PANORAMA
SOLUTIONS FOR A HEALTHY PLANET

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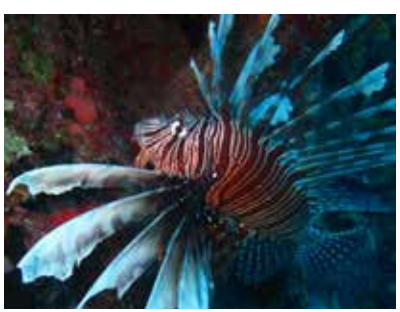
A Centre Collaborating with UNEP

SOLUTIONS IN FOCUS:

Blue Economy



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BLUE SOLUTIONS

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Fisherman with a catch (© SmartFish)

www.panorama.solutions
www.bluesolutions.info

We would like to sincerely thank all solution providers for their contribution and time.
Aichi Biodiversity Targets Icons © BIP/SCBD

PANORAMA partners

Development partners

On behalf of:
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Contents

The Blue Solutions Initiative	4
The “Solutions in Focus” series	6
PANORAMA – Solutions for a Healthy Planet	7
Blue Economy	8
1. Building a market for invasive lionfish control	12
2. Promoting aquaculture for a better preservation of Soariake Marine Protected Area	14
3. Community-based aquaculture development and marine protection	16
4. Reduce overfishing and improve livelihoods of artisanal fishers - SmartFish	18
5. Commercial fishery going beyond sustainability for social well-being	20
6. ABALOBI: ICTs for small-scale fisheries governance	22
7. Marine Conservation Entrepreneurship – from trash to trade	24
8. Net-Works (TM)	26
9. Making money from scraps	28
10. Mapping and valuing ecosystem services for integrated management	30

The Blue Solutions Initiative

Marine and coastal biodiversity and ecosystems are fundamental for human well-being and provide valuable services. Despite their global significance, these ecosystems are more than ever at risk. The sustainable use and conservation of marine and coastal biodiversity is a priority for action under the Strategic Plan for Biodiversity 2011–2020 of the Convention on Biological Diversity (CBD). To support practitioners and policy makers in improving the management of marine and coastal biodiversity, the Blue Solutions Initiative is partnering with a range of organizations and programmes to facilitate **global knowledge exchange and capacity development**, and ultimately support the achieving of the marine and coastal Aichi Targets.

