GEF-7 CHILD PROJECT CONCEPT

CHILD PROJECT TYPE: Full-sized Child project

PROGRAM: OTHER PROGRAM

Child Project Title:	Deep-sea Fisheries under the Ecosystem Approach (DSF project)
Country:	Global
Lead Agency	FAO
GEF Agency(ies):	FAO

INDICATIVE FOCAL/NON-FOCAL AREA ELEMENTS AND FINANCING

Programming Directions	Trust Fund	(in $)	
		GEF Project Financing	Co-financing
IW-2-4 Improve management in the areas beyond national jurisdiction (ABNJ) through improved management and sustainable use of the open oceans	GEFTF	4,437,156	59,400,000
Total Project Cost		**4,437,156**	**59,400,000**

PROJECT COMPONENTS AND FINANCING

Project Objective: To ensure that DSF in the ABNJ[1] are managed under an ecosystem approach that maintains demersal fish stocks at levels capable of maximizing their sustainable yields and minimizing impacts on biodiversity, with a focus on data-limited stocks, deepwater sharks and vulnerable marine ecosystems.

Project Components	Compon-ent type	Project Outcomes	Project Outputs	Trust Fund	(in $)	
					GEF Project Financing	Co-financing
1. Governance - strengthening and implementing regulatory frameworks	TA	1.1 – Wider adoption, enforcement and compliance of international obligations relating to sustainable fisheries (stocks and impacts)	1.1.1 - Gaps in regional obligations to (i) manage fish stocks and (ii) reduce fisheries impacts on biodiversity identified (updated) and corrective measures developed. 1.1.2 - Measures to address national legal and regulatory gaps in international obligations related to fisheries management piloted in selected countries. 1.1.3 - Gaps in existing capacity to strengthen compliance and enforcement identified and filled (+ tuna[1]).	GEFTF	785,180	11,880,000
2. Strengthening effective management of DSF	TA	2.1 – Effective decision making strengthened to increase sustainability and reduce impacts	2.1.1 - Frameworks to improve science-management interface and exchange strengthened following an ecosystem and precautionary approach (+tuna[1]) 2.1.2 – Uptake of new and innovative approaches and technologies for improved monitoring, reporting and information sharing piloted and introduced (+tuna[1])	GEFTF	2,355, 510	35,640,000

[1] Areas beyond national jurisdiction (ABNJ) consist of the high seas and the "Area" as defined in UNCLOS (1982). The use of these term here, and any endorsements or partnerships to the deep-sea project, does not prejudice any claims or rights States may have over their extended continental shelf.

			2.1.3 – Management systems promoting and rewarding compliant behaviour along fisheries supply chain (+tuna[1]).			
		2.2 - Improved advice supporting science-based fisheries management	2.2.1 - Stock productivity models developed and advice generated and tested (including demersal and small pelagic species and climate change effects) (+tuna[1]) 2.2.2 - Low-yield and data-limited stocks assessed and managed (+tuna[1]) 2.2.3 – Socio-economic considerations of DSF assessed and information disseminated			
		2.3 - DSF impacts on biodiversity quantified, assessed and managed	2.3.1 - Impacts of DSF on deepwater sharks assessed and mitigated 2.3.2 – Knowledge of impacts of fishing activities on VMEs improved and mitigation measures developed and adopted			
3. Improving understanding and management of cross-sectoral impacts on DSF	TA	3.1 - Improved integration of cross-sector activities to maintain biodiversity and resource sustainability	3.1.1 - Interactions between fisheries and other sectors operating in the deep seas identified and information made available. 3.1.2 - Mechanisms to better mitigate and manage cross-sector impacts on DSF developed.	GEFTF	785,173	11,880,000
4. Knowledge management, communication and M&E	TA	Information and knowledge products, and demonstration of effective project implementation, contribute to raise awareness of project objectives, activities and achievements among stakeholders and target audiences	Communication and knowledge products, tools and approaches developed and shared through appropriate channels to reach targeted audiences, including relevant knowledge-sharing platforms, such as IW:Learn and Common Oceans; Processes developed and undertaken to facilitate exchange of lessons learned, best practices and expertise generated during project implementation (inc. IW:Learn at 1%); Operational project M&E systems implemented.		300,000	
Subtotal				GEFTF	4,225,863	59,400,000
Project Management Cost (PMC) (at 5%)				GEFTF	211,293	0
Total Project Cost					4,437,156	59,400,000

[1] "+tuna" indicates focus area for collaboration with Tuna Project.

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ( )

INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount ($)
GEF Agency	FAO	In-kind	Recurrent expenditure	7,000,000
RFMOs	RFMOs[1]	In-kind	Recurrent expenditure	6,900,000
Private sector	Fishing industry[2]	In-kind	Recurrent expenditure	39,000,000
Governments	NOAA	In-kind	Recurrent expenditure	6,500,000
Total Co-financing				59,400,000

[1] RFMOs (GFCM, NAFO, NEAFC, NPFC, SEAFO, SIOFA, SPRFMO)

[2] Fishing industry (SIODFA, Sealord, ICFA)

Describe how any "Investment Mobilized" was identified.

TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee (b) (at 9%)	Total (c)=a+b
FAO	GEFTF	Global	International Waters	(select as applicable)	4,437,156	399,344	4,836,500
Total GEF Resources					4,437,156	399,344	4,836,500

PROJECT PREPARATION GRANT (PPG)

Is Project Preparation Grant requested?

Yes ☒ If yes, PPG funds **have to be requested via the Portal** once the PFD is approved

No If no, skip this item.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in $)		
					PPG (a)	Agency Fee (b)	Total c = a + b
FAO	GEFTF	Global	International Waters	(select as applicable)	150,000	13,500	163,500
Total PPG Amount					150,000	13,500	163,500

PROJECT'S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Provide the relevant sub-indicator values for this project using the methodologies indicated in the Core Indicator Worksheet provided in Annex B and aggregating them in the table below. Progress in programming against these targets is updated at the time of CEO endorsement, at midterm evaluation, and at terminal evaluation. Achieved targets will be aggregated and reported at anytime during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Project Core Indicators	Expected at PIF[5]

1	**Terrestrial protected areas** created or under improved management for conservation and sustainable use (Hectares)	
2	**Marine protected areas** created or under improved management for conservation and sustainable use (Hectares)	12 million **(1)**
3	Area of **land restored (**Hectares)	
4	Area of **landscapes under improved practices** (excluding protected areas) (Hectares)	
5	Area of **marine habitat under improved practices** (excluding protected areas) (Hectares)	3,200 million **(2)**
6	**Greenhouse Gas Emissions Mitigated** (metric tons of CO2e)	
7	**Number of shared water ecosystems** (fresh or marine) under new or improved cooperative management	
8	Globally over-exploited **marine fisheries** moved to more sustainable levels (metric tons)	50,000 **(3)**
9	**Reduction**, disposal/destruction, phase out, **elimination** and avoidance of **chemicals of global concern** and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)	
10	Reduction, avoidance of emissions of **POPs to air** from point and non-point sources (grams of toxic equivalent gTEQ)	
11	Number of **direct beneficiaries disaggregated by gender** as co-benefit of GEF investment	500 ♀ : 1 500 ♂ **(4)**

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicators targets are not provided.

