



Green turtle onshore. Credit: Jeremy Holden/FI

FAUNA & FLORA INTERNATIONAL

Arcadia Marine Initiative

2021

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Executive Summary



Reef scene, Indonesia. Credit: Matt Glue/FI

This report provides an update on all Arcadia Marine Initiative projects supported since 2011, with a focus on activity in 2021. Fauna & Flora International (FFI) is extremely grateful to Arcadia for the opportunity to undertake such strategic and long-term conservation. The flexibility of Arcadia's support at the portfolio level continues to enable us to adapt and respond to changes on the ground and, despite the continued turbulence of 2021 (both related to the ongoing Covid-19 pandemic and site-specific challenges) our marine portfolio has continued to grow and deliver significant conservation impact.

In 2021, we continued our support to 23 active projects, 17 of which are site based. These 17 projects span a total of 54 sites, and within these we are seeing evidence of:

- Improved collaborative management at 49 sites;
- Reduced threats at 21 sites;
- Recovered biodiversity at 10 sites.

Arcadia funding also supported **seven new projects** in 2021, and **one reactivated project**. One site in **Indonesia** is building on scoping and development work in 2020 and seeks to build a holistic and national programme of work.

In **Costa Rica**, work to understand the impacts of marine plastic pollution on biodiversity highlighted microfibres as a key pollutant, and we supported our first project focussed on active marine restoration of native oysters in **Scotland**.

A full blue carbon feasibility study was commissioned for **Tanzania** in December and we are excited to better understand the opportunities here.

In **Liberia**, scoping work highlighted key opportunities to build on our existing linkages and connections through our established terrestrial programme of work to support marine extensions to proposed new national parks in the south.

Scoping funding was used to understand the use of plastic materials in the burgeoning seamoss farming industry on **Saint Lucia**, and also to explore options for FFI to support improved management of a suite of marine Natura 2000 sites on **Romania's Black Sea coast**.

Finally, our work in the Caribbean has progressed with a renewed focus on the marine areas of the Redonda marine reserve of **Antigua & Barbuda**.



Fishing nets. Credit: Pablo Sinovasa/FFI



Cambodia sea urchin. Credit: FFI



Saint Lucia. Credit: Scott Taylor

Key achievements in 2021

- An FFI led motion calling for a **global moratorium on deep sea mining** was adopted at the IUCN World Conservation Congress in September, sending a strong message to governments that there is overwhelming global opposition to this practice.
- FFI supported the production of the **world's first discrete plastic pellet handling standard** through The British Standards Institute, which will be key to reducing pellet pollution.
- **Amateur fishing was banned from an additional 727 hectares in Turkey**, further boosting the area of sea from which all extraction is prohibited.
- **FFI co-developed the Transform Bottom Trawling coalition** to reduce the reliance on this destructive fishing method, and this was launched in September.
- **FFI continued to progress pioneering models for sustainable financing** e.g. user-fee mechanisms and co-management in Cambodia, fish to market pilots for pelagic fish in Kenya, pesca tourism operations in Turkey, and blue carbon opportunities in Pemba, Kenya and Honduras.

Progress towards portfolio goals and outcomes:

2021 represents the halfway point of this grant and we have taken the opportunity to reflect upon the overall portfolio outcomes:

Growth across the portfolio is on track, with between two and five new project sites initiated each year and a stable portfolio of twelve core project seascapes maintained by investments from Arcadia, alongside considerable leveraged funds from other donors.

As a result of this new or sustained protection, evidence of threat reduction has been recorded in eight countries, with a further 15 individual sites reporting evidence of recovery of key biodiversity.

Novel technology, including SMART phone applications and remote data collection tools, are being actively deployed in six countries, advancing our ability to assess threats to, and monitor the status of, marine biodiversity.

We have promoted and supported the adoption of evidenced-based, sustainable marine policy or legislation in three countries, and helped drive changes in commercial policy and practise with regards to deep sea mining and plastic pellet handling.

To date, six external briefings have been published, further increasing FFI's visibility and contribution to marine conservation thought leadership, with additional briefings planned for mariculture, destructive fisheries and plastic pollution in 2022.

Whilst we must acknowledge the impact of the Covid-19 across the portfolio since March 2020, we are largely on track to meet all the portfolio level outcomes and outputs by December 2023.



Sustainability and Capacity-building

Our core focus on building and maintaining the capacity of local organisations to deliver ongoing conservation continues, and we are actively seeking new partners in key geographies where FFI is already working on the ground.

Securing financial sustainability for projects and sites is an enduring challenge, particularly as the world recovers and adapts from the pandemic. However, the team have made positive progress in a number of key sites:

- Price premiums were negotiated for fish sourced from the pilot Fish to Market project in Kenya, bypassing exploitative intermediaries, increasing incomes for communities and acting as a significant incentive for compliance with MPA rules and regulations.
- Two private sector companies were identified in the UK who are interested in collaborating with our partner in Scotland to develop a sustainable seaweed supply chain.
- A legal agreement for formal co-management of one MPA was drafted in Cambodia and a sustainable finance management plan is currently under review to develop mechanism for revenue generating streams from the MPA.
- A marketing model was developed to create incentives for fishers to catch invasive species in Turkey, and generate revenues to support MPA management, and this attracted private capital to establish a local business.
- A concept was developed for a blue carbon feasibility assessment in Tanzania. Private funding was attracted for this, but the rates offered were deemed too high risk to accept. We have now assigned catalytic funding from grant AE3981

to build our understanding of the scope for blue carbon credit production, which could serve to reduce potential risk associated with private (or other external) investment in the future. Given the interest in blue carbon across the portfolio, we have concluded that the recruitment of a blue carbon specialist would add significant value to the core marine team, enabling us to focus more effort on blue carbon assessments globally.

Looking to 2022

Whilst work in 2021 was affected by further delays and postponements to key global fora and events, we still engaged in a number of important conferences, in particular the UNFCCC COP26 in Glasgow in November. 2022 is shaping up to be an extremely busy year with a number of key policy events on the horizon (e.g. UN Ocean Conference and the UN FAO Committee on Fisheries) which we plan to target with asks framed around destructive fisheries, plastic pollution and climate, and to promote and support national governments to deliver against voluntary commitments in support of the ocean. We will further prioritise project level sustainable financing plans in 2022, capitalising on the continued global momentum to diversify conservation funding streams away from a reliance on international tourism following the pandemic, and in particular in response to the climate and ocean framing that has emerged from COP26. Again, we are extremely grateful to Arcadia for supporting our marine programme in 2021, and feel hugely positive that our impact will continue to be enhanced in 2022.



Programme Overview

FOCAL GEOGRAPHIES

ACTIVE

LEGACY

SCOPING



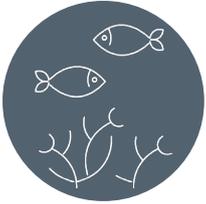
ARCADIA MARINE STATISTICS



- Portfolio includes **47 projects** across **23 countries**



- Reduced overfishing, destructive fishing and threats to key species in **35 sites** and signs of biodiversity recovery in **20 sites**



- Catalysed designation of **34 new Marine Protected Areas (MPAs)** – with a further 15 pending designation or approval – all with communities playing a key role in their governance and management



- **Secured 36** new marine-related laws or policies in **18 countries**, ranging from the UK Microbeads ban to measures to restrict bycatch-causing hooks in Nicaragua



- Facilitated improved collaborative management in **83 sites**, covering over **2.1 million ha** of ocean



- Built network of **240 partners** including national NGOs, government bodies and small-scale fishing organisations, with evidence of enhanced capacity in **83**



2021 REVIEW AND HIGHLIGHTS

Highlights And Key Achievements In 2021 Include:

- **Cambodia – progress towards an MPA network:** Good progress has been made towards establishing a cohesive and effective network of MPAs in Cambodia, with communities voting in support of the designation of Koh Sdach Marine Fisheries Management Area, and a roadmap developed for the proposed Northern Koh Rong Marine National Park.
- **Microplastics – a new pellet standard:** FFI was instrumental in catalysing and producing the world's first discrete plastic pellet handling standard (published by The British Standards Institute), a key building block for a pellet management certification system and reducing pellet pollution.
- **Kenya – new LMMAs designated:** Two new temporary octopus closures have been designated in Kiunga Community Conservancy, spanning nearly 140ha. These closures are already being enforced by local stakeholders, thereby improving local resource management, with an aim to increase octopus catch, local fisher income, funding for marine conservation activities, and improve marine ecosystem health.
- **Kenya – fish to market pilot up and running:** Through a pilot scheme to encourage investment into improved marketing and distribution of fish catch, a price premium was secured for species caught legally and sustainably, acting as a strong incentive for compliance with MPA rules.
- **Marine policy and influence – FFI co-developed the Transform Bottom Trawling coalition** with a number of NGO peers. Launched in September, this aims to act as a hub for future campaigns to limit or significantly improve destructive bottom trawl fisheries. The coalition now features 42 member groups and hosted a fringe event at COP26 in Glasgow, which FFI chaired.
- **Cabo Verde – scaling community led enforcement:** The Guardians of the Sea programme has successfully expanded to two neighbouring islands to further engage community members in reporting of illegal incidences at sea.
- **Deep Sea mining:** An FFI-led motion was adopted at the IUCN World Conservation Congress in September calling for a global moratorium, sending a strong message to governments that there is overwhelming global opposition to this practice.
- **Significant progress on development of innovative financing systems:** In November, FFI was invited to sit on the advisory board for the Global Fund for Coral Reefs (a new private-public funding vehicle) and we are currently supporting blue carbon feasibility studies in Turkey and Tanzania.
- **Sao Tome & Principe:** Following an extensive consultation process, preliminary boundaries of six proposed MPAs were agreed during a meeting of the future co-managers of the MPAs. This paves the way for anticipated full designation in the coming years.



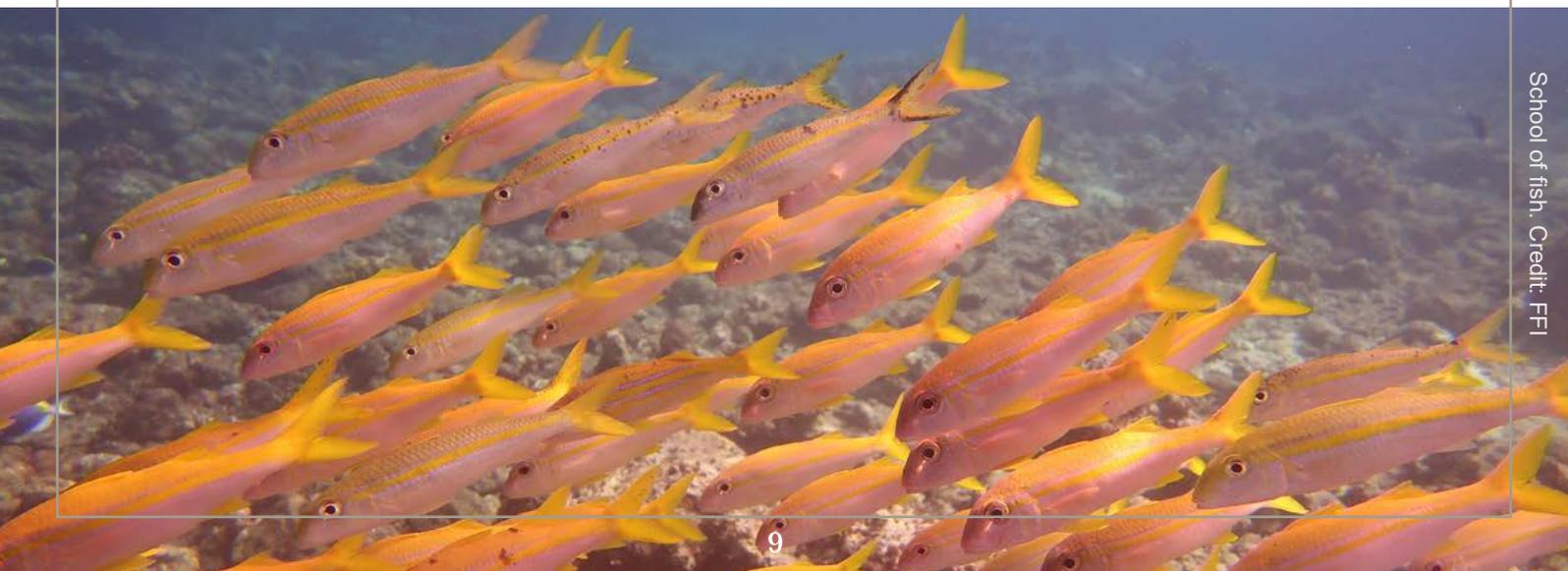
SIGNIFICANT CHALLENGES IN 2021

The global Covid-19 pandemic continues to impact the marine portfolio, with national and international restrictions and additional challenges around travel continuing to limit some of the planned activities. In general, across the portfolio we have been able to restart field activities, operating under appropriate local guidance and ensuring the safety of staff, partners and communities at all times. Ongoing significant impacts of the Covid-19 pandemic were reported from Sao Tome & Principe, where household income from fisheries products was found to still be up 66% lower than normal, and, in Vietnam, a fourth wave in May 2021 resulted in much more stringent restrictions on national travel.