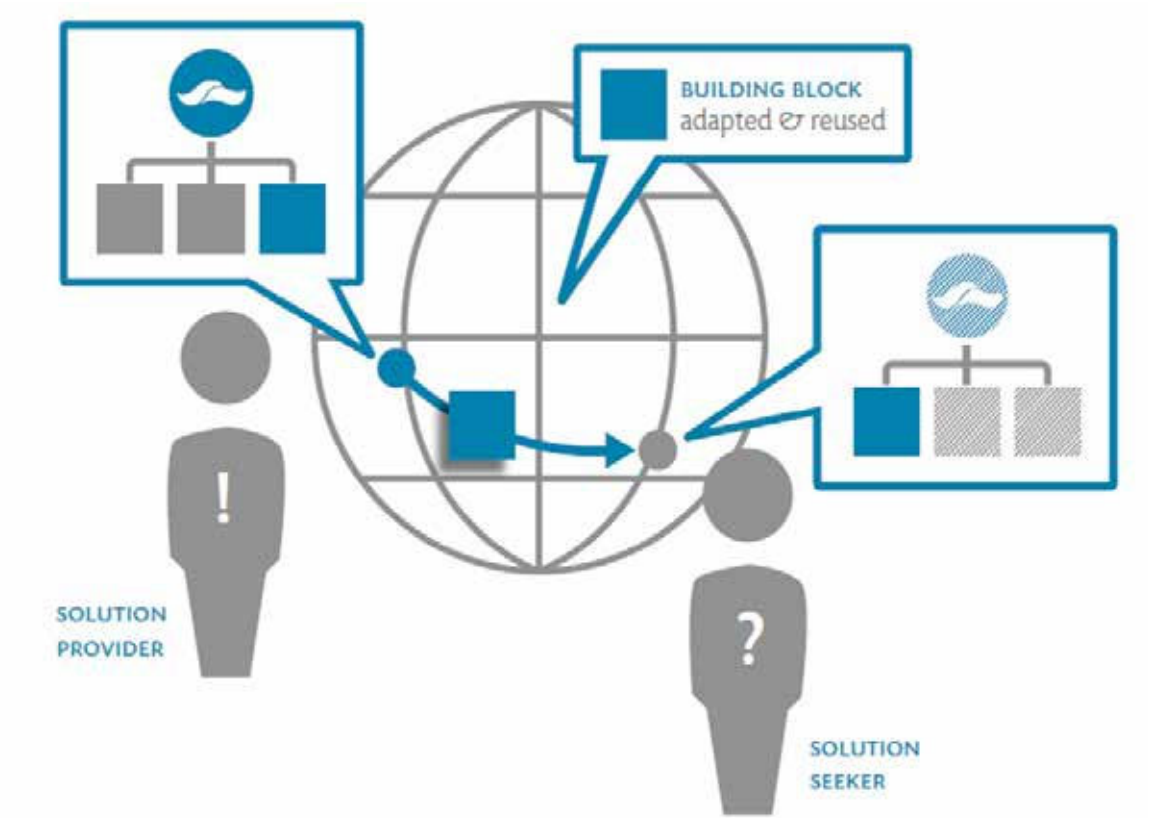
Capacity development

The Blue Solutions Initiative provides a range of capacity development opportunities including trainings on ecosystem services, climate change adaptation, marine and coastal spatial planning and management, and conservation finance.

www.bluesolutions.info

Global knowledge exchange

An essential component of the Blue Solutions Initiative is to collate, document and share successful approaches, or "solutions", addressing marine and coastal challenges. The sharing and exchanging of these solutions provides others with examples and lessons learned, and can inspire to adapt and replicate these achievements without "reinventing the wheel", thereby accelerating action for sustaining healthy marine and coastal ecosystems. The Blue Solutions Initiative facilitates exchange around solutions through the marine and coastal solutions portal on the PANORAMA – Solutions for a Healthy Planet platform (www.panorama.solutions/marinecoastal) and in face-to-face meetings such as workshops and trainings.



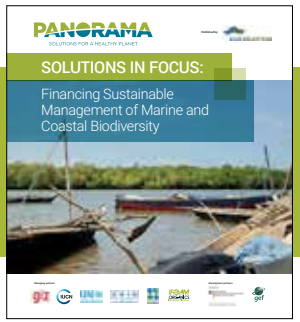
The “Solutions in Focus” series

This booklet is part of a series of compilations assembling PANORAMA solution case studies on a defined topic. “Solutions in Focus” zooms in on a topic of interest covered by PANORAMA, allowing to explore common elements and shared learnings across success stories. It is a snapshot of the PANORAMA portfolio at a given time, rather than a representative assembly of selected “best practices” on the issue at hand.

Further “Solution in Focus” booklets:

Transboundary Protected Area Solutions

https://portals.iucn.org/library/sites/library/files/documents/2016-081.pdf

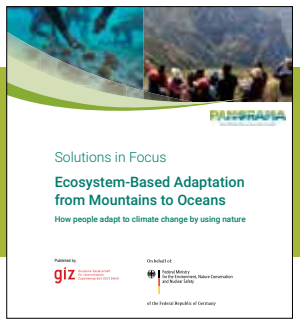


Financing Sustainable Management of Marine and Coastal Biodiversity

https://portals.iucn.org/library/node/47779

Sustainable fisheries and aquaculture

https://portals.iucn.org/library/node/47780



Ecosystem-Based Adaptation from Mountains to Oceans - How people adapt to climate change by using nature

https://www.adaptationcommunity.net/wp-content/uploads/2018/09/giz2018-en-panorama-EbA-solutions-in-focus_web.pdf

PANORAMA – *Solutions for a Healthy Planet*

PANORAMA – *Solutions for a Healthy Planet* is a partnership initiative to facilitate learning from success in conservation. It promotes examples of inspiring solutions that showcase how nature conservation can benefit society. PANORAMA enables the wider application of such solutions through cross-sectoral global learning and exchange. Through a modular case study format, solutions are being dissected into their replicable "building blocks" and their scaling is facilitated – online as well as offline. www.panorama.solutions

Blue Economy

Marine and coastal ecosystems are vital for human well-being. The livelihoods and cultures of many coastal communities are connected to marine environments and all of us benefit from the ocean's role as a carbon sink, a source of food, or from its beauty in exotic travel destinations.

Human relationships with ocean environments, their economic activities, their dependencies and effects are all part of what is called the Blue Economy. It includes everything from fisheries to underwater mining, from coastal protection to cultural values.

The Blue Economy of the future will be based on understanding and recognizing the ways in which we benefit from the ocean, protecting the most important places and species, and sharing benefits equitably. At the same time, the Blue Economy will have to address the most pressing needs of today's global societies, providing employment and food for a growing human population, and serving as a cornerstone for sustainable development. Modern technologies are both a risk and an opportunity for the Blue Economy's sustainability on all its dimensions.

Advancing our concept of what constitutes the Blue Economy and shaping the future of the Blue Economy at all levels – from the local to the global – is one of the most important tasks for today's ocean community. With this publication, we'd like to share some of the most inspiring Blue Economy Solutions to this challenge.