Notes (1)-(4): Annex 1 provides a summary of the current baselines used to estimate above values. It also provides some more specific project-style indicators that help understand project impacts.

PROJECT DESCRIPTION

1. Context (*maximum 500 words*)

Describe relevant environmental challenges and strategic positioning relative to the systems transformation proposed for the program, including relevant existing policies, commitments, and investment frameworks. How are these aligned with the proposed approach to foster impactful outcomes with global environmental benefits?

The high seas cover 64% of the world's oceans and support many high-value fisheries, marine resources and unique ecosystems. In particular, the deep-seas[2] include fragile benthic habitats that are important for ecosystem function.

Deep-sea fisheries (DSF) take place at great depths, at least below 200 meters and often down to 2,000 meters. DSF target demersal species, found on continental shelves, seamounts and ocean ridges, using a range of bottom-fishing gears including bottom-contact and deep mid-water trawls, gillnets, longlines and pots. Annual global DSF harvest was around 226 000 tonnes in 2016[3]. High seas DSF are valued at about USD 390 million at first sale and are an important source of employment, livelihoods and nutrition.

The impact of deep-sea fisheries activities on fish stocks, habitats and biodiversity emerged as an issue in the latter half of the twentieth century, as DSF rapidly developed with the advent of large trawlers and subsidized fleets assisted by technological advances in positioning systems. Many deep-sea stocks became over-exploited, yields quickly diminished, and many fisheries ceased operation. Some fisheries continued at lower levels, and some new ones have developed.

The legal framework for fisheries management in the high seas falls under the UN Law of the Seas Convention (UNCLOS 1982) and the UN Fish Stock Agreement (FSA 1995). A suite of hard and soft law instruments provide regulatory details for the management of DSF. These include the FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas adopted in 2008. States cooperatively manage the high seas fishery and resources through regional fisheries management organisations (RFMOs) which serve as a forum for scientific exchange and decision-making. There are eight regional bodies managing DSF in the high seas: seven RFMOs[4] and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR[5]). Figure 1 maps the regional bodies managing and advising on bottom fisheries in the high seas.

With the wider international legal framework seen as weak when it comes to ocean health and biodiversity conservation, with no mechanisms for its direct management and protection, there is currently an ongoing process to develop a new legally binding instrument on the Conservation and Sustainable Use of Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ) under UNCLOS.

[2] Areas deeper than 200 meters.

[3] FAO. 2020. *Worldwide review of bottom fisheries in the high seas in 2016.* FAO Fisheries and Aquaculture Technical Paper No. 657. Rome, FAO. 344 pp.

[4] GFCM, NAFO, NEAFC, NPFC, SEAFO, SIOFA, SPRFMO - other RFMOs manage highly migratory species (tuna and similar) or are specialised and manage a single species or taxa.

[5] CCAMLR in the Southern Ocean has a wider remit under the Antarctic Treaty that includes the whole ecosystem.

In line with the GEF-7 ABNJ program objective "sustainable use of ABNJ resources and strengthen biodiversity conservation in the face of a changing environment", the proposed child project aims to ensure that deep-sea fisheries in the ABNJ are managed under an ecosystem approach, minimizing impacts on biodiversity, with a focus on vulnerable marine ecosystems. The project builds on partnerships, results and lessons learned from the GEF-5 ABNJ Deep-seas project[6].

2. Project Overview and Approach (maximum 1250 words)

a) Provide a brief description of the geographical target(s), including details of systemic challenges, and the specific environmental threats and associated drivers that must be addressed;

The project is global, focusing on high seas DSF (see ocean regions and regional management bodies in Figure 1).

Demand for seafood as a source of nutrition and food security is increasing. A growing global population, coupled with a shift in demand for high-quality fish with firm white flesh that is provided by deep-sea species, has resulted in higher demand for demersal species and for the development of new DSF. This poses a significant threat and potential adverse impacts on fish stocks and to biodiversity. The orange roughy fishery in the Indian Ocean is an example of this. The fishery started around 1989, increased dramatically around 2,000 when the number of vessels jumped from 6 to over 40, with catches that jumped from less than 500 mt to over 20,000 mt, followed by a rapidly decline some 5 years later to annual catches of less than 1,000 mt. Another example is the high seas shrimp fishery that developed rapidly around the Flemish Cap in the NW Atlantic around 2000 soon after the cod collapse. Catches increased to almost 30,000 mt by 2008, and then declined to near zero in 2014 when the fishery was closed.

Although some deep-sea stocks are relatively productive and are now managed more sustainably, **one of the main challenges to the sustainable management of DSF and biodiversity conservation is limited information and knowledge about the biology and distribution of the fished stocks and deep-sea ecosystems, and the impacts from fisheries and other activities**. A 2016 survey of 51 targeted and fished deep-sea stocks found that the status of some 50% of the stocks was "unknown"[3]. In the same survey, ten stocks were assessed as overfished or depleted.

The extent of DSF impacts on benthic habitats and vulnerable marine ecosystems (VMEs) and on certain slow-growing bycatch species, such as deepwater sharks, is also still largely unknown. A further, and largely unknown and unstudied effect on fish stocks and biodiversity comes from external threats like climate change and new activities such as mineral extraction.

In order to transform DSF into sustainable systems and protect vulnerable marine ecosystems, a number of barriers would need to be addressed.

Barrier 1: Gaps in the adoption, enforcement and compliance of international obligations relating to sustainable fisheries management.

Managing the oceans requires a strong international legal framework that is incorporated into national regulations. Not all countries have fully integrated international obligations, and opportunities exist for coastal States to play a more active role within the RFMOs.

[6] Sustainable fisheries management and biodiversity conservation of deep-sea living marine resources and ecosystems in areas beyond national jurisdiction.

In terms of illegal, unreported and unregulated (IUU) fishing, illegal fishing, though hard to monitor, is believed to be low for most high seas DSF. Unreported catches, or more commonly under-reporting of catches, continues and new initiatives and incentives to improve reporting are required. Unregulated or poorly regulated DSF are also common to about half of the fished stocks, typically assessed as data-limited. Significant effort is required to bring these stocks under a stricter management regime, in order to mitigate against impacts on the stock, bycatch and incidental species.