The new Partner Resilience Fund, generously supported by Arcadia, will significantly assist some of our key partners to rebound from these restrictions and the associated loss of income. The Marine Team will be working closely with the Conservation, Capacity & Leadership Team to ensure the most in need partners are supported and to avoid any duplication between the two grants.

In addition to the ongoing impacts of Covid-19, we also saw a number of challenges to individual projects that were unrelated to the global pandemic:

- **Myanmar – political instability:** In February 2021, a military junta seized power and overthrew the result of the elections held in November 2020. In response, and in light of the junta's harsh repression of protests, FFI suspended all activities involving significant engagement of government agencies. This included the work toward designation of Marine National Parks, development of a national policy on MPAs, joint patrols with community and government, and finalisation of a National Plan of Action for Sharks and Rays. We continue to carefully maintain operations and adapt to this evolving situation.
- **Con Dao National Park, Vietnam – unreasonable demands by management authority:** In July 2021, the incoming Director of the Con Dao National Park requested that 50% of FFI's project funds be disbursed directly to the park management authority in line with a national decree which states that project owners (the park) are expected to manage 50% of any project budget. Following a series of unsuccessful consultations with the management authority on how to spend the funds in ways that would deliver effective conservation, in September the decision was taken to withdraw from Con Dao, and remaining funding for Vietnam will instead be redeployed to a new project. This project will focus on the Nui Chua National Park, where we are confident that we will not encounter the same issue faced in Con Dao National Park and consultation with the relevant management authority is already underway to manage expectations prior to work commencing in 2022.
- **Nicaragua – political instability and natural disasters:** Nicaragua continues to face significant challenges as a consequence of its current political, and subsequent social, crisis - at times limiting FFI's ability to implement certain aspects of work. Additionally, Nicaragua suffered two Category 5 hurricanes at the end of 2020, leading to loss of life, homes and livelihoods in beneficiary communities. However, despite these challenges, the project team has persevered and adapted – a testament to their knowledge, resourcefulness and commitment.
- **Cambodia – coastal development plans:** In May 2021, the scope of development planned along the Cambodian coastline became more apparent to the project team, alongside a new sub-decree which reallocates 127,000 ha of currently protected land to community ownership. Close monitoring of these developments is now underway, and the project team are assigning additional resource to focused government advocacy and outreach to development companies to ensure best practice approaches are followed when development progresses.



ARCADIA MARINE INITIATIVE: BACKGROUND

The world's ocean and coasts are host to some of the most productive ecosystems on earth, providing food and livelihoods for one billion people living in local communities, and sustaining local and national economies. However, the threats to our ocean and coastlines are severe and increasing. Past decades of neglect and over-exploitation have proved that the marine environment is not only vulnerable, but becoming increasingly and rapidly degraded. The unprecedented rate of change and the scale of the threats necessitate urgent and coordinated global action. In response, FFI is committed to increasing our conservation impact on marine and coastal habitats.

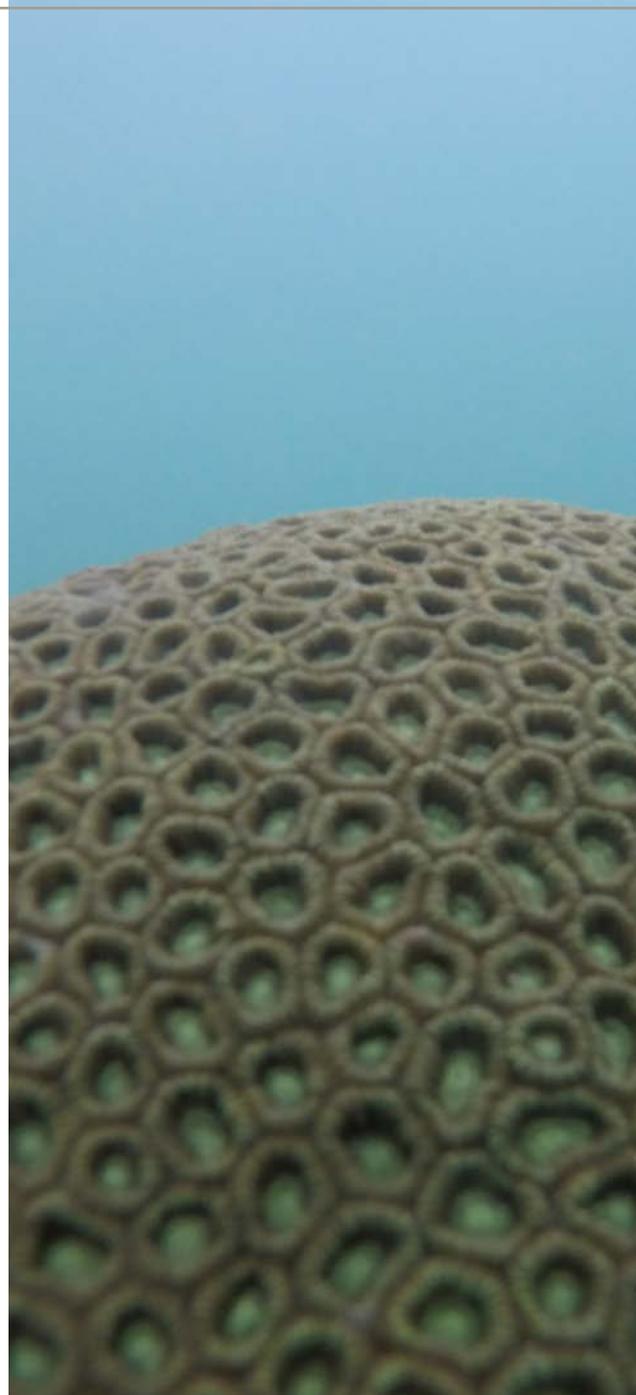
The generous funding provided by Arcadia for FFI's Marine Initiative is enabling us to:

- Deliver effective site-based marine management (MPAs, fisheries and species focused conservation at focal sites);
- Improve policy and practices in order to address wide-scale threats to species and habitats (national fisheries reforms, responsible business practices);
- Develop the capacity of in-country organisations to enhance their operations and help them to deliver effective marine conservation;
- Build a strong evidence base for dissemination and further replication of successful approaches.

EFFECTIVE MARINE MANAGEMENT

Marine Protected Areas (MPAs) are among the most effective tools for tackling many of the threats and pressures on the marine and coastal environment and its resources. Research suggests that when combined with other management strategies (such as integrated coastal management and ecosystem-based fisheries management), appropriately placed and well managed MPAs can restore the health of marine life inside their boundaries and have lasting economic benefits for human societies.

FFI believes that a central policy of international efforts should be to protect a greater area of the oceans, while also ensuring that the designated sites are effectively managed. Through a suite of site-based projects at local and sub-national scale we are showcasing approaches to effective governance and improved management of marine and coastal resources, crafted to suit each local situation.



Coral scene. Credit: FFI



Marine management team in Turkey. Credit: AKD

MARINE POLICY & PRACTICE

Whilst MPAs are vital as refuges for biodiversity, they will not, on their own, lead to a sustainably managed ocean. There is, therefore, a need for an approach that addresses the connected nature of ecosystems and the cumulative impacts of human use. Through influencing marine-related government policy in focal geographies and undertaking constructive advocacy with corporate sectors that can impact the marine environment, we aim to strengthen the enabling environment for MPAs and other localised forms of marine management.

DEVELOPING CAPACITY

Many of the most biodiverse marine areas lie within countries that have limited technical, human and financial resources for their effective management. However, the most effective and long-term solutions for safeguarding species and habitats lie in local hands; strong and effective local and national institutions are the key to successful conservation. FFI is committed to identifying organisations (government agencies, NGOs, academic institutions and community-based organisations) within our regions of operation that can have the greatest impact for marine conservation and assisting them to reach their full potential.

BUILDING AN EVIDENCE BASE

Demonstrating the impact and benefits of improved management for people and ecosystems is central to securing commitment to make these improvements. Through our marine projects we are collecting data on improved governance, reduced threats and indications of biological recovery, and are using this knowledge to inform practice within our project portfolio. We also disseminate lessons learnt externally to inform our wider practitioner network and to feed into processes associated with marine management and policy.



Mangrove nurseries. Credit: FFI



Seabed monitoring. Credit: AKD



Cup coral. Credit: FFI

WIDER MARINE PROGRAMME OUTCOMES

Arcadia funding has not only enabled us to develop a portfolio of marine-focused projects around the world, but is also allowing us to gain added value from the wealth of diverse activities, deliver impacts and share learning between and beyond the constituent projects.

The marine programme is supported by the whole breadth of FFI's operations, and draws on various disciplines including social science, environmental economics and communications; these all contribute to the significant impact that FFI is having in support of marine conservation. By investing in the core function of a centralised marine team that coordinates activities, leads on directions and actively shares learning, Arcadia enables us to reap wider organisational benefits across our work, and enables us to share learning actively with other organisations (including those in our wider partner network) and to contribute to broader national and international policy debates.

Here we capture some of the added value (beyond the activities in individual projects) that we have seen across the marine programme in 2021:

- **New institutional partnerships:** This year, we have actively engaged with the newly launched Global Fund for Coral Reefs (GFCR) and are in discussions to become a convening partner in key geographies. In November, we were also invited to join the Science & Technical Advisory Group for Monitoring & Evaluation of the GFCR. The launch of the Transform Bottom Trawling collation in September has helped to strengthen our relationship with Blue Ventures and led to FFI chairing a fringe event at COP26 focused on bottom trawling. A new report authored in

collaboration with CEA Consulting and Duke University, among others, has further increased both our visibility and our credibility in the large-scale fisheries space. Further to this, we joined the Global Ghost Gear Initiative and are actively seeking ways to ensure we gain maximum value from this membership to engage with other organisations around circular economy and fishing gear recycling. We continue to proactively seek out new partnerships where collaborating brings added value to our work, helping to raise the profile of FFI in the marine sector, and in some cases, bring in critical expertise to support project delivery.

- **Ongoing work with existing collaborations:** FFI has continued to develop our relationship with Blue Finance in support of sustainable financing of our projects in Cambodia and Tanzania, whilst the project to better define destructive fisheries continues to build our networks across the wider Cambridge Conservation Initiative. Our engagement with the Marine CoLAB coalition (which was developed and is funded by the Calouste Gulbenkian Foundation) led to visibility for FFI at the G7 in Cornwall through the #ListenToTheOcean media campaign.
- **Future conservationists:** We successfully delivered a remote teaching session to a cohort of MSc Marine Conservation students at Plymouth University for a second year. We supported one student from this course on a research placement to assess the factors that impact the choice of aquaculture species in Honduras, as well as hosting one student from the University of Cambridge MPhil in Conservation Leadership who reviewed enablers and barriers to using Participatory Market System Development to strengthen supply chains in the marine context. Collaborating with universities helps support the next generation of conservation professionals in their career development and brings a valuable academic lens to our work.