Blue Economy Solutions aim at enhancing prosperity, and increasing social equity through initiatives which restore or maintain the integrity and productivity of marine and coastal ecosystems..

Local people's fishing boat, Anakao, South-West Madagascar © Peter Prokosch

To find out more about the Sustainable Development Goals (SDGs) visit: *www.un.org/sustainabledevelopment*

To find out more about the Aichi Biodiversity Targets visit : *www.cbd.int/sp/targets*

SOLUTIONS

Building a market for invasive lionfish control

Solution provider: Jennifer Chapman, Blue Ventures

Summary: The Indo-Pacific lionfish is a major threat to Caribbean reefs. Blue Ventures is pioneering efforts to build Belize's lionfish fishery, creating an economic incentive for the sustained removal of this invasive species while providing an alternative target for fishers and promoting associated cottage industries, reducing dependency on traditionally targeted fisheries. This effort is supported by an integrated lionfish control strategy, which helps to avoid unintended outcomes, and also details alternative targeted removal methods for sites where fishing is not permitted or practical.

Location: Belize

Impacts

In 2010, no restaurant served lionfish. In 2015, 9% of Belize's restaurants reported serving lionfish, and purchased the equivalent of 30,000 lionfish from fishers, either whole or as fillet. The price for lionfish through this market increased by 50% over four years (2013-17). Blue Ventures and the Sarteneja Fishermen Association (SFA) have both been actively involved in engaging consumers, fishers and restaurants in Sarteneja with the benefits of fishing and eating lionfish. 77% of Sartenejan fishers interviewed in 2016 reported selling lionfish in 2016.

In 2014, a jeweller from southern Belize began making lionfish jewellery in 2014, purchasing 5,000 tails from fishers annually. This collection accounts for 25% of her sales. In 2015, Blue Ventures and SFA established a women's group (Belioness), with membership from seven coastal communities. Both sell lionfish jewellery locally and overseas. The purchase of each tail adds 13-40% to the sale price of lionfish for fishers.

Lionfish density in Belize peaked in 2011 (159 fish/ha), decreasing to 10 fish/ha in 2015. Highest densities found in areas inaccessible to fishers (No Take Zones). In 2015, 78% of surveyed sites were found to be effectively controlled.


Lionfish © Blue Ventures taken by Chris Newton


Fried lionfish, rice and beans © Blue Ventures, Photo Credit: Emaun Hyde


Pablito & Aracely outside their restaurant, Estrellas del Mar, Sarteneja, Belize © Copyright Blue Ventures

Building blocks

1

Adopt a coupled human and natural systems approach

The dynamics of human and natural systems are complex and characterized by reciprocal feedbacks that can interact across local and global scales. Successful natural resource management requires a better understanding of these coupled human and natural systems (CHANS), which must be incorporated at the planning stage.

2

Estimate lionfish status and develop catch targets

Although eradication is no longer considered possible, lionfish population suppression allows native fish population recovery. With enormous variability in lionfish population density between reef locations, type and depth, a combination of commercial harvest, culling by SCUBA and deep-water traps is necessary to achieve the desired ecological outcomes.

3

Support emergent lionfish fishery

In areas that are accessible to fishers, commercial lionfish fishing presents the most feasible means to achieve lionfish removal at the frequency and high volume required to suppress populations. Key actions include demonstrations of fishing techniques, safety courses, support to restaurants and seafood distributors and a social marketing campaign.

4

Value-added lionfish products

Supporting women from fishing communities to create, market and sell jewelry made from previously discarded lionfish parts adds value to fishers' lionfish catch. It also meets several needs simultaneously: poverty alleviation in fishing communities, gender equality, and further awareness raising about invasive lionfish, thus contributing to the conservation of Belize's marine ecosystem.

5

Implement an awareness raising campaign

Once the barriers and misconceptions around catching/eating lionfish have been identified, they can be resolved by developing a targeted outreach programme with the general public and social marketing campaign targeting restaurants and consumers that informs people about the lionfish invasion in a way that reflects local concerns and values.

6

Lionfish control in areas inaccessible to fishers

Where commercial lionfish harvesting is not practical or permitted (such as in protected areas), or if the current fishing pressure is not sufficient to suppress lionfish populations below site-specific management targets, a combination of alternative removal methods can be used to reduce lionfish populations.