Barrier 2: Limited data and information on stocks and impacts on VMEs. As mentioned, this is one of the biggest constraints in implementing the Ecosystem Approach to Fisheries (EAF) in DSF, along with weak science-management interface and application of the precautionary approach at regional and national levels. Many RFMO-member States lack the extensive science-management frameworks and networks available to developed and wealthy fishing nations.

Assessments of ecosystem health and impacts on VMEs and bycatch species from DSF is scientifically challenging. Cost-effective technologies and tools need to be developed. There are also barriers to understanding the effects of climate change and other sectors on the flora and fauna of the deep oceans at 200–2000 m depth. These factors limit the capacity to implement EAF in some regions and among some countries, especially in the newer RFMOs and developing country coastal states.

Barrier 3: Lack of information, and poor communication and collaboration, on impacts by fisheries and other sectors in the high seas.

The use of the high seas is multi-sectoral; shipping and transport fall under the International Maritime Organization (IMO) and mineral resources fall under the International Seabed Authority (ISA). Fisheries in the high seas has, for the past 10 or so years, increased its efforts to mitigate against adverse impacts on biodiversity, with for example many new measures in place to sustainably harvest stocks and protect vulnerable marine ecosystems. However, the impacts on high seas fish stocks and VMEs from cross-sectoral activities such as deep-sea mining, are poorly understood and require the development of new science-based methodologies and precautionary management regimes.

Efforts are being made by regional fisheries bodies, regional seas programmes, fishing industry partners and international organizations, to address these barriers. Some of these baseline activities and investments are briefly described below.

b) Describe the existing or planned baseline investments, including current institutional framework and processes for stakeholder engagement and gender integration;

Institutional framework. High seas DSF are managed by eight regional organisations (Figure 1). Three of these are long-established (GFCM (1949), NEAFC (1959), and NAFO (1979)), and four were established relatively recently (SEAFO (2003), SPRFMO (2012), SIOFA (2012), and NPFC (2015). CCAMLR (1982), established under the Antarctic Treaty, has a wider remit that includes protecting the ecosystem. There are also two regional advisory bodies in the central Atlantic (CECAF (1967) and WECAFC (1973)). The deep-sea RFMOs play a key role in achieving the international goals and obligations of countries. Through RFMOs, States cooperate to achieve sustainable conservation and management of fisheries, both within and beyond areas under national jurisdiction.

DSF are largely conducted by wealthier nations who have the necessary investments and capacity. However, the membership of the RFMOs is more diverse and includes developing countries and those with economies in transition (i.e. GEF eligible); many requiring additional support to engage in RFMO management, scientific and compliance processes. The project will offer direct support to GEF-eligible countries, and opportunities to contribute in RFMO processes. This will be enhanced by promoting

increased cooperation among regional organisations, especially in developing links between the established and newer RFMOs, and as appropriate with tuna-RFMOs.

Baseline investments. The FAO deep-sea fisheries programme[7] is working with governments, inter-governmental organizations, international NGOs, industry and the scientific community to improve fisheries management practices, and increase knowledge of and protect vulnerable areas in the high seas – with funding from various donors including the EU, Governments of Japan, Norway and France. The main activities under this programme include:

- Support for the implementation of the International Guidelines on the Management of DSF focused on providing capacity development to RFMOs and member States;
- Providing expert technical guidance, tools and resources to improve management practices; and designing state-of-the-art data collection and sharing systems related to vulnerable marine ecosystems; and
- Facilitating dialogue, collaboration and networks among key stakeholders in order to strengthen and improve the effective management of deep-sea fisheries.

The FAO programme served as an important catalyst for the **GEF-5 ABNJ Deep-seas project**, in turn the core foundation for the proposed project. The GEF-5 program brought together under a common framework, diverse institutions and organizations with important roles in DSF and biodiversity conservation in the ABNJ. Partnership and cooperation were established/strengthened between RFMOs and States, private sector, NGOs and other organizations. Many of these plus additional organizations have expressed their support for the overall GEF-7 ABNJ Program and the proposed DSF project through baseline co-financing and participation in project activities. It is foreseen that mechanisms for stakeholder engagement at program and project level will be largely built on those that were set-up in the previous GEF-5 program[8]. These, in fact, were instrumental in the participatory development of the program and child proposals.

Gender integration: There has been very little baseline work, if any, on collating employment and stakeholder statistics by gender for DSF, or associated activities. This project will, as part of the supply chain analysis in selected pilot regions, work on gender equality and provide positive-action gender training initiatives to support the involvement of women in the DSF sector. Support activities, such as monitoring and compliance, and participation in RFMO management and science meetings, will be targeted.

c) Describe how the integrated approach proposed for the child project responds to and reflects the Program's Theory of Change, and as such is an appropriate and suitable option for tackling the systemic challenges, and to achieve the desired transformation with multiple global environmental benefits;

The new GEF-7 program contributes to the "sustainable use of ABNJ resources and strengthen biodiversity conservation in the face of a changing environment". This builds upon the outcomes of the earlier GEF-5 program that finished in 2020. The DSF project responds to and reflects the program's Theory of Change, as presented in the table below.

[7] http://www.fao.org/fishery/topic/16160/en
[8] http://www.fao.org/in-action/commonoceans/partners/en/

ABNJ program component	DSF conformity and contribution to ABNJ (program outcomes in bold)
<u>Component 1.</u> Strengthening frameworks, processes and incentives for more effective fisheries governance and management in ABNJ	Project Outcome 1.1 will work with RFMOs and member states to harmonise international legal and voluntary frameworks. The focus will be on incorporation of EAF to achieve sustainable fisheries and healthy ecosystems though reducing impacts. This maps directly to the program **Outcome 1.1 "Policy and legal frameworks, incorporating obligations and good practices to support sustainable use of ABNJ resources harmonised, integrated and implemented".**
<u>Component 2.</u> Improving capacity to manage fisheries sustainably in ABNJ	Project Outcome 2.1 will work with scientists and managers representing member states of RFMOs to improve scientific advice through uptake of new and innovative technologies and more informed decision-making by strengthening the science-management interface. This maps directly to program **Outcome 2.2 "Quality and availability of technical/scientific information to support evidence-based decision-making on fisheries governance, investment and management in ABNJ strengthened"**. Project Outcome 2.2 will improve fisheries management under EAF by identifying reference points for data-limited stocks and increasing the number of stocks assessed. This includes developing socio-economic indicators and examining the consequences of climate change leading to adaptive management. Project Outcome 2.3 examines risk assessment methodologies to mitigate impacts on non-target species and VMEs. This will help RFMOs develop appropriate measures for sustainable fisheries. These two outcomes map to program **Outcome 2.1 "Institutional and individual knowledge, skills and tools to apply EAFM in ABNJ strengthened**".
<u>Component 3.</u> Improving stakeholder coordination and engagement in multi-sectoral processes addressing governance and management of ABNJ	Project Outcome 3.1 will identify potential interactions between the fisheries sector and other sectors in the high seas and make this information available to allow for the development of future dialogue on multi-sectoral management. This maps to program **Outcome 3.1 "Sector mandates, roles and responsibilities related to ABNJ clarified and promoted (awareness raised) and sector-specific impacts and ecological connections better understood".** Project Outcome 3.1 will also assist RFMOs in developing tools for sectoral impact assessments, both on and by fisheries. This contributes to program **Outcome 3.2 "Cross-sectoral technical knowledge sharing and coordination improved"**. These entry points by the fisheries sector will promote multi-sectoral planning and feed into other projects under the Program, notably the Sargasso Sea and Cross-sectoral projects.