- Dissemination of learning:** Responding to the recommendations from the external review produced for Arcadia, FFI has continued to increase its focus on publicly disseminating learning from its Marine Programme. An open-access publication was published in 2021, which shares learning on the effectiveness of collaborative governance approaches in achieving ecological and social impact in Honduras, a report synthesizing available evidence on bottom trawling extent, impacts and solutions to inform policy-making was co-authored by FFI, and a report summarising learnings from the designation of Scotland's first Demonstration and Research MPA (see Annex 2) has been uploaded to FFI's website. Additionally, several other open-access publications on topics, including the impacts of Covid-19 on small-scale fisheries at our project sites, and approaches to ensure MPA compliance, are still in development. This information will feed into a marine-themed Oryx issue, likely to be published at the end of 2021. Furthermore, we published 10 blogs and news stories, which were viewed by over 10,000 people. Our marine work was also profiled in a second oceans webinar convened for FFI's Conservation Circle, which featured speakers from our staff and partners in Scotland, Turkey and Myanmar.
- Contributions at global marine conservation events:** During World Ocean Week, FFI staff attended the Small-Scale Fisheries Open House (an event convened by Too Big To Ignore, a network of marine conservation and fisheries practitioners), where we showcased our work to promote local marine governance in Cambodia, Indonesia and Myanmar. At the World Fisheries Congress, we promoted our defining destructive fisheries project, highlighted our work on strengthening small-scale fisheries supply chains, and joined a panel discussion on the impacts of Covid-19 on small-scale fishers. We hosted the SMART Marine Webinar where we showcased the work of our partner, AKD, in enabling community-led conservation in Turkey. We facilitated engagement of our staff and partners from Indonesia and Honduras in two "voices of covid" sessions hosted on the SSFHub of which FFI was a co-founder. In November we chaired two events at the UNFCCC COP26, one on mangroves and blue carbon (alongside the UN General Assembly's Special Envoy for the Ocean, Ambassador Peter Thompson) and a second event focused on the climate impact of bottom trawling. We also prepared and submitted abstracts for three symposiums at the 5th International Marine Protected Areas Congress (IMPAC5) set to take place in 2022 (showcasing learning from FFI and partners in developing innovative sustainable financing mechanisms, scaling up to MPA networks and utilising SMART in marine contexts), and expect next year to be a provide a large number of opportunities for visibility of both FFI and our marine project partners.
- Internal learning and sharing:** FFI's internal platform for experience sharing and learning exchange (the Marine Working Group) brings together staff working on marine issues across the organisation, and continues to convene monthly to discuss topical and thematic issues (such as approaches to turtle conservation in Southeast Asia and learning from gear adaptation interventions). An average of 34 people attended each working group meeting in 2021, and the interest in, and value of, this group is evident from the increase in attendance to nearly 90% of marine staff over the last four years. In addition, we continue to hold weekly informal sessions with staff leading on marine projects to help collectively solve emerging challenges within individual projects or respond to new external contexts.
- Impact assessment:** Across the portfolio we actively seek to support projects to embed robust monitoring and evaluation for impact tracking in their ongoing activities. This year, we continue to ensure a strong evidence base for our marine projects, with an emphasis on rigorous initial project design and embedded monitoring and evaluation that allows us to see a clear trajectory towards project impact.
- Project sustainability:** Despite the continued disruption to global tourism considerable progress has been made in Cambodia to enable future tourism revenue to contribute to financing MPA management. Projects focused on generating more revenue from local fisheries has continued to develop across various sites. A pilot project in Kenya linking fishers directly to a commercial operator is providing key learning for dissemination across the portfolio. Field research has concluded in Turkey to quantify the ecological and potential commercial benefits of carbon stores in the local seagrass beds, and a full blue carbon feasibility project has been commissioned in Tanzania with results expected in 2022.
- New co-financing opportunities:** The central marine team has continued to proactively support approaches to donors for a range of projects within the portfolio.

PROJECT UPDATES 2021

Projects are organised by their stage of implementation to make it easier to draw out what has been achieved in the current year of funding, with projects categorised as follows:

- New projects – projects that the Arcadia funding has supported for the first time this year;
- Active projects – projects that have received finance from Arcadia this year;
- Ongoing projects – projects that FFI is still active in delivering, but that did not receive Arcadia Marine Initiative funding this year;
- Legacy projects – projects where we track ongoing progress, but are no longer actively engaged, except in cases where support is specifically requested, and;
- Historical projects – projects where FFI is no longer actively engaged and it is no longer appropriate to expect ongoing updates.

Within each category, project reports are organised alphabetically by geography.

A full list of the projects supported during the lifetime of Arcadia Marine Initiative is included in Table 1 overleaf.





New Projects

These are projects that Arcadia Marine Initiative has supported for the first time this year.

INDONESIA: Scoping Spermonde Archipelago of Maros

The Spermonde Archipelago is a grouping of over 100 islands off the coast of South Sulawesi, Indonesia. The area is found within the Coral Triangle and has high marine biodiversity, including whale sharks, nesting turtles, dugong and regionally significant coral reefs. However, the area is severely threatened by pollution from sewage systems, industrial waste and agricultural runoff, and destructive fishing practices, including seabed trawling and fish bombing. The threats have contributed to declines in coral cover, fish and invertebrate abundance and are consequentially reducing ecosystem integrity and resilience. While the seascape contains a Marine Tourism Park and is proposed for inclusion as a UNESCO Global Geopark, along with a wider terrestrial area, current management is not able to effectively combat present threats.

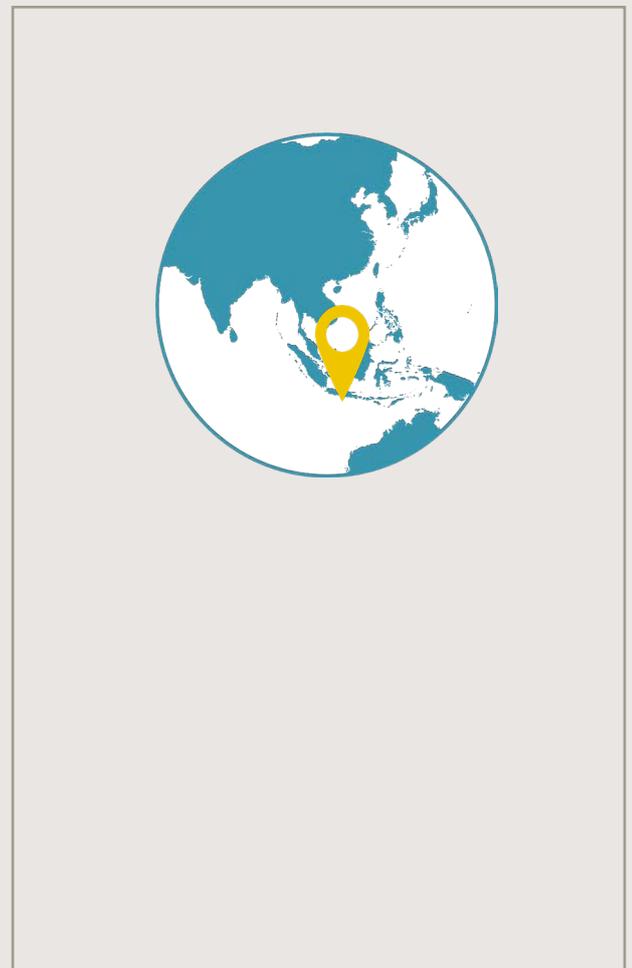
With support from Halcyon Land & Sea, FFI is running a terrestrial project in the region and has developed relationships with key stakeholders who have subsequently invited us to engage on conservation activities for the marine environment. Our initial aim is to build understanding of key marine habitats, species and community stakeholders to develop a clear idea of conservation management priorities and progress towards effective and appropriate seascape management for biodiversity. An initial grant will help to conduct the ecological and social surveys necessary to build this understanding.



Seabed in Indonesia. Credit: FFI



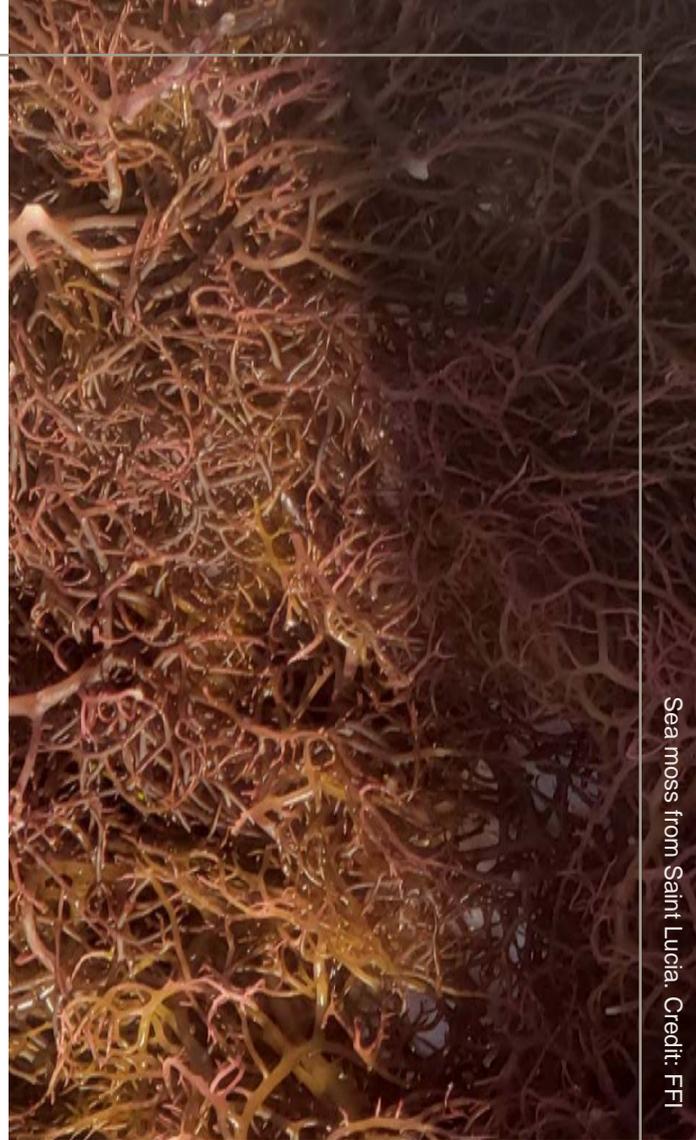
Fishing vessel onshore. Credit: FFI



SAINT LUCIA: Promoting environmental best practice for sea moss farming

Native *Gracilaria* seaweed, or sea moss, is cultivated in nearshore marine habitats, including Marine Protected Areas (MPAs), in Saint Lucia to supply national and international demand for dried sea moss for use in health drinks. There has recently been an exponential increase in sea moss farming in Saint Lucia as a result of displacement from other sectors, such as tourism, due to the effects of COVID-19. However, this intensive cultivation presents significant threats to marine biodiversity, for example through increased pollution of solid waste, particularly plastic items used as floats, clearing of dry forests for supports, erosion of seagrass beds and poor governance of sea moss farms.

FFI is supporting the Department of Fisheries and Saint Lucia National Trust to develop and promote implementation of sea moss cultivation best practice, through providing training, strengthening governance of sea moss farms, and encouraging use of sustainable alternative float materials to mitigate impacts on marine ecosystems. In 2021, this grant helped us to establish a greater understanding of the sea moss farming industry on Saint Lucia - including its scale, current practices used, demographics of sea moss farmers, market trends, and the extent of overlap with MPAs - which will be used to inform best practice recommendations.



Sea moss from Saint Lucia. Credit: FFI



Sea moss farm in Saint Lucia. Credit: FFI



STRENGTHENING PARTNERS

SECURING MARINE SITES

LIBERIA: Scoping marine conservation activities in Liberia

At over 570 kilometres, Liberia's coastline is one of the longest of any of the West African states. It has extensive stretches of coastal, estuarine and marine habitats that are of regional importance and home to many key species, including mangroves containing manatees, crocodiles, turtles and migratory birds. These environments also contain nearly 60% of Liberia's population, and the goods and services the marine environment provides are a major source of income for the country and rural populations. However, marine conservation has thus far received limited attention and there are significant threats from overexploitation, killing of threatened species, and habitat destruction.

FFI has been working with key government partners in Liberia since 1997 and is currently supporting a review of Liberia's wildlife and protected area management law. FFI also undertook a small scale project on mangroves at Lake Piso. Using a small amount of funding from Arcadia, we aim to improve our understanding of the threats and opportunities present along the coastline and build on our strong relationships to promote marine conservation in Liberia. A key aim is to explore potential for establishment of Marine Protected Areas which could provide improved management and protection of key habitats and species.

ROMANIA: Building capacity for the restoration and recovery of Romania's Black Sea

Romania's Black Sea coast is home to rich inshore habitats, including extensive eelgrass meadows. These habitats host a diversity of fish life – from an endemic species of turbot to schooling fish like anchovy and mackerel – which in turn support larger marine animals like the Black Sea sub-species of bottlenose dolphin. Romania's marine ecosystems are poorly monitored and, where they are monitored, are mostly in decline, with negative trends caused by historic hunting of marine mammals and bottom trawling of sensitive seabed habitats, for example.

In 2021, Arcadia funding enabled FFI to begin scoping work to identify opportunities to strengthen the management of the network of nine Romanian Marine Protected Areas that have been designated to reverse these declines. Recognising the chronically low management capacity in the institutions responsible for these MPAs, FFI hopes to both better understand the needs of governmental protected area managers and to secure meaningful partnerships to deliver much needed action for the country's threatened seascapes.