Promoting aquaculture for a better preservation of Soariake Marine Protected Area

Solution provider: Alison Clausen, Wildlife Conservation Society (WCS)

Summary: Like most coastal areas in Madagascar, Soariake MPA is located in a remote area where people depend on fishing activities for their subsistence and the lack of alternatives leads to overfishing of marine resources. In 2016, WCS Madagascar established a partnership with two private companies – COPEFRITO and Indian Ocean Trepan– operating in South West Madagascar to promote aquaculture in Soariake MPA through an industry approach based on "village farmers". Sea cucumber and seaweed farming have been chosen with regards to local context and potential.

Location: District of Toliara II, Madagascar

Impacts

In August 2017, nine farmers had their first sea cucumber harvest from their farm in Andravona. 250 kg, representing around 40% of the total production were collected and sold to IOT. Farmers earned 850 USD (100 USD per farmer), which represents around three months income compared to traditional fishing, adding significant revenue for fishers. 40 households have participated to the launch of seaweed farming in November 2016. The seaweed has a short harvest cycle – 45 days, and provides substantial income to households: around 53 USD per month for a farmer at a starting phase (an increase of 75% compared to income from fish catch), and 130 USD for those in an advanced stage (3rd cycle). Thanks to these positive results, we are extending the partnership to implement seven new enclosures in three villages, and to reach around 200 new farmers in seaweed farming. In addition to the business agreement with the farmers, an environmental friendly ruleset has been designed to respect the MPAs potential: farms will not infringe reefs, coral habitat and sea turtle nesting sites. The value chain approach, mutual confidence between partners, a transparent and win-win partnership are the key pillars of this project.

Soariake MPA, sea cucumber enclosures in Andravona
© WCS Madagascar

Soariake MPA,seaweed farmer monitoring
© WCS Madagascar

Building blocks

1

Value chain approach

The farming program covers the whole process from production to marketing, including drying (for seaweed) and storage, to ensure that it will provide the expected quality sell the final product at a fair price to ensure their income. Thus, we collaborate with the private sector through a “village farmer approach”.

2

Technical support

During the implementation phase, the private sectors provide technicians to each village to support local community during the implementation and management of the farm. Each village has its sea cucumber technician or seaweed technician depending on the available industry in the village.

3

Co-management of Soariake MPA

Soariake is an IUCN category VI MPA, that aims at protecting natural ecosystems while allowing the sustainable use of natural resources. Community involvement in the management of the MPA is key to build a local ownership, one pillar to warrant sustainability of on ground activities.

Community-based aquaculture development and marine protection

Solution provider: Christian Vaterlaus, marinecultures.org

Summary: This solution addresses poverty reduction in Zanzibar for its coastal communities through a more sustainable management of their natural resources, additional income, and consequently, better quality of life. The approach of implementing ecological aqua farming of bath sponges with women in coastal communities promotes healthy economic growth, reduces environmental pressure and threats to marine life and other natural wildlife, improves public health and strengthens the economic and social status of women.

Location: Jambiani, Zanzibar Central/South Region, Tanzania

Impacts

- Each sponge farm feeds about 2-3 large families with ~10 people. We install 4 new farms per year. Scaling is depending of the production in the nursery farm.
- Women of Jambiani learned how to farm sustainably bath sponges and how they can sell them locally. After one year training they get independency.
- An artificial reef with reef balls was built with the fishermen committee of Kibigija to learn more about the importance of reefs and biodiversity. Our coral farmers learned to cultivate corals and plant them on the artificial reef.
- The pilot project mooring & buoys in Jambiani & Paje proved that anchor damages can be reduced and corals get protection and more respect. 2016 we will install 40 more buoys in Zanzibar, Pemba and Mafia.


Spongefarmer © marinecultures


Sponge farm © marinecultures

Building blocks

1

Sponge aquaculture as an alternative means of income

The cultivation of seaweed for the production of carrageenan, a thickener widely used in foods, has been a major source of income for Zanzibari women for more than 20 years. Cultivation of seaweed is subject to a sharp decline in production due to increasing occurrences of diseases and pests, and a low world-market price. Aquaculture of sponges was identified to be a suitable alternative to seaweed farming promising substantially higher incomes.

2

Evaluation of suitable sponge species

The slow growth rates of sponges and the seasonal variations given in Zanzibar require evaluation periods of at least two years to allow a judgement for a sponge species' suitability. The process comprises several phases including collection of specimens, evaluation of specie and growth tests.

3

Setting-up a sponge farm

The development of an appropriate cultivation method was started concurrently with the evaluation of suitable species and in close collaboration with the first sponge farmers. In this phase many technicalities had to be clarified and a simple yet robust cultivation system that can easily be multiplied was developed.

4

Development of independent business models

While the first sponge farms were set-up the appropriate business model needed to be established. The objective is to generate a stable income for sponge farmers and to enable them to gain independence from marinecultures.org as early as possible..