The DSF project will coordinate closely with the other projects in the program, and particularly with the Tuna project. These have been shown in the "Project Components and Financing" table above by the addition of "(+tuna)" to the outputs.

d) Describe the project's incremental reasoning for GEF financing under the program, including the results framework and components.

The GEF-7 financing to the DSF project will allow for RFMOs and member States to increase their capacity to work together, and with other sectors, to share experiences and cooperatively develop new and efficient tools, that will allow for improved monitoring and management of the fish stocks and impacts on biodiversity. The GEF funding will support activities, beyond the RFMO's core role of fish stock management that will lead to better assessments of data-limited stocks (which amount to some 50 % of the exploited deep-sea fish stocks), improvements in risk assessments on non-target species including deepwater sharks and VMEs, and on improvements to monitor biodiversity and ecosystem health. The GEF support will allow up-scaling by the DSF project of the many smaller studies and initiatives undertaken by project partners and uptake of the developed tools through direct support to GEF-eligible developing nations. GEF support, in conjunction with FAO's role of supporting fisheries management in the high seas, will also allow for further implementation of the FAO's own binding and voluntary instruments to be trialed and implemented by RFMOs and industry.

Further, the GEF-7 funding will allow for increased cooperation and exchange among the RFMOs. This will build on successful initiatives started under the FAO-GEF Deep-Sea Project, and greatly assist the newer RFMOs and develop opportunities for those coastal States that are members of RFMOs but do not have DSF.

Without GEF funding, RFMOs and flag States would continue to manage DSF and promote sustainable resources utilisation and a reduction in impacts. However, there would be less collaboration among regions and less development and transfer of new technologies. Work relating to climate change, socio-economic development and drivers, and cross-sectoral interactions would be much reduced.

The project objective is: 'to ensure that DSF in the ABNJ are managed under an ecosystem approach that maintains demersal fish stocks at levels capable of maximizing their sustainable yields and minimizing impacts on biodiversity, with a focus on data-limited stocks, deepwater sharks and vulnerable marine ecosystems.'

The project focuses on high seas DSF using gears that fish on or near to the seabed and target demersal finfish and shellfish. The project has three components that are embedded within the ecosystem approach to fisheries (EAF) framework and outlined in the FAO Code of Conduct for Responsible Fisheries (1995) and the Ecosystem Approach to Fisheries technical guidelines (2003). A fourth component deals with knowledge management, communication and M&E, and will be linked to the program level coordination platform.

Component 1 Governance – strengthening and implementing regulatory frameworks

Component 1 seeks to strengthen DSF governance through wider adoption, enforcement and compliance of international obligations relating to sustainable fisheries management aimed at maintaining stocks and reducing impacts.

<u>Outcome 1.1 – Wider adoption, enforcement and compliance of international obligations relating to sustainable fisheries (stocks and impacts)</u>

Output 1.1.1 examines the requirement of regional fisheries bodies managing high seas DSF to adopt measures consistent with the obligations established by binding and voluntary international fisheries instruments and will provide support for the uptake of these obligations to promote sustainable fisheries. This will build upon results achieved during the GEF-5 ABNJ Deep-seas project. Activities will focus on developing appropriate measures to fill legal and regulatory gaps and supporting uptake by RFMOs.

Specialist advice and capacity provision, such as developing trans-shipment guidelines and training will be provided by the project.

Output 1.1.2 supports the uptake of regional fisheries measures by States to ensure that the international obligations are incorporated into national law. This will build upon a gap analysis and step-wise guide developed by the GEF-5 Deep-seas project. Such efforts will help strengthen the effectiveness of existing regional measures to support sustainable fisheries and biodiversity conservation. Activities will include capacity building to draft legislation at the national level. Flag State performance self-assessment will be promoted to identify capacity building needs. GEF-eligible RFMO member States will be selected to pilot these activities through the project. This capacity building will strengthen the participation of developing countries at regional meetings and their greater involvement in the associated decision-making and science-support processes. It will further serve to promote greater harmonisation of regulations and compliance mechanisms between high seas and national waters.

Output 1.1.3 will provide capacity development to monitor and enforce existing and newly adopted national legal/regulatory measures to reduce high seas IUU fishing through building national expertise.

Component 2 - Strengthening effective management of DSF

Component 2 aims to deliver more effective management of DSF through improving knowledge, approaches and tools for the application of EAF. It will support the transition from traditional single-species assessments to multi-species ecosystem frameworks started under the GEF-5 project. This component aims to identify novel approaches to strengthen the decision-making processes within the fisheries sector required to develop control measures and ensure compliance. It comprises three outcomes. The first focuses on developing specific frameworks for decision-making, the second on improving management of data-limited fish stocks, and the third on mitigating adverse impacts on biodiversity.

<u>Outcome 2.1 – Effective decision-making strengthened to increase sustainability and reduce impacts</u>

Output 2.1.1 promotes the uptake of new and innovative approaches and technologies for improved monitoring, reporting and information sharing. The project will promote new ways to monitor catch, bycatch, discards, incidental species, and direct physical effects on the sea floor, allowing impacts to be better assessed for species occupying the same ecosystem as the harvested fish. For instance, tools and applications to assist on-board observers such as the SmartForms developed under the GEF-5 project, and gear-mounted camera systems to monitor impacts on benthic environments, will be piloted. Identification guidelines covering various species will also be made available (some of which were developed through the GEF-5 project), and the project will help develop the methodologies needed for their use. Additionally, and in line with work started over 10 years ago by RFMOs , electronic monitoring systems (EMS) will be further developed in partnership with industry to better understand the responses of deep-sea fishing fleets to changing fish stock distributions resulting from, for example, climate change or spatial closures and better mitigate against impacts.