SECURING MARINE SITES



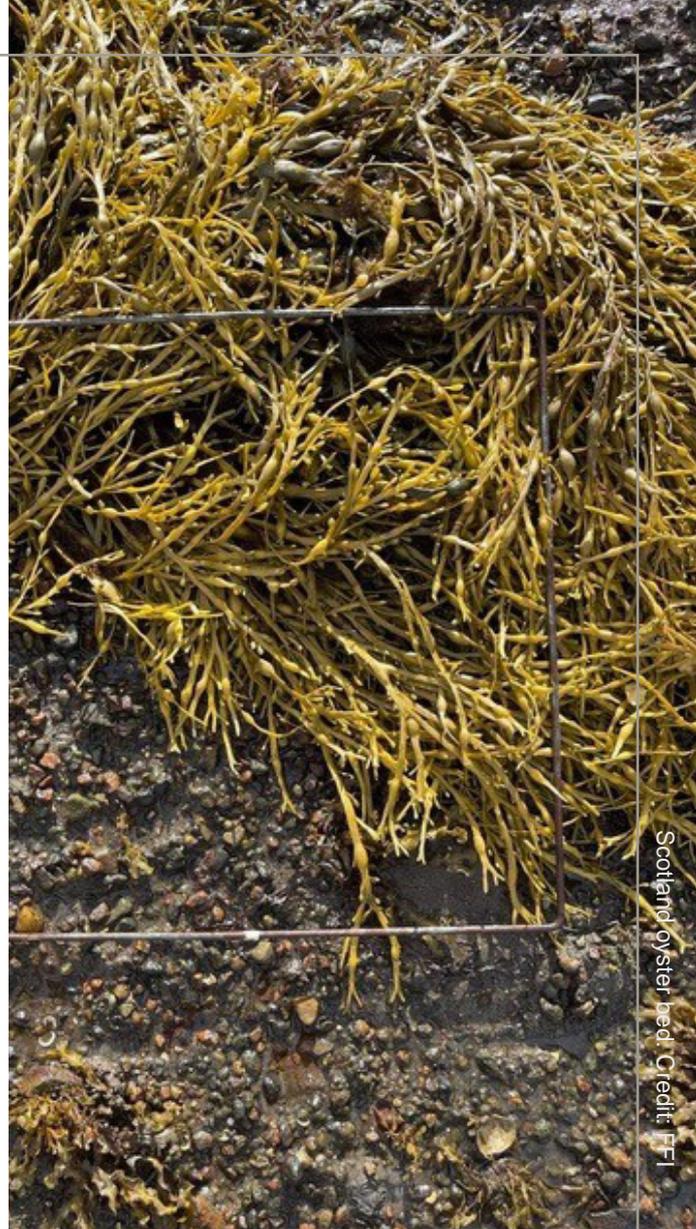
SECURING MARINE SITES

STRENGTHENING PARTNERS

SCOTLAND: Native Oyster Restoration in Loch Aline

Oysters are ecosystem engineers, filtering and cleaning water, and providing habitat and a refuge for a diversity of marine organisms by forming complex reef structures. However, native oyster *Ostrea edulis* beds in Scotland have declined significantly in abundance and distribution since the 19th century as a result of illegal harvesting, resulting in low population densities that limit reproductive success, and thus the extent of these important habitats. The remaining native oyster beds mainly occur in small, scattered populations fringing sea lochs along the west and north coasts.

FFI is supporting a member of the Coastal Communities Network (see [p. 70](#)), the Community Association of Lochs and Sounds (CAOLAS), to implement a native oyster restoration project in Loch Aline to restore the local marine habitat, raise local awareness of the marine environment, and enhance the natural capital of the area by increasing marine biodiversity. They intend to use the existing pontoons at Lochaline Marina to grow native oysters in suspended baskets. This is a small-scale, non-commercial project in which CAOLAS will grow up to 20,000 native oysters until they are sufficiently mature. They then release them onto the Loch Aline seabed in areas where they were once prevalent in order to reseed and restore oyster beds to surrounding waters.



Scotland oyster bed. Credit: FFI

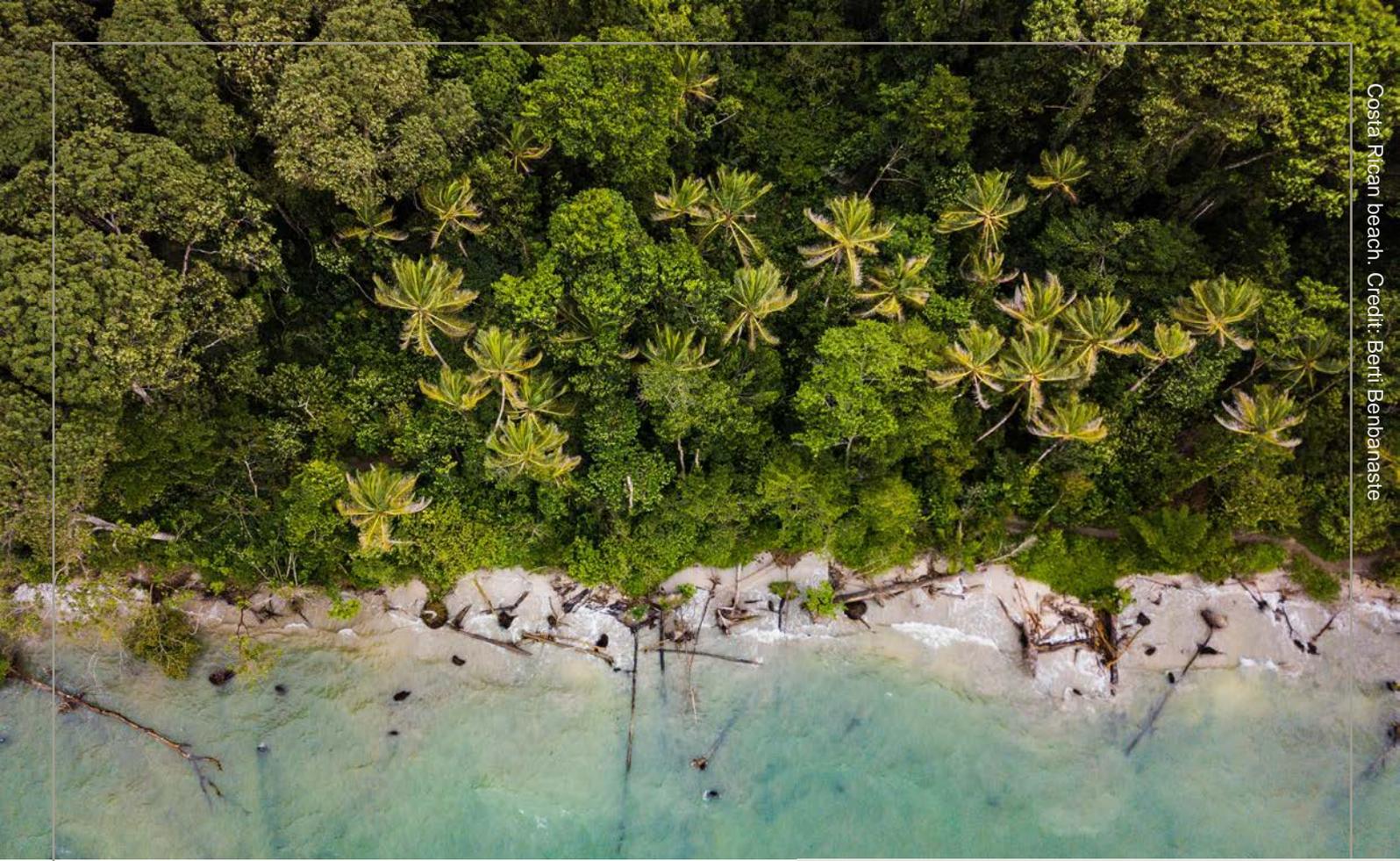


Scottish oyster. Credit: FFI



STRENGTHENING PARTNERS

SECURING MARINE SITES



COSTA RICA: Microplastics research to identify conservation and policy action

Recognising that both fisheries and microplastic pollution pose a threat to Costa Rica’s marine biodiversity, FFI began collaborating with a national research institution in 2020 to better demonstrate local evidence of microplastic pollution in order to support the identification of possible solutions to reduce it. Given the important role of wild-caught fisheries and aquaculture in Costa Rica, as well as the many challenges with these sectors, researchers focused on assessing the presence of microplastics in a diverse array of commercially captured food species, including shellfish, finfish and crustaceans.

Initial results showed a high degree of contamination, with microplastics found in 100% of sampled shellfish individuals and frequently found in both juvenile shrimps and red snappers. The vast majority of the microplastics were fibre-like substances; evidence from across microplastic research indicates a link between microfibre presence and the use of plastic nets (both for fishing and fish farming) emphasising the need to address microplastic fibre loss in seafood production as a priority. These important findings were communicated at ministerial level in 2021, with future plans now evolving to support wider dissemination and take advantage of Costa Rica’s bold political commitments around reducing plastic pollution.



STRENGTHENING PARTNERS

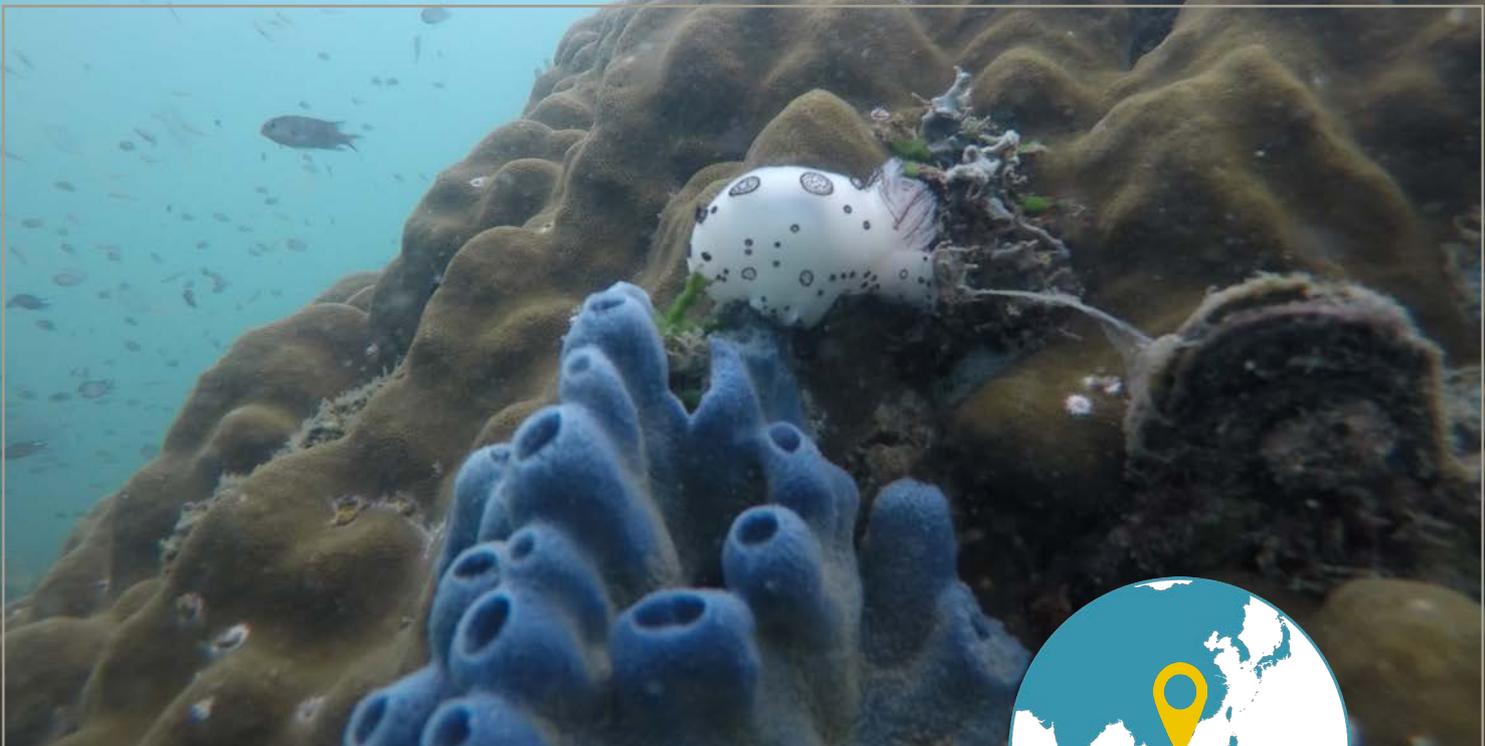
POLICY & PRACTICE



Active Projects

These are ongoing projects that have received finance from Arcadia this year, and where we are consolidating longer-term engagements.

Boast on Liberian coast. Credit: FFI



CAMBODIA: Underpinning the design and management of a national MPA network

BACKGROUND

In 2012, FFI started work in the Koh Rong Archipelago, an area rich in coral reefs, seagrass meadows and associated marine biodiversity, and a hotspot for globally threatened seahorses. Damaging fishing practices and rapid tourism development are major threats here, and so this area was a priority for MPA designation. FFI initially worked with Community Fishing Institutions, which have the legal authority to manage their own fishing grounds, to collaboratively design and legally approve management plans for their community fisheries areas in Koh Rong. A small network of community managed areas subsequently evolved first into a Marine Fisheries Management Area (2016) and then into the country’s first Marine National Park (2018) through government collaboration. The project has since expanded to encompass another proposed Marine Fisheries Management Area at a second archipelago (Koh Sdach), and is now working towards creating a cohesive national MPA network.

ACHIEVEMENTS IN PREVIOUS YEARS

- Cambodia’s first Marine National Park designated:**
 Building on management put in place through Community Fishing Institutions (as [documented here](#)), Koh Rong Marine Fisheries Management Area was designated in 2016. The site was re-designated as Koh Rong Marine National Park (MNP) in 2018, retaining the original zoning plan and effective community-based patrols.