Reduce overfishing and improve livelihoods of artisanal fishers - SmartFish

Solution provider:	Ben Scheelk, The Ocean Foundation
Summary:	The SmartFish Group, a social enterprise, directly incentivizes Mexican artisanal fishing cooperatives to improve their environmental and social performance. SmartFish NGO incubates worthy co-ops to market readiness with responsible seafood, empowering fishers to catch and produce high quality, responsibly caught seafood to overcome the vicious cycle of overfishing. SmartFish Inc. acts as a "good intermediary," placing their triple impact seafood into preferential markets with transparency and traceability, rewarding them for their responsible practices.
Location:	Coastal Mexico | Baja California, Baja California Sur, Quintana Roo

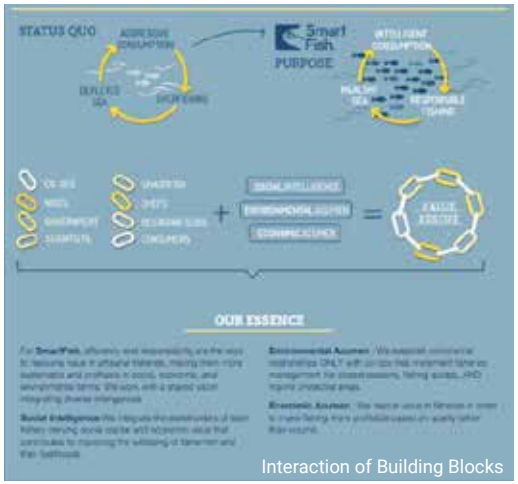
Impacts

Overfishing jeopardizes the wellbeing of artisanal fishers and ecosystems worldwide. In Mexico, artisanal fishers lose out, adding 80% less value to their catch than the global average. The SmartFish Group takes the novel step of directly incentivizing fishermen to fish more sustainably, yielding impacts including the following:

- >30% increases in ex-vessel prices for fishers;
- new employment for women and other family members processing their catch on site;
- Elimination of wildlife bycatch including sea turtles;
- Shift of fishing effort to more resilient target fish populations and sizes;
- Unprecedented supply of responsible seafood in México.

Our triple bottom line: fishers can earn more catching less, avoiding overfishing and bycatch; their relatives (majority women) earn new wages processing their catch; and SmartFish makes a margin to scale this success


Fisherman with a catch (© SmartFish)



Interaction of Building Blocks

Building blocks

1

Partner fishery selection criteria and process

To maximize SmartFish's impact, we drew on empirical research and years of experience to establish fishery selection criteria. We established an Impact Division within SmartFish to determine the eligibility of potential fishery partners as well as to track the social, environmental and business performance of partners before, during and after our interventions.

2

Fishery impact and evaluation

Once SmartFish NGO determines that a fishery is a candidate for our Value Rescue model, we carry out a detailed diagnostic of the fishery's current triple impact, and potential to attain the dimensions of the Value Rescue model.

3

Economic Acumen

We rescue value in fisheries in order to make fishing more profitable based on quality rather than volume.

4

Responsible Seafood Production Co-ops

We partner with co-ops and NGOs to empower fishermen and their families to rescue value by catching and producing the best quality, higher sustainable seafood. This cultivates demand for their exquisite seafood among distinguished customers.

5

International Fishing Improvement Projects

We design and implement international fishing improvement projects (FIP) in the region with an all-encompassing multi-stakeholder group to identify, assess, and improve the fishing practices of sand bass.

6

Incubating co-ops to rescue the value of their catch

SmartFish incubates the fishing group to improve their fishing, handling, processing and other business practices to produce premium quality seafood that is independently verifiable as socially and environmentally responsible or improving.

Commercial fishery going beyond sustainability for social well-being

Solution provider:	Alison Undorf-Lay, Sanford Ltd
Summary:	The solution to bring greater transparency into the commercial fishery is enabling fishers to make better choices about where to target their effort so as to the reduce waste, to improve survivability of young fish, to change their fishing practices and to record and report their total catch so that it can be aggregated into commercial data sets. If fishers can better target their effort and reduce unwanted bycatch this benefits the fishery, sustainability and the fisher's financial performance.
Location:	East Coast of the North Island, New Zealand

Impacts

- Agreed and set standards for sustainable fishing.
- Reduced waste and improved survivability of young fish.
- Aggregated commercial data sets from recorded and reported total catch.
- Improved catch effectiveness and fishers´ financial performance.
- Compliance with the fisher code verified by fisher-led decision to install 24/7 year round.
- Vessel Monitoring Systems (GPS) across the fleet and Electronic Monitoring (EM) on the trawl fleet.