Output 2.1.2 seeks to improve the science-management interface and application of the precautionary approach at regional and national levels. Many RFMO member States lack the extensive science-management frameworks and networks available to developed and wealthy fishing nations. Strengthening the science-management interface will improve the information flow allowing for stronger adaptive management and greater participation in the decision-making processes by the less developed member states. Activities will build upon the gaps identified under GEF-5 in the implementation of the biological, human and institutional dimensions of EAF. Additionally, by developing a framework that uses

clear language, it is expected that the process will become more transparent and allow outside "non-technical" stakeholders and the general public to better understand the decision-making processes used in managing fish stocks and protecting the deep-sea environment.

Output 2.1.3 aims to provide positive incentives for fishing companies, processing and distribution plants along the supply chain to promote responsible activities leading to cost-effective management and compliant behaviour ensuring sustainable DSF with minimal impacts on biodiversity.

Outcome 2.2 - Improved advice supporting science-based fisheries management

Output 2.2.1 focuses on the development of ecosystem production models and includes both pelagic and DSF, building on those developed by partners during the GEF-5 project. This output will examine future harvesting predictions under different productivity regimes (which is with especially challenging to fisheries managers), with the results informing Output 2.1.2. Further, the modelling can predict maximum sustainable yields generated under ideal stock conditions and be used to estimate yield and financial losses incurred through overfishing. This output will also explore opportunities for fishing vessels to provide information on the deep ocean oceanography needed for a better understanding of climate change impacts on DSF.

Output 2.2.2 focuses on the deep-sea species that are targeted by fisheries but which lack detailed assessments, and are classified as 'data-limited'. Initial work on assessment methodologies of such fisheries undertaken during the GEF-5 project, will be piloted further under GEF-7, using frameworks developed under Output 2.1.1.

Output 2.2.3 will analyse the DSF supply (value) chain to better understand the economic and social drivers of DSF and link to output 2.1.3. This output will include a gender analysis and assessment of the societal and family benefits derived from activities related to DSF.

Outcome 2.3 - Fisheries impacts on biodiversity quantified, assessed and managed

Outputs 2.3.1 and 2.3.2 address the identification and mitigation of impacts from DSF. The project will further develop risk assessment methodologies (Output 2.3.1), building on the GEF-5 experiences and lessons learnt, with a focus on incidental catches of slow growing and long lived deepwater sharks. These will be supported using various tools developed through the project with effective approaches made available for upscaling to other species groups such as deepwater corals and sponges, seabirds, and other endangered, threatened or protected (ETP) species. The protection of benthic biodiversity will be further supported under Output 2.3.2, particularly in the newer RFMOs in the Pacific Ocean, southeast Atlantic Ocean and Indian Ocean where capacity is lower compared to other regions. Project activities will include the use of predictive models to identify likely locations of VMEs that can be verified with activities under Output 2.1.1, and development of mitigation measures under Outputs 1.1.1 and 2.1.2. The project is proposing to undertake a joint EAF-Nansen and industry sampling and calibration survey in the Indian Ocean, which will support these outputs. Activities under Output 2.3.2 will also seek to align the current bottom-fishing measures within an EAF framework, and with clearer linkage to meeting SDG targets.

Component 3 - Improving understanding and management of cross-sectoral impacts on DSF

Component 3 will improve the understanding, management and mitigation of the impacts from other sectors on DSF and link with other projects in the GEF-7 ABNJ program that address multi-sectoral ocean governance.

Outcome 3.1 - Improved integration of cross-sector activities to maintain biodiversity and resource sustainability

Output 3.1.1 will identify interactions between DSF and other sectors operating in the high seas, including impacts on fisheries, fished stocks, and areas under special protection such as spawning areas and VME closures. The information will be made available to support decision-making and governance by other sectors. Together these will serve as a strong entry point into multi-sectoral discussions on integrated management for deep-sea ecosystems.

Output 3.1.2 focuses on providing support for the high seas fisheries sector to better develop mechanisms to assess, mitigate and manage cross-sector impacts on DSF. For example, the effects of deep-sea mining sediment plumes on deep-sea fish populations are largely unknown and approaches and tools to determine their impacts need to be developed. The project will explore options for RFMOs to assess impacts from the activities of other sectors, which will place them in a stronger position to constructively contribute to multi-sector impact assessments and governance processes.

Component 4 – Knowledge management, communication and M&E

Component 4 addresses monitoring and evaluation, knowledge management, communication, and outreach within the project and how this DSF project interacts with the program and other projects within the program. The project will particularly support the RFMOs to improve their communication outreach to inform both the BBNJ process and wider stakeholders on the sustainable fisheries work currently undertaken in the ABNJ, including continued support of the FAO VME Portal and DataBase, positive action gender-sensitive training programmes supporting State involvement in RFMO activities, and revamping as necessary RFMO websites to show progress towards relevant SDG and Aichi targets.

The project Theory of Change is in Annex 2. The proposed design was developed through a series of project development workshops, presentations and meetings involving major stakeholders and potential project partners that took place between December 2018 and January 2020.

3. Engagement with the Global / Regional Framework (*maximum 500 words*)

Describe how the project will align with the global / regional framework for the program to foster knowledge sharing, learning, and synthesis of experiences. How will the proposed approach scale-up from the local and national level to maximize engagement by all relevant stakeholders and/or actors?

One of the recommendations from the terminal evaluation of the GEF-5 ABNJ is that a structured knowledge management mechanism should be considered as a key aspect in the GEF-7 program. This would allow "effective harvesting and dissemination of the wealth of knowledge emanating from the child projects". Taking this into consideration, a global coordination and knowledge management child project has been proposed. This project will be linked to the child projects, facilitate sharing of knowledge, tools and approaches across the program and with other relevant platforms (e.g. IW:LEARN) and partners.

The DSF knowledge management will include activities at various levels – through regional and international frameworks.

Regional fisheries management frameworks: RFMOs are the principal stakeholders in the DSF project, and comprise of managers, scientists and compliance specialists, supported by a Secretariat. The Secretariat is the first point of contact with the project, and as in the GEF-5 deep-sea project, the project will coordinate strongly with scientists from member states that support the RFMO's activities. However, in this GEF-7 DSF project, the aim is to also work more closely with managers and compliance specialists to integrate and facilitate mechanisms of information exchange.