Focal Sites:

- Koh Rong Marine National Park - three Community Fishery Areas
- Koh Sdach (proposed) Community Fishery Area
- Northern Koh Rong (proposed) Marine National Park
- Kep Marine Fisheries Management Area
- Kampot (proposed) Marine Fisheries Management Area

Area Of Impact:

126,643 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

- **Improved compliance with regulations at Koh Rong:** A patrolling system was established for community fisheries areas within the MNP in 2015, led by the communities and supported by the Fisheries Administration. Patrols use the Spatial Monitoring and Reporting Tool (SMART) system, which has led to more effective patrolling (as [documented here](#)). Monitoring data shows that the number of infractions within Koh Rong MNP has fluctuated between 2015 and 2020; however, the number of infractions is now lower than when the MNP was designated, demonstrating generally high compliance. Communities are also providing some co-financing to cover patrol costs.
- **Marine biodiversity maintained or recovering:** Coral reef monitoring between 2013 and 2015 showed that, as a result of enhanced community management of fisheries areas in the Koh Rong Archipelago, hard coral cover remained stable and seagrass cover increased in some areas (see papers [here](#), [here](#), and [here](#)). Subsequent analysis of coral reef monitoring data from Koh Rong MNP in 2019 revealed tentative signs that hard coral cover and grouper and parrotfish biomass have increased since its designation (as documented in this [paper](#) and [report](#)), indicating that active marine management is having a positive biodiversity impact. The very rare Neptune's cup sponge, previously thought to be extinct in Cambodia, was also found within the MNP in 2018, and in 2019 a whale shark was observed for the first time in over 10 years.
- **Sustainable finance opportunities developed:** A multilateral agreement was signed with two partners, Blue Finance and Green Equity Asia, to explore and implement a co-management model, including a user-fee-based mechanism, for sustainable financing of Koh Rong MNP, and the Ministry of Environment accepted the proposal to explore this further. The founding members of the Special Purpose Entity (FFI, Blue Finance and Song Saa Foundation), which will be the management entity of Koh Rong MNP, have accepted this role in principle. NGO partners and government consultants have also been consulted on potential fee collection mechanisms.
- **New designation at Koh Sdach:** In 2020, plans for a new Marine Fisheries Management Area (MFMA) designation at Koh Sdach (mirroring the process in Koh Rong MNP) were fully supported by the relevant authorities as a result of a consultation process with key stakeholders from the province. In January 2020, coral reef surveys conducted in the Koh Sdach revealed that the northern parts of the archipelago had the highest hard coral cover observed anywhere in Cambodia, highlighting the need to prioritise their protection.
- **Capacity built for marine conservation:** Staff within the Cambodian Fisheries Administration have been trained in MPA management and are now independently leading patrols. Members of the Cambodian navy were also trained in coral reef monitoring, enhancing their capacity to participate in future monitoring. Community Fishery Institutions have received training in people management, budgeting and stakeholder engagement.
- **Improved national policy for marine conservation:** FFI participated in a National Taskforce that led to a ban on foreign-owned ships using Cambodia as a 'flag of convenience' and a requirement for the national fishing fleet to be registered. In 2018, FFI worked with OceanMind to assess monitoring, control and surveillance for Cambodia's territorial waters. Satellite data revealed hotspots of illegal fishing activity on the boundaries of Koh Rong MNP and Koh Sdach community fishing grounds, widespread illegal trawling by Cambodian vessels, and frequent incursions by non-Cambodian vessels into Cambodian waters. FFI provided technical advice to a new National Action Plan on IUU fishing, which details possible approaches to mitigate IUU at MPAs throughout Cambodia, and its implementation is supported by OceanMind.
- **Local livelihoods supported:** In 2020, four crab banks were established, engaging participants in sustainable management of a key local fishery. Crabs are held until they release their larvae and are then sold, thus enhancing sustainability of crab populations and potentially increasing crab catches.





PROGRESS IN 2021

- Cambodia's first Marine National Park designated:** Key progress has been made with government partners towards rezoning Koh Rong MNP, where the original MFMA zonation scheme has continued since the 2018 upgrading of the site to an MNP.
- Improved compliance with regulations at Koh Rong:** Local government authorities and Community Fishery partners have continued to conduct marine management activities in Koh Rong and Koh Sdach (such as SMART patrols), despite the impacts of the pandemic on fishing communities and limited access to in-person technical support. The number of illegal infractions has marginally decreased in Koh Rong since 2020, however has increased by around 18% in Koh Sdach.
- New designation at Koh Sdach:** The Koh Sdach community voted in support of MFMA designation and consented for MFMA design to begin. Biophysical and socioeconomic data has been compiled to inform the zonation plan and a clear roadmap for MFMA development in 2022 has been established.
- Marine biodiversity maintained or recovering:** Coral reef monitoring in the Koh Sdach Archipelago showed that there are promising signs that hard coral cover has stabilised, macroalgae cover (an indicator of poor reef health) has decreased (-13%), and grouper and parrotfish biomass have increased since 2020 (40% and 52% respectively). Additionally, one seagrass bed in Koh Sdach was monitored throughout the year, revealing a significant (105%) increase in seagrass cover. While it is encouraging to see improvements in these key indicators, it may be too early to relate them to project interventions, as patrols in Koh Sdach have only been operational for two years.
- Scaling up to a national MPA network:** As a result of leveraging significant funds from the Blue Action Fund in 2020 to scale up the work designating MPAs and strengthening marine management along Cambodia's coastline, roadmaps for the development of a national MPA network and for the proposed Northern Koh Kong MNP were drafted and will be subject to stakeholder consultation.



STRENGTHENING PARTNERS

POLICY & PRACTICE

Developing locally-led solutions to prevent plastic entering Cambodia's ocean

BACKGROUND

In Cambodia, this project is documenting and developing solutions to plastic waste in the Koh Sdach archipelago, where we are also developing a new Marine Fisheries Management Area (see [p. 24](#)). Despite its remote location, Koh Sdach presents a familiar South-East Asian problem, with growing use of disposable plastic overwhelming the limited waste management systems. We aim to use our understanding of the inherent drivers of plastic pollution, alongside our strong in-country relationships, to develop solutions targeting Cambodia's use and disposal of plastic waste.

ACHIEVEMENTS IN PREVIOUS YEARS:

- Improved understanding of plastic pollution context:** Rapid assessments of the composition of plastic pollution, the attitudes and behaviour of island communities towards plastic waste and the drivers of plastic pollution helped to identify the complex social dynamics of plastic use. A comprehensive review and synthesis of available data on plastic pollution and solid waste management in Cambodia was completed in 2020 and [made openly available](#). This represents some of the first research of its kind for the country, and presents recommendations for addressing the key drivers of marine plastic pollution. The report was shared nationally and internationally with government, private sector, NGO, education, tourism and media stakeholders, as well as via a social media campaign. FFI is now recognised as a leading actor on marine plastic pollution in Cambodia, giving us the credibility to drive change on this issue.
- Greater awareness of plastic pollution threats:** FFI began engaging in the Ministry of Environment's 'Plastic Education Technical Working Group' in 2020, which supports the design of a national curriculum on plastic use and disposal behaviours.

PROGRESS IN 2021:

- Coordinated action on marine plastic pollution:** Key actors engaging on the plastic pollution issue in Cambodia are now better aligned and disseminating more consistent messaging as a result of national coordination meetings, which were initiated, and are now chaired, by FFI. One outcome of these meetings was the creation of a single cohesive National Action Plan on Marine Litter, unifying previous regional frameworks.
- Solutions developed to address plastic pollution threats:** FFI has supported the development of a National Situation Analysis, which has been validated by the Ministry of Environment with whom FFI has a positive working relationship, and that sets out locally feasible and priority actions to address marine plastic pollution.
- Enhanced capacity to monitor marine plastic pollution:** An inventory detailing marine plastic pollution monitoring efforts in Cambodia has been compiled and Ministry of Environment presented this to regional partners, with support from FFI, to inform the design of monitoring best practice across Southeast Asia. FFI also continues to build government capacity to implement a government-led monitoring programme.
- Key plastic management legislation drafted:** FFI was instrumental in informing the design of legislation that will result in better management of plastic use and waste in Cambodia. Most crucially, FFI advocated for a mandate under this new legislation that will restrict plastic use in MPAs.



CAMBODIA: Community-led marine species conservation in the Koh Rong archipelago

BACKGROUND

Cambodia's waters support globally threatened species whose populations are declining as a result of multiple threats, including unregulated coastal development, illegal and destructive fishing, overharvesting, and unsustainable levels of wildlife trade. This project seeks to conserve two groups of flagship marine species - sea turtles and seahorses - and their associated habitats of seagrass and coral reefs through a combination of site-based action and engagement on cross-cutting policy issues. This project previously focused on interventions to reduce the sale and export of seahorses; however, it has recently been expanded to include sea turtles to consolidate previous species-focused research and ensure that species conservation interventions are integrated into MPA design and management, as well as regional and national planning.

ACHIEVEMENTS IN PREVIOUS YEARS

- Increased capacity to protect seahorses:** Staff from the Fisheries Administration and other partners have been trained in seahorse identification and surveying, and a locally appropriate identification guide was developed. This is now used by the Fisheries Administration to identify illegally caught seahorse specimens, along with new guidelines for releasing accidentally captured seahorses.

Focal Sites:

Koh Rong Marine National Park - three Community Fishery Areas

Koh Sdach Community Fishery Area

Area Of Impact:

56,693 hectares

SECURING MARINE SITES

- **Understood seahorse trade:** Information on seahorse trade from fisher and vendor surveys across all four coastal provinces showed hotspots for seahorse bycatch, a perceived decline in seahorse abundance by fishers and vendors, an increase in demand and market value over time, and the market chain through to Vietnam and China. It recommended greater restrictions, enforcement on the use of non-selective gear, and better trade monitoring to meet CITES requirements. These reports and recommendations were shared with the Department of Fisheries Conservation.

- **Protected and stabilised seahorse population:** Regular surveys of Koh Rong MNP using a globally recognised methodology (iSeahorse) have shown seasonal stability of seahorse populations. Two species have been recorded at the site (*Hippocampus spinosissimus* and *Hippocampus comes*) and there appear to be healthy populations based on large numbers of juveniles. Increased patrolling and improved enforcement of trade regulations are in place to reduce threats to seahorses. The information gathered on seahorse hotspots has been incorporated into management plans developed for community fishery areas, with recommendations for gear restrictions to reduce bycatch.

- **Increased capacity to protect sea turtles:** Since 2008, FFI has supported the Fisheries Administration to collect and collate relevant data into a turtle sightings database, and in 2020 a broader sightings database was created for stakeholders to record all notable marine species observed in Cambodian waters to fill important information gaps. In 2018, a National Action Plan for Sea Turtle Conservation was developed, identifying the key actions and objectives needed to protect Cambodia's remaining turtles. In 2020

the National Marine Turtle Monitoring Protocol was improved so that it provides clear, non-technical instructions on tagging, safe release and reports of sightings.

- **Reduced threats to sea turtles:** As a result of sea turtle awareness workshops provided to communities by FFI and Fisheries Administration, fishers are now preferring to release sea turtles when they are bycaught. In 2020, 17 sea turtles caught in fishing gear were safely released back into the ocean by fishers.

PROGRESS IN 2021

- **Protected and recovering seahorse population:** In 2021 there was a decrease in the number of recorded illegal trawl incidents, a form of fishing associated with high levels of bycatch and posing a significant threat to seahorse populations, in both Koh Rong MNP (-72%) and Koh Sdach (-86%). Additionally, surveys in Koh Sdach found 57 seahorses (compared to 16 in 2019), including four species (*Hippocampus spinosissimus*, *Hippocampus comes*, *Hippocampus monikei* and *Hippocampus trimaculatus*), indicating a recovery in seahorse populations at this site. In Koh Rong found eight seahorses of two species (*Hippocampus spinosissimus* and *Hippocampus trimaculatus*).
- **Reduced threats to sea turtles:** Two awareness-raising events on threatened marine species and one community exchange took place, enabling coastal communities to share learning. As a result, 22 sea turtles caught in fishing gear were safely released by fishers in 2021, a 275% increase in the number of sightings since 2018. However, it is unclear whether this represents population recovery or is instead attributable to improved reporting systems.





MYANMAR: Collaborative conservation of marine biodiversity in the Myeik archipelago

BACKGROUND

The Myeik Archipelago in Myanmar’s Tanintharyi region on the Bay of Bengal, comprises over 800 islands and a wide range of marine and coastal habitats, including mangrove forests, coral reefs of regional importance, mudflats and seagrass beds. These habitats provide a home for turtles, sharks, and a diversity of corals, birds and fish. The area is also of vital importance to thousands of artisanal and commercial fishers, although capacity for marine management is critically low.

