by being blown or carried by rain and wind. Ocean-based marine debris are those items from fishing, aquafarms, and vessels that may be dumped or swept away to the oceans. Annual amount of such marine litter is estimated to reach a total of 145,000 tons (Land-based: 95,000 tons, ocean-based: 50,000 tons), but only 69,000 tons of litter is collected.

In order to effectively collect and process the marine debris discharged or swept away to the oceans, the MOF establishes the Marine Litter Management Master Plan every 5 years in accordance with the Marine Environment Management Act. Based on the Master Plan, local governments establish an annual action plan for efficient implementation.

Korea's policies on marine pollution are largely for 'Prevention and Management of Marine Pollution', and 'Collection and Processing of Marine Litter.' As for the 'Prevention and Management of Marine Pollution', the government has put ahead with the programs such as 'Supporting supply of eco-friendly buoy', 'Installation of on-board waste collection facilities', 'Processing of marine litter in a river estuary', and 'Supplying waste Styrofoam compressor.' The programs in the area for 'Collection and Processing of Marine Litter' include 'Cleanup of

contaminated sediment', 'Operation of Fishing Port Management Vessel', and 'Improvement of Coastal and Fishing Environment.'

2. Key Audit Objectives

Microplastics, known to have harmful effects on human health, have been detected along the multiple coast lines in Korea. Among them, 3 to 12 times higher level of microplastics than the world average was found in the Namhae region (Southern Coast). As such, the marine pollution has been raised as an important social issue, and therefore, public concern has also been growing. Together with this, everyday waste coming from island area has been emerging as potential threats to marine biodiversity and environment.

In this respect, the Korean government has made great efforts to collect and process marine wastes. However, floating object accidents are still occurring frequently, and the marine litter-related policies of the government have little effects with areas for improvement.

Therefore, the Board of Audit and Inspection (BAI) of the Republic of Korea conducted the audit to examine the marine litter management system and overall related programs in a systematic manner, and to present solutions by analyzing the causes of problems found in the course of implementing such policies.

3. Key Findings

1) Prevention and Management of Marine Pollution

1. The Ministry of Environment (MOE) has taken insufficient measures against expected budget spending for collecting marine debris and addressing degraded living environment due to on-road incineration of wastes in an island area.
2. The MOF has failed to take measures to mitigate coastal pollution in the Namhae region mainly caused by untreated shells.
3. The Korea Environment Corporation (KEC) did not impose recycling charges to those producing buoys for aquaculture who failed to perform their obligation to recycling.
4. A specific local government unfairly gave its permission for aquaculture business to the farm that did not install water pollution prevention facilities.

2) Collection and Processing of Marine Litter

1. The MOF did not consider the differences in the ways of implementation between the marine litter cleanup project and the national fishing port management project as well as the performances of necessary equipment, thus having the possibility of creating a blind area in terms of collecting wastes around national fishing ports.
2. The MOF did not set the standard for marine litter process test including the sampling method, which would be applied to sea dredged soil removed by the MOF. Therefore, there was concern over the possible discharge of soil which might exceed the discharge standard.
3. The Korea Fisheries Infrastructure Public Agency (FIPA) wrongly set the evaluation criteria for selecting sites subject to the coastal fisheries environment improvement project, increasing the possibility of leading to distorted evaluation results.

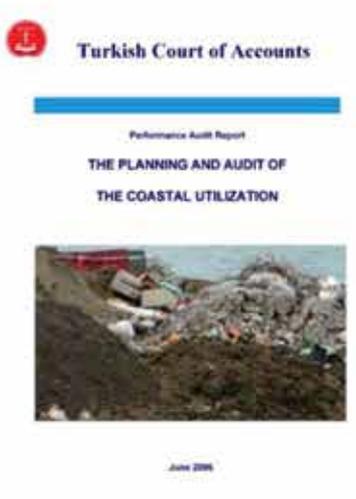
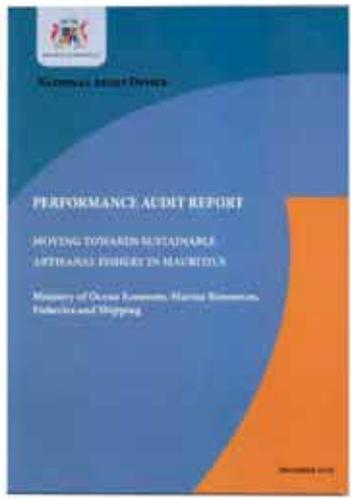
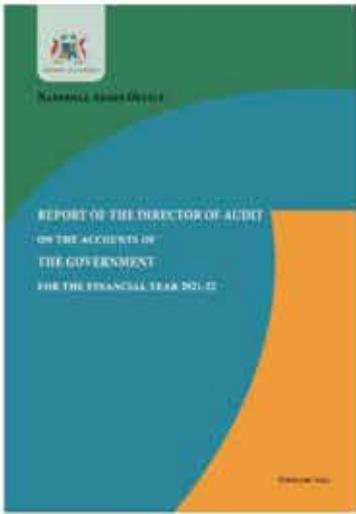
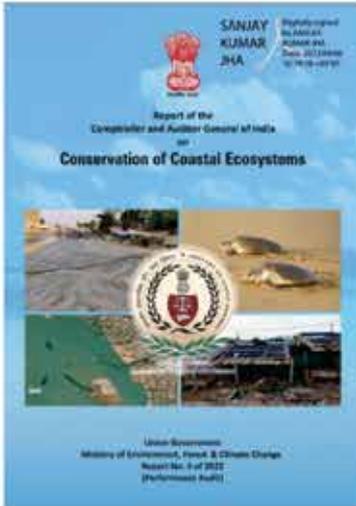
4. The KEC, when selecting a contractor for contaminated sediment removal and restoration project, neither set the reasonable standards, nor applied relevant standards for qualification test. Therefore, it used the qualification test standards with low relevance, failing to save the project costs.

With respect to these findings, the BAI pointed out the problems in the course of implementing policies and suggested to improve the situations through its audit recommendations. First, it notified the Minister of Environment to come up with the measures to treat wastes as well as to support technology development and installation of waste treatment facilities. BAI also notified the Minister of Oceans and Fisheries to develop the measures for effective treatment of untreated shells in the Namhae region.

4. Impact of Audit

This audit examined overall management systems and large-scale programs related to marine litter as well as focused on strengthening the management of sources of such marine wastes. In this way, BAI could identify causes of the problems in the implementation of marine litter policies and present the measures for improvement.

<https://www.courdescomptes.ma/wp-content/uploads/2023/01/Plan-Halieutis-pour-les-annes-2010-2016.pdf>

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