Other international bodies: The resources of the high seas provide mankind with necessary products and materials. Fisheries, documented above, has a long history but is increasingly being placed within a conservation and biodiversity framework. This is being currently discussed by the UNGA under the BBNJ process. FAO is providing technical expertise to the BBNJ negotiating process and this project will serve to inform RFMOs, FAO and participants of the BBNJ negotiations of synergies between sustainable fisheries and biodiversity protection. At present, the main UN international bodies dealing with biodiversity are the UNEP, UNDP and CBD, and the NGOs are IUCN, WWF and Pew. At the regional level and mainly within EEZs are the Regional Seas Programs and the Large Marine Ecosystem projects. The ISA deals with minerals and the IMO with shipping. At present, it is anticipated that actual interactions between organizations in different sectors will be handled in partnership with the other projects and be conducted by the Global Coordination child project.

The DSF project will investigate impacts that DSF has on other sectors and impacts that other sectors may have on DSF. This is seen as an entry point for closer contact between organisations dealing with different sectors. The project will ensure that the relevant RFMOs are kept informed of activities occurring in other regions, and the programme as a whole will ensure that information is shared to a wider audience.

Private sector: The International Coalition of Fisheries Association (ICFA) and the Sealord Group Ltd are co-financing partners to the project and will be actively involved with testing innovative technologies such as underwater camera and electronic monitoring systems, collecting data important to understanding climate change and fishery interactions, and in participatory discussions regarding ideas for improved adaptive management under and EAF.

Sustainable Development Goals (SDGs): The United Nations SDGs are reported to the UN via member states and not through RFMO mechanisms. Most of the RFMO work contributes towards the achievement of the SDGs. The DSF Project will particularly support:

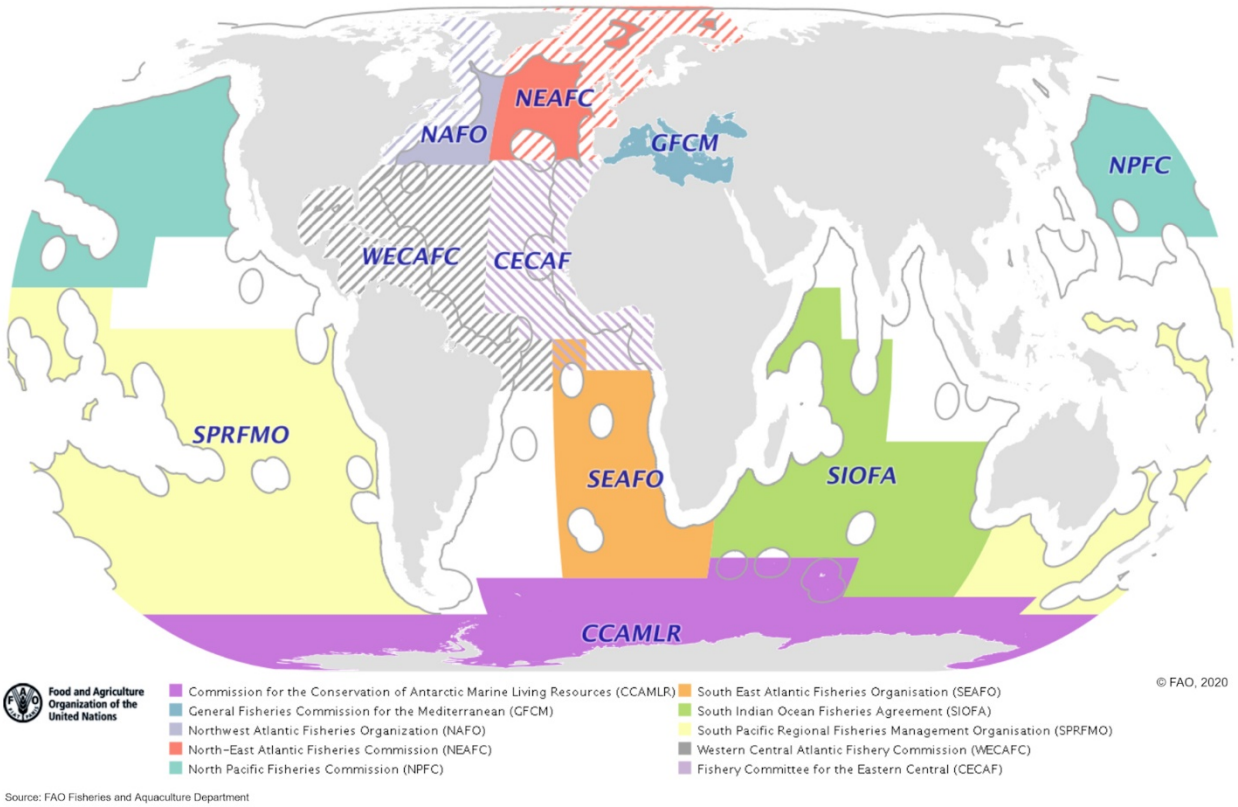
SDG 14.2 through sustainable fisheries management to avoid significant adverse impacts on stocks and ecosystems under Outcome 2.3.

SDG 14.4 by undertaking new assessments of the status of data-limited stocks and promoting management actions to ensure sustainable productive fisheries under Outcome 2.2.

SDG 14.5 by specifically managing designating delineated areas containing vulnerable marine ecosystems and/or other ETP species to mitigate against impacts from fisheries and to coordinating with other sectors to achieve wider protection under outcomes 2.1, 2.2, 2.3 and 3.1.

Outreach: The growing stakeholder interests in the ABNJ, fueled partly by climate change impacts and the BBNJ negotiations, require that FAO and RFMOs expand their outreach and communications programmes to support new challenges. The fisheries sector, that worked in isolation for many decades, must now develop mechanisms to share and advertise its oceanographic, ecosystem and fisheries management work. This will be achieved through the use of the GEF IW:Learn portal and particularly the use of the media gallery, online thematic courses, marine toolkits and sharing with the IW:Learn community at the biennial conferences. The use of the programme's own Common Oceans website, and communications support provided to RFMOs for their own website development will also be supported during project implementation.