FFI initiated work in Myanmar in 2010, with support from Lisbet Rausing and Peter Baldwin, to develop a project to

- i. build in-country knowledge and technical skills in marine management
- ii. design appropriate governance and management models for MPAs in the Myeik Archipelago
- iii. replicate these models and introduce the Locally Managed Marine Area (LMMA) concept where appropriate.

Additional work in 2018 revealed that Myanmar has an extremely high diversity of shark and ray species, including several threatened species. However, despite a nationwide ban, an active fishery for sharks and rays persists. This project therefore expanded to work explicitly on shark conservation, aiming to build capacity, deter and reduce illegal landings of sharks and rays and increase the adoption of measures to reduce shark bycatch.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Establishment and management of three LMMAs:** In 2017, Myanmar’s first three LMMAs (multiple use areas including no-take zones) were established as a direct result of this project. LMMAs are based around existing community fishing grounds and are planned collaboratively by the communities and the Department of Fisheries. Management committees are in place and management

Focal Sites:

Langann Locally Managed Marine Area

Don Pale Aw Locally Managed Marine Area

Ling Long-Parawah Locally Managed Marine Area

Area Of Impact:

24,165 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE



plans have been finalised to clarify the rights of the communities and prohibit the use of illegal and destructive fishing gear, particularly trawling and dynamite. A collaborative enforcement programme operates with the Myanmar Navy and the Department of Fisheries for the LMMAs, and boats and training have been provided to communities to enable them to patrol their respective LMMAs. Four other villages subsequently requested LMMAs; work has since started to agree boundaries and zones for these sites which are focused in an area with high potential for mangrove restoration.

- **Establishment of Marine National Parks:** FFI supported the process to design and develop a wider Marine Protected Area network plan for the Myeik Archipelago, including a detailed zonation plan. Adoption of these plans will provide the legislative backbone to protect biodiversity within a landscape-scale Marine National Park, made up of smaller protected areas. All three established LMMAs lie within proposed Marine National Park, thereby ensuring effective integration of existing protection and community engagement work into the proposed parks. FFI helped to manage and resolve concerns raised by stakeholder representatives (both government and community) during the process of establishing the marine national parks, and this experience informs the evolving national MPA policy.
- **Marine biodiversity monitored:** Six years of extensive research involving international experts documented the coral reefs, seagrasses and mangroves of the Myeik Archipelago. The resulting [report](#) confirmed the conservation value of the area and provided a sound baseline for future monitoring. Subsequently, the presence of cetaceans, boat traffic and dynamite fishing have been studied using acoustic recorders. Protected shark species, which are hunted in Myanmar, have also been surveyed using Baited Remote Underwater Video surveys. It is too soon for the permanent coral reef monitoring transects to demonstrate the impact of the LMMAs; however, local fishermen have reported a perceived increase in fish abundance within the LMMAs.
- **Capacity built for marine conservation:** FFI trained Myanmar's first research scuba team in 2012, and they subsequently introduced permanent transects at two LMMA sites. The Department of Fisheries and civil society representatives were also trained in survey methods, data analysis, and skills needed to implement MPA management, including effective community engagement and consultation. Support to Myeik University has enabled market surveys for sharks, revealing trade in endangered and protected species in Myanmar and presenting an opportunity to explore collaboration with international organisations like CITES.
- **Livelihoods to support LMMA management:** Work with communities at the three LMMAs allowed fishers to broaden their market access and explore direct sales to Myeik restaurants; by removing the middlemen, fishers increased the price received and reduced the price for restaurant owners. The increased fish prices in turn improved local support for the LMMAs. Improving local income through community-scale seaweed farming has also been investigated and a reliable buyer has been identified, warranting further development. A women's savings group established by the project provides loans to community members and has garnered further community support for LMMAs.

- **National policy for marine conservation:** In 2017, FFI initiated a process to develop a national MPA policy and provided guidance on policy development (with University of Victoria, Australia). Myanmar's major inshore fishing grounds and catch type were identified, with the involvement of the Smithsonian Institute, to inform national fisheries management. The government has welcomed the LMMA model and FFI advocating for Vessel Monitoring Systems, which are being tested on 1,000 commercial vessels and could significantly bolster monitoring and enforcement efforts. A Marine Turtle Working Group was established to ensure that future MPA designations take account of the habitats for and threats facing these important species. FFI has also supported development of the National Plan of Action for Sharks, which has resulted in Myanmar extending an existing ban on fishing for all ray species that are included in CITES annexes.

PROGRESS IN 2021

- **LMMA establishment and management:** Patrolling activity in the existing LMMAs continues irregularly without support from the Department of Fisheries due to Covid-19 and the ongoing political instability. However, at one LMMA, the patrol team and FFI staff have begun collecting illegal fishing nets and delivering them to the authorities. Community outreach was able to resume in October 2021, and three new communities have agreed to initiate the process

of LMMA establishment, with their representatives suggesting the potential development of one larger LMMA to maximise connectivity of protection.

- **Livelihoods in support of LMMA management:** FFI support for livelihoods initiatives, particularly the women-led Village Saving and Loan Association, have played a major role in minimising the severe impacts of Covid-19 restrictions on income and therefore the need of communities to exploit their environment. Development of community-scale seaweed farms was bolstered by meetings between communities and a potential industry partner.
- **Marine biodiversity monitored:** In 2021 evidence of a record number of eight Green Turtle nests was found on one of our focal islands, despite intermittent monitoring effort due to Covid-19 restrictions and political instability.
- **Maintaining community support in a fraught environment:** A third wave of Covid-19 hit the country in summer with significantly more severe impacts than the initial outbreak, the effects of which were exacerbated by healthcare strikes in response to the military junta. In this context it was key to provide support to LMMA communities in the form of oxygen tanks and PPE, resulting in a strengthened relationship with FFI and increased enthusiasm for continued collaboration on conservation activities.



Crew preparing for a dive: Credit: FFI



INDONESIA: Protecting and preserving coral reefs by preserving traditional fishery management in Aceh province

BACKGROUND

The coral reefs of Aceh, North Sumatra support rich and abundant marine life and provide important spawning and nursery areas for fish, but have been heavily damaged by destructive fishing practices (including dynamite and cyanide fishing) and the lasting devastation from the tsunami in 2004. Among other impacts, the tsunami caused significant loss of life among those community leaders who had upheld the traditional customary community fisheries governance system known as Pangelima Laot. This resulted in a loss of traditional ecological knowledge and the risk that the province's marine biodiversity would continue to degrade.

In 2006, FFI began to work with the communities on Pulau Weh, the most north-westerly Aceh island, to re-establish the customary systems for fisheries management and restore recognition and implementation of the traditional approach to management of the community fishing grounds, known as lhoks. Capacity building, including various training activities and initiatives to diversify livelihoods, resulted in the communities managing their lhoks independently, with a collaborative patrolling system involving fishers, the Navy and fisheries authorities. Surveys subsequently indicated that reef fish were more abundant and diverse in well-managed lhoks.

Development funding from Lisbet Rausing and Peter Baldwin in 2010 enabled FFI to begin replicating this approach on two islands further south, Pulau Simeulue and Kepulauan Banyak (page 16). Simeulue is the site of the PiSiSi MPA; the name is an acronym for the three locations that form the boundaries of the site, which was designated by the government in 2006. Within this site, the project has focused on seven lhoks in order to reduce destructive fishing practices by integrating customary lhok protection with more formal MPA management. In 2020, an Aceh Government decree created an MPA network in the province with three new sites designated on Simeulue in addition to PiSiSi, and several for the main island, with the intention of replicating the mixed lhok-MPA approach.



Focal Sites:

Pulau Simeulue MPA (7 lhoks)

Pulau Weh MPA (1 lhok)

Other proposed/designated MPAs

Area Of Impact:

402,516 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

ACHIEVEMENTS IN PREVIOUS YEARS

- **Aceh MPA network secured:** The designation history of MPAs in Aceh has been long and complex, with FFI involved in multiple stages and facilitating dialogue between communities and various arms of the government. In 2020, with an improved legal status for PiSiSi and the legal recognition of new sites in other districts, the 12 MPAs of Aceh province – across over 3,800km² of ocean – were finally established as an ecologically sound and administratively coherent network, rooted in the lhok-driven MPA system developed in FFI's original project location of Pulau Weh.
- **Effective governance at community level:** The project has gained governmental recognition for the traditional tenure of seven traditional lhok fishing areas within the PiSiSi MPA. All relevant customary law (fishing gear and fishing fleet restrictions, methods for harvesting marine products, and protection and management of threatened species and customary fishing grounds) has been brought together in a single document; this is now used to harmonise fishing restrictions across the site.
- **Improved compliance with regulations:** Community patrolling across the PiSiSi area started in 2015, and both government enforcement agencies (police and navy) and traditional community leaders contribute to enforcement across the site. Fewer incidents of illegal and destructive fishing have been reported over time, particularly for compressor fishing. For example, in one lhok there was a 93% decline in illegal compressor fishing between 2015 and 2019, reducing not only threats to target fish species, but also potential deaths associated with this highly dangerous activity.
- **Marine biodiversity recovering:** Ecological baselines (coral reefs, fish populations) have been established across PiSiSi MPA. Subsequent surveys have consistently found higher reef fish biomass in lhoks compared to non-managed areas of the MPA. One of the longest-established lhoks supports the highest reef cover with almost 90% in 'very good condition' and highest abundance of grouper, a commercially important indicator species, found within PiSiSi.
- **Improving MPA and fishery policy regionally and nationally:** Lhok management approaches are now appreciated and respected at regional and national level, and the work to date has catalysed further lhok/MPA activity in eight districts ([see here](#) for more information). Since 2017, FFI has been involved in the Aceh MPA Taskforce, which is mandated to coordinate MPA management across the province. FFI's technical support to the Aceh

Marine and Fisheries Agency has contributed to the adoption of a revised provincial-level spatial plan, and the establishment of a provincial-level MPA network. In 2020, FFI began providing technical support to a new province-wide action plan on destructive fishing practices particularly focused on bottom trawling and dynamite use, ensuring that lessons are transferred from Simeulue to other districts.

PROGRESS IN 2021

- **Effective community-based enforcement against destructive fishing:** Community patrolling of PiSiSi MPA continued to grow in 2021, both through participation and in spatial coverage, with nearly 90% of the site now actively monitored. This patrolling was enhanced through formal collaboration with government enforcement bodies in 2021, making these grassroots efforts a more legitimate part of the Aceh province's approach to maritime security. While there is still a reliance on voluntarily collected evidence to evaluate the effectiveness of these regimes, this year's records indicated a continuing downward trend in violations relating to destructive compressor fishing.
- **Improved incentives to support responsible fishing:** Coordinated action to improve how fish catch on Simeulue is handled, processed and sold accelerated in 2021, with an increasingly complex network of fishers, buyers and exporters collaborating in training and collective problem-solving. Progress has been made in increasing the use of ice to preserve catch and ensuring that buyers are more selective in purchasing undersize species. Both of these developments support the groundwork for more organised and effective small-scale fisheries sector on the island, therefore reducing the need to engage in fishing practices that negatively impact biodiversity.
- **Biological monitoring indicates overexploitation in key reef fish species:** While progress on supply chain coordination is encouraging, new FFI-led fisheries monitoring in 2021 has revealed the scale of the challenges ahead. After decades of increasing and unmanaged fishing, populations of cornerstone reef fish species – particularly the ecologically significant Leopard coral grouper – are showing tell-tale signs of overexploitation, with immature individuals making up the majority of landed catch. This complex and sobering evidence will enable the project to better adapt to measures beyond solely site-based protection, particularly the uptake of more responsible fishing practices and securing markets that support diversification away from targeting overexploited species, thereby reducing pressure on Simeulue's marine ecosystems.