Snapper eye © Sanford Ltd


Snapper fisherman © Sanford Ltd

Building blocks

1

Common understanding and trust

Shifting the thinking of individual fishers from solo owner-operators to being part of commercial sector with shared obligations, responsibilities and social license and a common desire to promote better fishing practices to ensure the sustainability and growth of the snapper biomass.

2

Electronic observation tool

Fishers and vessel managers worked with fisheries scientists and innovative software technicians in collaboration with government officials to design an electronic observation tool that could be installed like lego building blocks on vessels as money becomes available or needs change.

3

Informed behaviour change

After the first full year of data gathering, Trident Systems, the company that developed the observation tool, was asked to produce data sets based on the SNA1 Agreement including how many vessels moved on because they were catching undersized snapper and what volumes of small snapper were being caught by each fishing method. Specific information is confidential to each fisher, but an overall analysis is made public.

4

Social license

Networking and linking up with other organizations to support fishers' initiatives.

5

Monitoring regulation

Vessel Monitoring Systems (GPS) across the fleet Electronic Monitoring (EM) on the trawl fleet, designed and voluntary agreed to by fishers.

ABALOBI: ICTs for small-scale fisheries governance

Solution provider:	Serge Raemaekers, University of Cape Town
Summary:	The ABALOBI initiative is a transdisciplinary research and social learning endeavour, bringing together stakeholders with traditional fishers taking centre stage. It is a participatory action research project with a strong community development component. ABALOBI, a free app/ programme, is aimed at social justice and poverty alleviation in the small-scale fisheries chain, transformation in the way we produce knowledge, stewardship of our marine resources, and building resilience to climate change.
Location:	Cape Town, South Africa | South Africa, with several pilot communities along the coastline

Impacts

- Fishers, monitors and cooperatives have actively recorded catches and associated variables in daily logbooks and dashboards. Regular workshops have assisted in fine-tuning the recording and reporting functions and use of the dashboard. As a result of gathering data and discussing emerging trends during workshops, fishers have written letters to the Minister to call for a stop on the overexploitation of a particular fish species, others have discussed climate change related implications and suggested new adaptation responses, and others have used the data to apply for loans to purchase better safety equipment.
- In November 2015, the Fisheries Minister endorsed ABALOBI as the official catch management system for the implementation of the new Small-scale Fisheries Policy.
- Fishers in one of the pilot sites have grouped together to discuss and prepare for the implementation of the Policy, and have successfully engaged with a retailer interested in purchasing several seafood species in a Fisheries Improvement Project that will see the use of ABALOBI towards traceability, and a type of Fairtrade certification.
- ABALOBI now initiated a restaurant supported fishery via the MARKETPLACE app where fishers can sell their produce at a fair price, and patrons can purchase fresh fully traceable seafood.


Fisherman using the app. © Abalobi


Data collection.© Abalobi

Building blocks

1

Transdisciplinary social learning process

Social learning can be interpreted in many different ways. In the context of this project, social learning is embarked upon in a transdisciplinary way. This means various stakeholders, beyond just scientists, from multiple disciplines, began working together on this project by jointly framing the problem and the research questions. A participatory action research programme then ensued and led to the co-design of the tool. Different components were carefully designed based on the stakeholders' input and then tested in real-life situations. A social learning programme thus helps the transdisciplinary team in further developing the tool, but also engage with the data.

2

Co-design of the app suite and co-production of knowledge

The pillar of the Abalobi initiative is the co-design of the platform and all its modules, with the core stakeholders; i.e. the fishers and the fisheries authority. Fishers record daily info, some of this info is validated by the monitors as they take a daily sample. Fishers, monitors and local community leaders then engage with the platform dashboards depicting various insights of the data. The fisheries managers from the fisheries authority also then engage with the same information and regular workshops are held. During these workshops, common ground is sought, trends are discussed, and suggestions are made towards further improvements. The basic framework for co-management is slowly and carefully negotiated and designed. Using the common knowledge base, all stakeholders at the co-management table are able to talk about the same fisheries indicators.

Marine Conservation Entrepreneurship – from trash to trade

Solution provider:	Julie Church, Ocean Sole Foundation
Summary:	Ocean Sole is a marine conservation entrepreneurship model, which upcycles discarded flip-flops into products for sale, thus creating an economically viable enterprise, employing the skills of local artisans. Through this process (and associated programmes), Ocean Sole supports sustainable livelihood alternatives, skills improvements, waste collection and uses this to improve the establishment, management and expansion of local marine protected areas.
Location:	Kenya

Impacts

Each Ocean Sole currently demonstrates:

- More than 50,000 kgs of discarded plastic and marine debris is collected each year from the coastlines and waterways of Kenya and turned into works of art and generating global sales of above $ 400,000 per year.
- Provides skill development training, livelihood opportunities and an increased income for more than 1,000 local people.
- Raised awareness and understanding for more than 10,000 school children, students, local community members and international audiences about marine debris pollution and conservation per annum. Ocean Sole replicating initiatives would be given similar or higher targets.