Figure 1. Map of the regional bodies managing (*and advising*) on bottom fisheries in high seas



Regional Fisheries Bodies (RFBs) with the competence to manage (solid colour) and advise (diagonal shading) on small pelagic and deep sea fisheries

Ocean region	Management (*advisory*[1]) body
Northeast Atlantic	North East Atlantic Fisheries Commission NEAFC
Northwest Atlantic	Northwest Atlantic Fisheries Organization NAFO
Central eastern Atlantic	*Fishery Committee for the Eastern Central Atlantic CECAF*[1]
Central western Atlantic	*Western Central Atlantic Fishery Commission WECAFC*[1]
Southeast Atlantic	South East Atlantic Fisheries Organization SEAFO
Mediterranean Sea	General Fisheries Commission for the Mediterranean GFCM
North Pacific	North Pacific Fisheries Commission NPFC
South Pacific	South Pacific Regional Fisheries Management Organization SPRFMO
Indian	Southern Indian Ocean Fisheries Agreement SIOFA
Southern	Commission for the Conservation of Antarctic Marine Living Resources CCAMLR

Annex 1. Core indicator worksheet and explanation of targets and current situation (baseline)

GEF 7 Core Indicator Worksheet

Core Indicator 2	Marine protected areas created or under improved management for conservation and sustainable use		*(Hectares)*
		Hectares (2.1+2.2)	
		Expected	Achieved

			PIF stage	Endorsement	MTR	*TE*
			12 million			
Indicator 2.1	Marine protected areas newly created					
Name of Protected Area	WDPA ID	IUCN category	Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
VMEs		IV(select)	*11 million*			
		(select)				
		Sum	*11 million*			
Indicator 2.2	Marine protected areas under improved management effectiveness					
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score (Scale 1-3)		
				Baseline		Achieved
				PIF stage	Endorsement	MTR	TE
VMEs		IV (select)		*1 million*			
		(select)					
		Sum		*1 million*			
Core Indicator 5	**Area of marine habitat under improved practices to benefit biodiversity**					***(Hectares)***
New Indicator added	Area showing improved management practices to reduce significant adverse impacts on benthic ecosystems					***3,200 million***
Indicator 5.1	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 8	**Globally over-exploited fisheries Moved to more sustainable levels**					***(Tons)***
			Metric Tons			
			PIF stage	Endorsement	MTR	TE
			50,000			
Core Indicator 11	**Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**					
					Number Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	500			
		Male	1 500			
		Total				

Note (1): Core indicator 2 - Marine protected areas (MPAs)

MPAs are area based management tools (ABMT) and have many definitions. The one used to assess progress towards the SDG 14.5 and Aichi 11 is that proposed by IUCN having biodiversity as the principal focus and is long-term. FAO has a broader definition that is any area affording more protection that the area outside. This project adopts an intermediate view and includes VMEs (that are closed to protect biodiversity from bottom fishing[9] impacts) as MPA/ABMTs for the purpose of this project. This project will strive to have VMEs more widely recognized as MPA/ABMTs.

[9] For consistency with RFMO terminology, DSF are referred to as bottom fisheries in Annex 1.

The table under note 2 provides estimates of VME areas with current management measures (closures to bottom fishing in almost all cases). Expert judgement has been used in some areas. No estimate could be made for the South Pacific as SPRFMO does not separately identify and manage VMEs outside of the permitted bottom fishing area; no VMEs have been identified within their bottom fishing footprint.

Core indicator: Marine protected areas created or under improved management for conservation and sustainable use is estimated at 25% of current VME closed areas, which equals 120 000 km^2 (or 12 million hectares).

Project indicators: Expected changes by 2027 (at end of project):

New VMEs identified: Area of new VMEs identified in the high seas equals 10% of the current VME closed area (=124 000 km^2)

Compliance monitoring: 50% of the current VMEs will have improved and transparent compliance monitoring.

Scientific monitoring: 10% of the current VMEs will have been monitored for biodiversity and climate change resilience and information disseminated.

(http://www.fao.org/in-action/vulnerable-marine-ecosystems/vme-database/en/vme.html)

Note (2): Core indicator 5 - Area of marine habitat under improved practices

The following table shows the areas and percentages of adopted bottom fisheries management areas in the high seas. Owing to difficulties in acquiring some values, the table may not be accurate in all cases and percentages do not always add up to 100%.

Since 2006, RFMOs have been progressively adopting bottom fishing measures which identify the area (usually shallower than 2000 m) where bottom fishing is permitted (commonly referred to as the bottom fishing footprint). Bottom fishing is only allowed outside of this area under strict exploratory fishing protocols to ensure that VMEs are identified and protected. This project includes these "outside" areas in this GEF-7 core indicator category.

This will support SDG 14.2 by protecting ecosystems from significant adverse impacts both within the fishing footprint and outside the fishing footprint.

Region (management body)	High seas (or regulatory) area (km^2)	Seafloor above 2000 m	Bottom fishing footprint (km^2)	Outside of footprint (km^2)	VMEs (km^2)	VMEs (number)
NW Atlantic (NAFO)	2,707,895	140,000 (5%)	119,809 (4%)	2,253,725 (%)	282,320 (10%)	21
NE Atlantic (NEAFC)	5,188,000	473,000 (9%)	162,451 (3%)	4,650,737 (90%)	374,812 (7%)	13
Central Atlantic	17,752,000	61,000 (0.3%)	-	-	-	0
SW Atlantic	10,315,000	188,000 (2%)	-	-	-	0
SE Atlantic (SEAFO)	15,627,000	174,000 (1%)	543,193 (4%)	14,646,380 (94%)	503,815 (3%)	12
Mediterranean (GFCM)	2,997,000	1,480,000 (49%)	1,949,341 (65%)	1,032,000 (34%)	15,659 (0.5%)	
North Pacific (NPFC)	35,491,000	1,520,000 (4%)	6,048 (0%)	35,484,406 (100%)	546 (0.0%)	2
South Pacific (SPRFMO)	59,186,581	648,000 (1%)	198,363 (0.3%)	55,088,294 (93%)	-	?
Indian Ocean (SIOFA)	26,933,232	515,000 (2%)	-	-	25,148 (0.1%)	5
Southern (CCAMLR)	35,550,604	2,975,000 (8%)	19,975,679 (56%)	14,972,373 (42%)	3,222 (0%)	129

- no measure taken.