INDONESIA: Establishing Effective Management in the High Biodiversity Raja Ampat Seascape

BACKGROUND

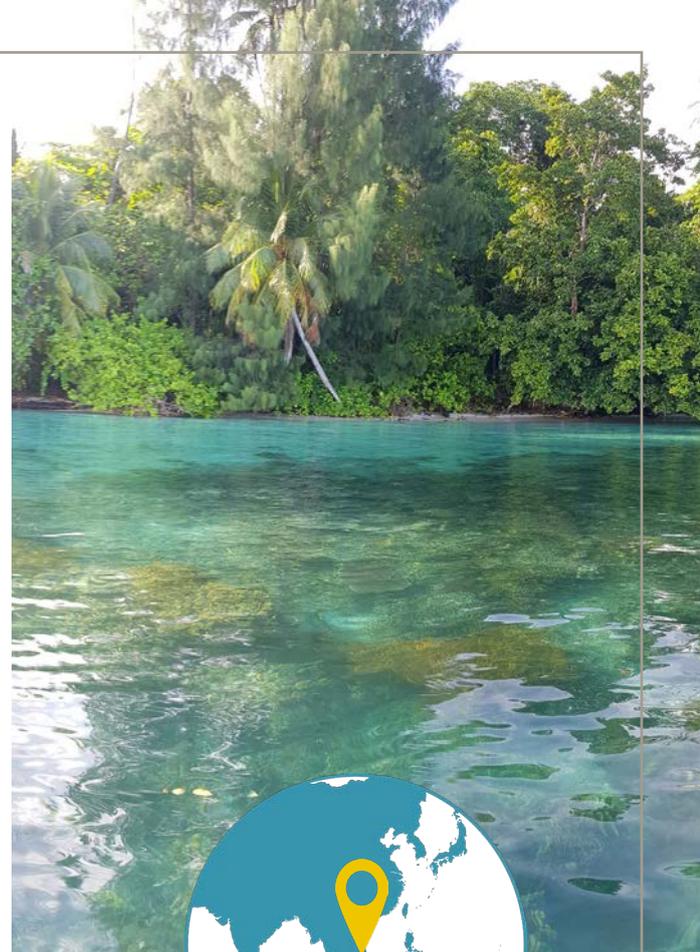
The Raja Ampat Seascape is an acknowledged epicentre of global marine biodiversity. However, some areas have been neglected by previous conservation initiatives. Among these is North Misool, which contains intact coastal forests and mangroves that transition directly into seagrass and coral reefs, supporting populations of dugongs and nesting sea turtles believed to be under threat as a result of insufficient marine protection within the wider Raja Ampat MPA system. FFI is already working on a 'Ridge to Reef' project in Raja Ampat, and in this project we are bringing the experience from our comparable marine work in Aceh to local communities and provincial government in order to implement a sustainable, supported MPA based on local customary management systems.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Understanding the local context:** Although restrictions around Covid-19 limited field activities in 2020, FFI completed baselines for seagrass, dugong and turtles, engaged with communities to understand their needs and perceptions, and assessed tourism potential, all of which was used to engage with key agencies in the region and begin to facilitate future designation as a community managed MPA.

PROGRESS IN 2021

- **Building monitoring capacity:** FFI has conducted training for facilitators and community members increasing capacity in dugong, seagrass and turtle survey techniques with participant knowledge shown to increase as a result. The methods have been implemented to assess the coastal ecosystems of North Misool in greater detail, uncovering two turtle nesting beaches, instances of mating dugongs, and five areas for seagrass quality assessments, as well as an ongoing threat from turtle hunting.
- **MPA designation:** FFI continues to engage with decision-makers, at district and provincial levels, providing technical advice on key zoning considerations including ecosystem function, key species habitat and customary tenure of fishing grounds. This is building awareness and support within government to act on the clear need for formalised management systems.



Focal Sites:

North Misool Marine
Protected Area

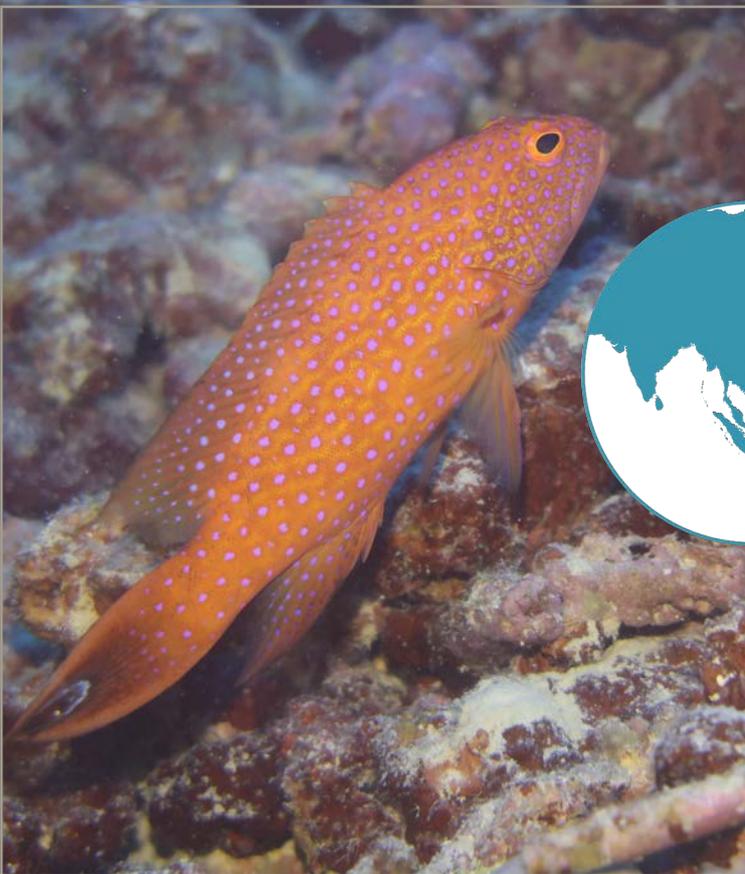
Area of Impact:

308,693 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE



Focal Sites:

Kepulauan Banyak Marine Protected Area

Area Of Impact:

227,500 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

INDONESIA: Strengthening the Kepulauan Banyak MPA, Aceh

BACKGROUND

Building on its long presence and established connections in Aceh, in 2020 FFI began scaling up its interventions around Simeulue to a seascape-level approach, directly supporting the government in the delivery of the provincial MPA network. Kepulauan Banyak is a well-established marine park which lacks sufficient management capacity to effectively protect the extensive coral reefs and turtle nesting beaches within its boundaries. The project supports improved management of the existing national park by working with communities to garner commitments to engage in sustainable fishing practices, and empowers the Panglima laot to exercise their formally recognised customary rights to access and manage nearshore marine resources.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Launching community consultations:** In 2020, the project team began consultation with communities across three existing community-managed areas to understand priority needs and undertook an initial review of wider requirements for the MPA management plan.

PROGRESS IN 2021

- **Characterising threats to marine biodiversity:** The use of compressors to fish for marine species is an ongoing and critical threat to coral reef health and community cohesion across Aceh's coasts and islands. While there are positive signs of this threat decreasing in FFI's longstanding work in Simeulue, recent government patrolling of Kepulauan Banyak in 2021 revealed that this illegal and destructive fishing practice remains prevalent in these more remote islands. The apprehension of six compressor fishers during this patrolling has allowed FFI to begin the slow process of building the capacity of Banyak communities to respond to this complex issue.
- **Negotiating effective and equitable MPA governance:** Reconciling the traditional (and sometimes ancient) fishing rights of Acehnese island communities with modern forms of MPA management has been a consistent challenge within FFI's work in Simeulue. These challenges are even more critical in Kepulauan Banyak as the site is governed through a more restrictive system than on Simeulue, one that has limited scope for community involvement. Building on its consultations in 2020, FFI has acted in 2021 as a facilitator during discussions of how to effectively govern the site in the long-term, attempting to balance the needs of island people with the need to reduce the biodiversity impacts of destructive fishing.



INDONESIA: Securing the coral reef complexes of Kalimantan

BACKGROUND

The Karimata Marine Reserve in West Kalimantan was gazetted in 1985 and comprises groups of small and large islands interspersed with extensive coral reef complexes, and is home to several turtle species, dugong and the critically endangered giant shovelnose ray. However, the reefs are currently under severe threat from illegal fishing practices including fish bombing, intense use of motorboats, chemical pollution and plastic waste. Local government is also promoting the area for tourism development, with potentially significant biodiversity impacts. The project is working to collect baseline information on key marine species and habitats, and to implement suitable interventions that maximise benefits for local people while protecting key biodiversity.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Promoting collaborative management:** FFI facilitated a workshop for local government, civil society organisations and university representatives to develop a collaborative approach to the project and identify key conservation management priorities.

PROGRESS IN 2021

- **Improved biodiversity and threat monitoring:** Through the establishment of a community monitoring team and their subsequent training in the Spatial Monitoring and Reporting Tool (SMART) five new islands were surveyed. This revealed the presence of green and critically endangered hawksbill turtle nesting sites, seagrass habitats, migratory birds, and a key threat in nest poaching. It will be used to develop management measures. Additional training in identification of key marine species was provided to a local citizen science group, improving their survey abilities.

Focal Sites:

Karimata Marine Reserve

Area of Impact:

77,000 ha

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE



Fishing vessels in Vietnam. Credit: FFI



VIETNAM: Identifying solutions to threats facing marine biodiversity on the islands of Con Dao

BACKGROUND

The Con Dao Islands support reefs with high coral cover and are a refuge for flagship marine species such as nesting turtles and dugongs, which have otherwise disappeared from much of Vietnam’s waters. Whilst tourism is well established, these islands have not experienced the intense development seen in most of Vietnam’s coastal areas and islands, and many of Con Dao’s islands remain undeveloped. Con Dao was designated as a National Park in 1993 and covers 199km², including an archipelago of 16 islands and the surrounding marine waters. The site’s management, the National Park Authority, is committed to improving MPA effectiveness but has limitations, particularly around maritime enforcement and in tackling the issue of illegal fishing within the MPA. FFI identified Con Dao as an opportunity to protect relatively pristine systems and add value to the efforts of others, whilst transferring learning from our growing Asia-Pacific marine programme.

ACHIEVEMENTS IN PREVIOUS YEARS

A study and initial consultations conducted by FFI in 2019 informed the development of a project to improve the viability of Con Dao National Park, specifically focusing on marine habitats and the growing threat (and opportunities) presented by tourism development. In 2020, we conducted a tourism assessment which, by highlighting ongoing coastal development as the key threat to marine biodiversity on the islands, led to the development of a project focused on mitigating this.

Focal Sites:

Con Dao National Park (marine component)

Area Of Impact:

14,000 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

PROGRESS IN 2021

Progress was made to better understand and quantify the trade in seahorses and other threatened marine species through Con Dao, and partnerships were developed with Project Seahorse and Save Our Seahorse to share learning from established projects looking to tackle this issue. A training needs assessment was conducted with the Con Dao National Park (CDNP) management authorities which highlighted key priority gaps around the monitoring and management of tourism impacts on biodiversity, and tackling illegal fishing activity. Despite these positive steps, in June 2021, following the recruitment of a new Director of CDNP, there was a marked shift in the

conservation ambitions of the management authority and an unreasonable request for them to have direct management of 50% of all conservation project funds. Several meetings were held to try and reach a compromise on this issue, but finally it was felt that we had no option other than to close down our work at this site. These unreasonable demands would have limited the ability of FFI to achieve conservation impacts in Con Dao and the project was not deemed to be a strategic ongoing investment of Arcadia funds. A new site, **Nui Chua National Park and MPA** was scoped in November and, with careful consideration made to ensure a similar experience does not evolve, we are developing a new project at this site which will launch in 2022.



Seahorse being sold at market. Credit: FFI FI



Mangrove roots. Credit: Alam Ramirez/FFI

HONDURAS: Connecting coastal communities for integrated seascape management in Atlantida

BACKGROUND

The Atlántida coast of Honduras encompasses highly biodiverse coastal wetlands, well preserved mangrove forests and a patchwork of islands at the southern tip of the MesoAmerican Barrier Reef. In 2015, FFI and five Honduran NGO partners began working in three socially and ecologically connected MPAs within a wider seascape – Cuero-Y-Salado Wildlife Refuge, Cayos Cochinos Marine National Monument, and part of the Bay Islands National Marine Park. The aim was to establish an integrated management system that conserves critical habitat and species and enables fishing communities to improve their livelihoods while taking increasing responsibilities for management. This seascape-level project aims to ensure cooperative and collaborative management at local, regional and national levels.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Inter-community conflict reduced:** In 2016, a small-scale fisher-led roundtable was established to resolve a long-standing conflict around access to fishing grounds between fishers from two sites (Cayos Cochinos and Bay Islands MPAs), which had led to widespread use of illegal and destructive small-mesh nets and spear fishing. This roundtable now includes a number of small-scale fisheries and enables them to determine their own seascape priorities, thus reducing the conflicts.