Upcycling in progress © Ocean Sole


Bracelets © Ocean Sole


Weighing collected flip-flops © Ocean Sole

Building blocks

1

Ocean sole solution in a sox: from trash to trade

Ocean Sole aims to establish and replicate a model of commercially viable marine conservation entrepreneurship through repurposing and recycling discarded flipflops from the beaches and waterways of Kenya. More than 50,000 kgs of flipflops are repurposed into colourful artistic creations per annum. The organisation works specifically in areas where marine habitats and ecosystems are adversely affected by plastic/rubber ocean debris, where local people have limited access to education and employment and where tourism markets allow for thriving enterprise approaches. Ocean Sole also works in partnership with other local marine focused organisations on marine conservation issues. Other waste is collected by small collection teams along the shore line, and where possible, this is sold/traded to/with industry for reuse.

2

Ocean sole solution in a box: from awareness to understanding

Developing an understanding of the problem and the solution includes monitoring the volume of ocean debris collected and removed from beaches and waterways at each beach clean-up activity, and the proportion of this which is flip flop material. This information will in turn be used to research the impact of the flipflop industry and advocate for responsible manufacture and waste management. Development of materials and systems, as well as training is provided for local people and organisations. Impact data is documented to understand the adverse impact of marine waste on key sea turtle nesting and bird nesting sites; and improved state of ocean is measured by marine conservation area data. Social data is collected such as livelihood improvements e.g. poverty reduction and household income, and improved status of women including skills development and personal income.

Net-Works (TM)

Solution provider: Nick Hill, Zoological Society of London

Summary: Net-Works is an award-winning initiative that redesigns global supply chains to reduce marine plastic, replenish declining fish stocks and improve the socio-ecological resilience of marginalised coastal communities living in biodiversity hotspots of developing countries. We connect these communities to global brands via a fair and inclusive business model that delivers "less plastic, more fish". One example is the establishment of a community-based supply chain for discarded fishing nets in the Philippines and Cameroon that prevents these nets from becoming ghost nets. Nets are recycled into nylon yarn that is used to create beautiful high design carpet tiles by Interface Inc. Net-Works was co-created by conservation charity the Zoological Society of London (ZSL) and carpet-tile manufacturer Interface Inc.

Location: Philippines | Cameroon

Impacts

Since 2012, over 167 metric tons of waste nets have been collected through Net-Works. At least 1,500 families have been given access to finance through the community banks that Net-Works sets up, and 62,000 people have benefitted from a healthier environment.

To date, we have environmental funds established in 55 community banks, with 1,217 members contributing approximately 2,925 USD of savings directly towards local conservation actions and marine management. Through Net-Works we are protecting 1,112.23 ha of aquatic habitat across 8 community based protected areas.


Discarded nets collected by community members in the Philippines. ©Interface Inc


Nets being cleaned and sorted. © Interface Inc


Seeing the end result - carpet tiles made from recycled nylon yarn. © Interface Inc

Building blocks

1

Inclusive business model linked to conservation

Applying the principles of fair trade and inclusive business, we create efficient community-based supply chains for raw materials (plastics and seaweed carrageenan) that are available in abundance. We link these raw materials to conservation actions that reduce plastic pollution and restore coastal ecosystems. Increasing incomes from these raw materials reduces dependence on fishing – enabling communities to set aside larger no-take zones to replenish fish stocks.

2

Selling raw materials into a global supply chain

We sell the raw materials into global supply chains, giving international brands opportunities to source premium products with positive social and environmental stories, giving fishing communities a more transparent and dependable price, and providing sustainable funding sources for local conservation and development actions.

3

Community bank infrastructure

To manage local supply chains, we set up community banks, bringing communities together in informal cooperatives and providing much needed access to financial services. These community banks are the 'social glue' at the heart of Net-Works, enabling members to invest in their sustainable livelihoods, building a Net-Works' conservation constituency.

4

Environment funds

Community bank members regularly contribute a small amount of money from net sales into a dedicated Environment Fund, which is used to help finance local conservation projects such as community-managed marine protection. The money gathered via the fund can be leveraged to secure additional funding from local government or NGOs.

5

Partnerships and cross-sector collaboration

Redesigning global supply chains and delivering an inclusive business model linked to conservation requires a diverse set of expertise that requires collaboration. Strong partnerships with local communities and local partner organisations are vital to Net-Works' success..