Core indicator: Area of **marine habitat under improved practices** (excluding protected areas) is estimated as 25% of area outside of the fishing footprint used in core indicator table, which equals 32 million km^2 (or 3,200 million hectares).
Project indicators: Expected changes by 2027 (at end of project):
Impact assessments: Improved methodologies for impact assessments on exploratory fisheries developed and in place (including cross-sectoral environmental impact assessments)
Mapping fisheries: Improvements in the spatial mapping of DSF by gear type leading to improved understanding of fish stock dynamics, impact assessments, and climate change effects.
(http://www.fao.org/in-action/vulnerable-marine-ecosystems/vme-database/en/vme.html)

Note (3): Core indicator 8 - Globally over-exploited marine fisheries moved to more sustainable levels
The FAO publication, State of the World Fisheries and Aquaculture (SOFIA) (http://www.fao.org/3/I9540EN/i9540en.pdf, p. 41) lists the percentage of fish stocks at biological sustainable levels by region in 2015. Many of the deep-sea stocks lack assessments and are data-limited, meaning that there is insufficient information to include them in the SOFIA sustainability estimates. The GEF-5 Deep-seas project estimated that the stock status of around 50% of the fished deep-sea stocks is unknown. This does not necessarily mean that the stock is unsustainably fished, rather that it is difficult to make a valid assessment. The project will improve knowledge of fishing pressures and stock status for deep-sea stocks. Progress towards SDG 14.4 and Aichi 6 is very difficult to currently assess for DSF.
An initial baseline study undertaken in February 2020 provided the following assessments (source: RFMO websites and expert judgement):

Region (management body)	Biomass				Exploitation rate (fishing pressure)				Stock measure (TAC or effort control)		Number of deep-sea stocks assessed
	Low to depleted	Intermediate	*c.* MSY levels	Unknown	Unsustainable	Intermediate	Sustainable	Unknown	No	Yes	
NW Atlantic (NAFO)	7	1	8			1	15		0	16	16
NE Atlantic (NEAFC)	4		3	3		4	4	2	5	5	10
Central Atlantic				1				1	1		1
SW Atlantic				6				6	6		6
SE Atlantic (SEAFO)	1			5			5	1	1	5	6
Mediterranean (GFCM)	18				10	1	4	3	18		18
North Pacific (NPFC)		1	2	1		1	2	1	2	2	4
South Pacific (SPRFMO)		2	2	1		1	2	2	3	2	5
Indian Ocean (SIOFA)		2	2	3		1	3	3	5	2	7
Southern Ocean (CCAMLR)			6				6			6	6

Core indicator: Globally over-exploited **marine fisheries** moved to more sustainable levels is estimated as 25% of 2016 catch used in the core indicator table, which is approximately 50,000 metric tons. It is expected that much of this will come from the data-limited stocks that comprise around 50% of the fisheries.

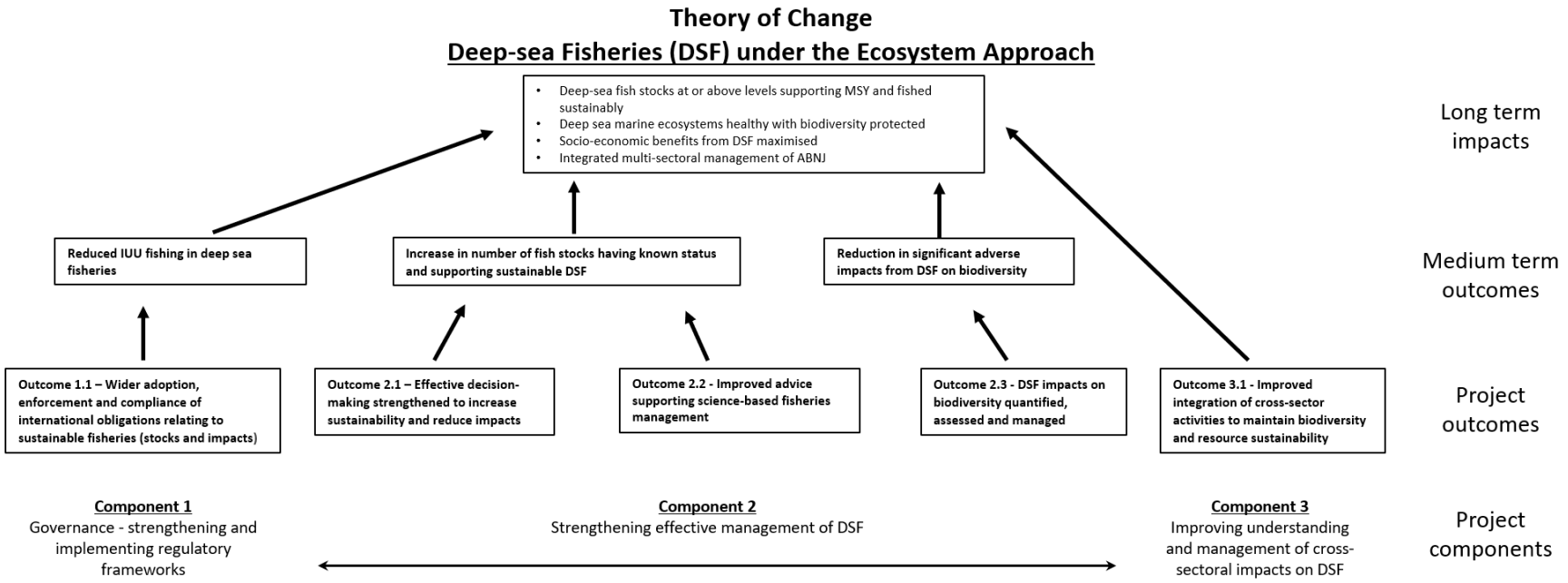
Project indicators: Expected changes by 2027 (at end of project):
Biomass: 50% of "unknowns" become known and 25% of other stocks shift up one category.
Exploitation rate: 50% of "unknowns" become known and 25% of overexploited stocks move to being fished at intermediate or sustainable levels.
Stock measures: 50% of deep-sea species go from the "No" to "Yes" stock measure category.

Note (4): Core indicator 11 - Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

SOFIA[10] included a national gender analysis for six countries in 2016, which was expanded slightly in 2018. Gender analyses has not been systematically undertaken for DSF. The current project will undertake a gender analysis as part of a supply chain analysis and identify gender-related needs. The project will also provide positive-action support and training to selected suitably-qualified women from GEF-eligible countries who wish to work in RFMO or national science, management and compliance activities.

[10] SOFIA 2016: http://www.fao.org/3/a-i5555e.pdf, SOFIA 2018: http://www.fao.org/3/I9540EN/i9540en.pdf

Annex 2. Theory of Change shown diagrammatically for the GEF-7 DSF project (showing simplified linkages)



Drivers	Assumptions
• Global targets concerning DSF stimulate good practice, sustainable management and transparent behaviour. • Climate change research will increase our understanding of short-term environmental trends to reduce uncertainty in management decision making. • Wider sectoral use of marine resources leads to cooperative multi-sectoral impact assessments to maintain healthy marine ecosystems. • Increased global interest in marine biodiversity promotes greater environmental and biodiversity monitoring by the fisheries sector.	• Improvements in electronic reporting and novel technologies available to and used by managers, scientists and industry will reduce IUU fishing. • Improved cooperation between the fisheries sector and biodiversity conservation supports sustainable fisheries and the BBNJ process. • Funding base for fisheries management and biodiversity monitoring remains or increases. • Management of fisheries and biodiversity protection remains science-based and needs driven.