Making money from scraps

Solution provider:	Cecilia García Chavelas, Área de Protección de Flora y Fauna Islas del Golfo de California
Summary:	To address the need for proper management of fisheries waste, members of the fishing community El Caracol in Guasave, Sinaloa state, founded Grupo Crustil - a small-scale processing enterprise. The group uses discards from artisanal fisheries to produce fishmeal. The process creates opportunities for alternative income generation, maximises product utilization and mitigates environmental impacts.
Location:	El Caracol in Guasave, Sinaloa, México

Impacts

The accumulation of fisheries waste in the estuary, canals and beach is declining. Grupo Crustil processes about 1,000 tons of waste per year! This also reduces the contamination and the risk for infections and diseases.

In addition, the enterprise and its activities lead to a change in the community members' attitude towards reducing the contamination of the estuary, canals and beach. The local population became sensitized for the importance of sustainable fisheries waste management and its impacts on their own health.

The members of the group that run the project are no longer fishermen but dedicate all their time to the enterprise. This generates an alternative and productive activity with the creation of new employment opportunities for the entire community: 3 staff in the low season and between 10 to 15 staff in the high season

Project staff and a representative of the Mexican National Commission of Natural Protected Areas (CONANP)
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Grupo Crustil staff member presents fish meal products at a local fair
© APFF Islas del Golfo de California

Building blocks

1

Business plan for fishmeal production

A business plan for processing fish and shrimp waste into fishmeal is developed, defining the enterprise's design and determining its costs. The plan incorporates the concept of operations, organisational structure, system design, production processes, training modules, marketing and sales as well as a feasibility analysis.

2

Government seed funding

To receive federal government funding from the National Commission on Protected Areas and other supporters, the enterprise must demonstrate its environmental and social benefits (as detailed in the business plan) alongside the ability to be self-sustaining within a given period of time. The grant is used to purchase necessary equipment and train staff.

3

Processing enterprise

The small-scale processing factory produces fish and shrimp meal. The product is used as animal feed for poultry, pigs, cattle or farmed fish or shrimp, and as organic fertilizer. It is sold in local and regional markets.

4

Dissemination and training

The enterprise helps to raise community awareness on the need for proper management of fisheries waste by collecting their waste, which is then picked-up by staff of Grupo Crustil. Training on the production of fish and shrimp meal is provided to increase staff competency. The enterprise is also presented to other communities in the area to facilitate its replication.

Mapping and valuing ecosystem services for integrated management

Solution provider:	Gregg Verutes, Belize Coastal Zone Management Authority and Institute (CZMAI)
Summary:	Ecosystem services were mapped and valued in a participatory process that included designing spatially-explicit scenarios of future human uses throughout Belize's coastal zone. To understand the implications of different development scenarios, the team used InVEST models to map future value of coastal protection, recreation, and fisheries services. The resulting Plan can help the people of Belize plot a wiser course for managing the incredibly valuable resources their ocean and coast provide.
Location:	Belize

Impacts

- Advancing the management and conservation of coastal and marine environments, and explicitly accounting for nature's benefits to people.
- Blends stakeholder engagement with science models of ecosystem services and makes it available to policy makers.
- Model results suggest higher return in ecosystem services than ad hoc development decisions.


Team members © CZMAI


Coast and reef © Jason Valdez


Training in October 2011 © CZMAI

Building blocks

1

Multi-sectorial advisory committees

Coastal Advisory Committees represent a range of sector and interest stakeholders convening regular meetings to offer recommendations to the Coastal Zone Management Authority and Institute (CZMAI). Broad engagement is reached through a public review of the draft plan. CZMAI gathers information on stakeholder values, and together with NatCap combines it with data and maps on current and plausible future distribution of uses, economic forecasts and existing government plans. The result is a set of future scenarios reflecting stakeholder input.

2

Scenario development

Three future scenarios are developed with input from stakeholders providing local information on human uses and preferences for future location and intensity. Stakeholders also suggest specific changes to the scenarios, based on known alternative development plans or future natural resource uses. Simple tools (e.g. NatCap's online mapping tool InSEAM) and exercises help stakeholders understand what scenarios are and how alternative spatial development decisions can affect natural capital and benefits delivered to people.

3

Synthesis – communicating ecosystem services information

Synthesis ensures that the outputs of your ecosystem services analysis directly inform on-the-ground planning and policies. Here we illustrate how different scenarios of human uses in the coastal zone affect livelihoods and the benefit that people derive from nature. This includes identifying where particular ecosystem service incentives and government policies could be implemented to support a sustainable plan for the future. The goal is to maximize economic opportunities and minimize environmental degradation. The Belize Coastal Zone Management Authority & Institute used a variety of mediums to communicate results, including reports, executive summaries, peer-reviewed papers, presentations and interactive maps all tailored to intended audiences.

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