Focal Sites:

- Cuero y Salado Wildlife Refuge (marine portion)
- Cayos Cochinos Marine National Monument)
- Bay Islands Marine National Park (part around Utila)

Area Of Impact:

180,313 hectares

STRENGTHENING PARTNERS

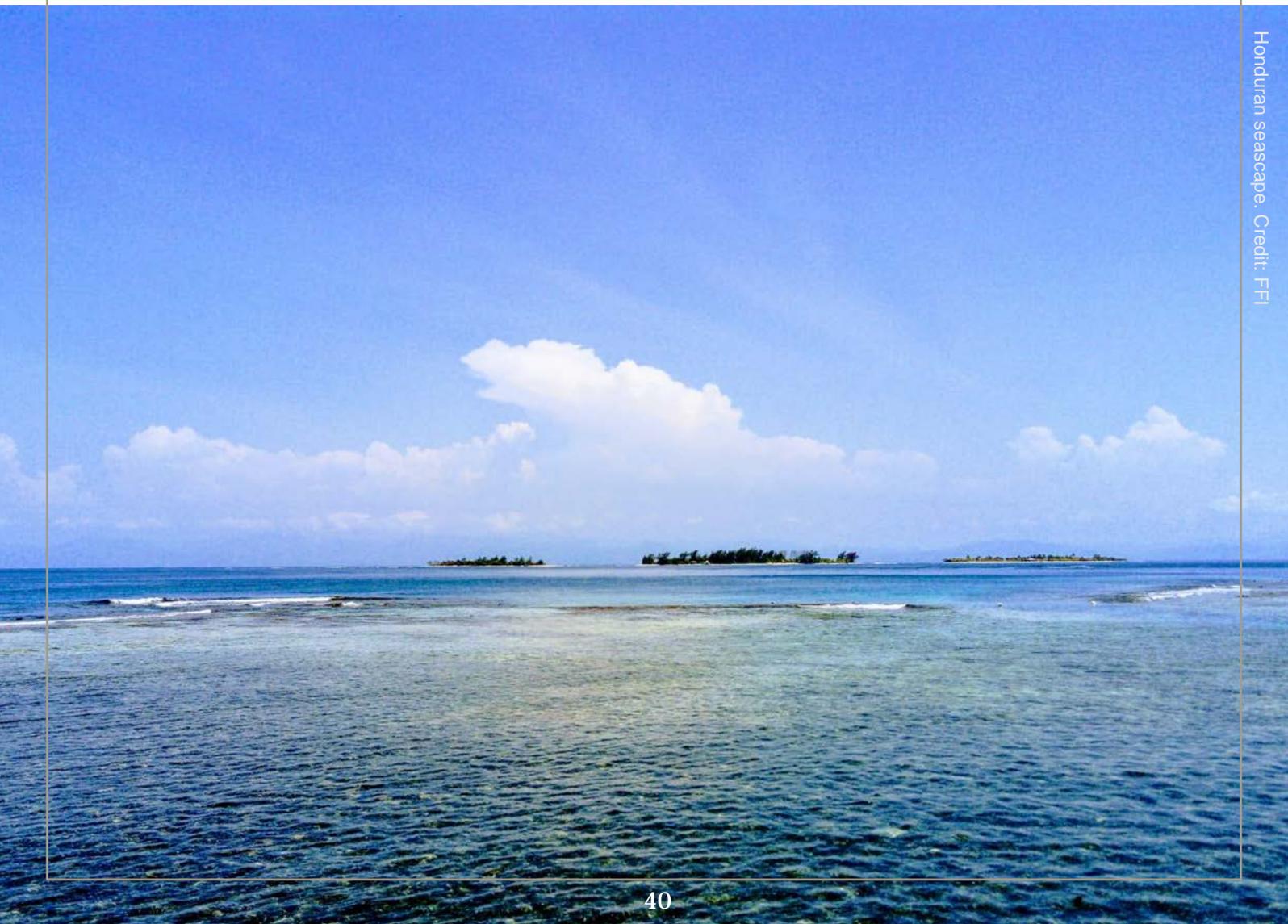
SECURING MARINE SITES

POLICY & PRACTICE

- Seascape-level collaboration and governance in place:** In 2017, FFI supported the development of the multi-stakeholder Seascape Forum, involving government, NGOs and small-scale fisher organisations. This forum developed an ambitious programme of potential conservation measures, ranging from elimination of bottom trawling in all the MPAs to widespread mangrove restoration. With the Forum evolving as a large hub for collaboration, a smaller, more agile Seascape Committee of MPA managers and policymakers was developed in 2018 to select and implement priority actions. Since 2018, this Committee has begun defining and implementing collaborative regulations for the waters between the MPAs, to manage key fishery species such as yellowtail snapper, and to address terrestrial threats, such as plastic waste (see [p. 43](#)).
- No-take zones established:** In 2018, two new no-take zones were designated by local communities prohibiting fishing across nearly 6km² of inshore waters around Utila Island. This has been successful possibly because these zoning efforts were led by the communities themselves, whereas previous attempts to establish no-take zones in this seascape had been stalled by fisher-manager conflict.
- Destructive fishing reduced:** Better targeting of patrols between 2017 and 2018 in Cuero-Y-Salado Wildlife Refuge resulted in a 74% reduction in the use of the unsustainable small-mesh size nets. Similarly, in Cayos Cochinos Marine National Monument, destructive bottom trawling was reduced by 80%. Fishing effort and use of damaging gears rapidly expanded in 2020 due to economic instability as a result of the Covid-19 pandemic.
- Threats to flagship species reduced:** In Cayos Cochinos Marine National Monument, hawksbill turtle poaching reduced by 44% between 2017 and 2018; several former poachers now help to patrol beaches and coordinate turtle awareness events. At Cuero-Y-Salado Wildlife Refuge, there was a reduction in mortality from two manatee hunting incidents in 2017 to zero for the past four years, which is significant given the small population size (~30-40 individuals). Hunting pressure on three flagship species – iguanas, hawksbill turtles and manatees – increased in 2020 as result of the economic impacts of Covid-19, but had stabilised by the end of the year through the collaborative efforts of FFI's partners and others.
- Mangroves protected and restored:** Agreements were made with the region's three main corporate plantation owners to reduce conversion of mangroves for oil palm plantations, improve the quality of water leaving plantation areas and provide financial support for monitoring of mangrove forests. Through the collective efforts of partners from all three sites, 20 hectares of mangrove forest have been restored and a further 6,500 hectares were placed under improved protection.
- Information base established:** A series of vital seascape-wide datasets now provides a base to inform management of the inter-connected habitats, key species and fisheries by the interconnected organisations of the Seascape Forum.

PROGRESS IN 2021

- **Improved collaborative management of key fishery species:** A management plan for yellowtail snapper was developed and shared with local stakeholders during Seascape Committee meetings, and 13 seascape communities have voluntarily committed to implementing the plan. As a result, 12% of registered seascape fishers are voluntarily using hooks that comply with the management plan and the proportion of fishers landing snapper above the size limit has increased to 5% (both anticipated to increase over time and when the management plan is officially implemented throughout the seascape), indicating the beginnings of a shift towards better management of this commercially important species across the seascape. A fish catch monitoring app has been rolled out to 11 new landing sites, enabling the impacts of the yellowtail snapper and MPA management plans on key fishery species populations to be tracked.
- **New no-take zone established:** One community that falls within the seascape 'grey area' has voluntarily designated a three year no-take zone in order to protect an important fish spawning site.
- **Seascape-level collaboration and governance strengthened:** The Fisheries Authority attended a number of seascape-related events in 2021, including the Seascape Forum, indicating government interest in engaging in seascape processes, and the first Municipal Environment Meeting was convened, which brought together the seascape municipalities and other enforcement agencies to ensure a common understanding with regards to their responsibilities within the seascape. Additionally, fisher representatives from all 18 communities now actively participate in the various seascape convening platforms, and communities are being encouraged and supported to engage in the updating of all three MPA management plans.
- **Sustainable livelihoods supported:** One community has been supported, helping them gain access to potable water for sanitary handling of fish products, repair docks for catch landing and build a fisheries product sales centre. Additionally, preliminary market maps for finfish and spiny lobster have been validated by most of the seascape communities, which is a key first step in designing more biodiversity-friendly, equitable local fisheries that can ensure resilience to future shocks and remove drivers for damaging fishing.





STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

Building a platform for evidence-based regional plastic policy on the Honduran Northern Coast

BACKGROUND

In 2019, FFI and its partners identified the need to address the growing threat of plastic pollution in Honduras, utilising the dynamic network of national NGOs, government bodies and community actors within the Atlántida seascape (see [p. 35](#)). This network exists to solve conservation issues beyond the influence of a single protected site, and the issue of plastic pollution strongly aligns with this way of working. This initiative intends to generate an evidence base to inform legislation and corporate action through coordinated systematic monitoring of macro- and microplastic waste in species, shorelines and subtidal habitats in the seascape area. Secondly, leveraging off the key role of municipal government bodies in the seascape, the project seeks to work with them on a policy development process for a single-use plastic strategy – known locally as ‘Zero Plastics’ – bringing in wider corporate engagement where needed.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Evidence on plastic pollution:** Beach plastic waste was collected and characterised by type and brand at four survey locations in 2020. Beach waste was dominated by soft drink bottles and bottle caps from both international brands.
- **Engaging corporates for changed practices:** The strong municipal policy platform established by the ‘Zero Plastic’ strategy includes an expectation for improved corporate responsibility, and in 2020 the project team began identifying and attempting to influence businesses across a variety of sectors.

PROGRESS IN 2021

- **Evidence on plastic pollution:** The level and composition of marine plastic pollution was characterised in all three MPAs as a result of surveys spanning three years (2019-21). This information will continue to be used to advocate for changes among local producers and retailers of products that contribute to plastic waste.
- **Engaging government for changed practices:** All political candidates for La Ceiba municipality signed a legal commitment to continue the ‘Zero Plastic’ strategy and the work to reduce plastic pollution after the November 2021 elections, demonstrating the commitment of this municipality to addressing this issue.
- **Strategy in development:** A strategy outlining further opportunities for addressing plastic pollution at the seascape level, including standardising waste management systems across local municipalities and supporting waste collectors to supply local recycling companies with plastic waste, is in development.



NICARAGUA: Conserving turtles and their marine habitats on the Pacific Coast

BACKGROUND

Nicaragua's coastal and marine ecosystems include some of the most important sea turtle habitats in the Americas. The Pacific coast has globally important nesting beaches for critically endangered Eastern Pacific hawksbill and leatherback turtles, and supports two mass nesting beaches for olive ridley turtles. In addition to beach habitats, the coast comprises a mosaic of diverse rocky reefs that support turtles and a wide array of other species. FFI has been working alongside partners to safeguard sea turtles in Nicaragua since 2002, primarily focusing on the mitigation of land-based threats to turtles (NB progress and impacts relating to land-based turtle work in Nicaragua are reported more fully in the accompanying Halcyon report).

Recognising the need to tackle ocean-based threats to turtles and their habitats (especially from fisheries), in 2014 FFI began work with local partners and stakeholders across Nicaragua's Pacific coast to ensure coherence of the network of MPAs and beach protection measures through improving both site-based decision-making and broader fishing practices. Effective management of this coastal MPA network will include strong local involvement, regulatory reforms and empowerment of small-scale fishery organisations, and will aim to reduce the impacts of destructive fishing (notably blast fishing with explosives and bottom trawling).

ACHIEVEMENTS TO DATE

- Destructive fishing better understood and reported:**
 In 2015, a thorough review was conducted monitoring the extent, legal status and impacts of a variety of fishing practices, including blast fishing, compressor dive-fishing, drift-netting and long-lining. This review revealed that while many destructive practices were theoretically restricted, many were still occurring at significant levels. Additionally, the use of smartphones by small-scale fishers to document destructive fishing incidents became more formalised in 2020 and exposed a significant number of turtle mortalities from gillnet bycatch and boat collisions.



Focal Sites:

Asseradores Estero Padre Ramos Natural Reserve

Gigante Marine Life & Development Zone

Isla Juan Venado Natural Reserve

La Flor Wildlife Refuge

Salamina beach

Río Escalante Chacocente Wildlife Refuge

Area Of Impact:

152,402 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

- **Marine biodiversity monitoring established:** Biannual dive surveys conducted since 2016 have provided important information for representing the little-known biodiversity of coralline and rocky reef habitats on the Pacific coast to policymakers. Local staff were also trained in survey methods, improving their skills in data collection, analysis and interpretation.
- **Testing new forms of Nicaraguan MPA management:** The development of multi-stakeholder committees (the first of their kind in Nicaragua) have allowed a range of interests to be involved in MPA decision-making. A proposal for a new community-based conservation area in Gigante wherein local fishers establish the regulations and zoning for the site (a completely novel concept in Nicaragua), was approved in 2017 by local authorities (pending final government approval). The project started to generate social and political support for this initiative, although civil unrest between 2018 and 2019 stalled momentum for the designation of Gigante MPA and negatively impacted local management of existing MPAs. While some political stability returned in 2019, marine conservation is not a national priority, so FFI and community partners have instead pursued less formalised solutions to improving marine protection in Gigante and designated MPAs.
- **Destructive fishing tackled across the MPA network:** Two municipalities developed solutions to eliminate blast fishing, including the establishment of innovative joint enforcement patrols, involving communities, the navy and local NGO partners. By 2018, a survey of fishers revealed a perceived dramatic decline in the use of explosives to fish along the entirety of Nicaragua's Pacific Coast. However, monitoring in 2019 revealed a return of blast-fishing in many communities following the civil unrest. In the absence of formal patrolling, FFI worked with local fishers to identify opportunities to derive increased value from their catch and to diversify into aquaculture as an incentive to reduce destructive fishing.
- **New aquaculture solutions tested:** While political unrest has derailed plans for better spatial management across the MPA network, in 2020 a new model was trialled in one community which restricts fisheries through 'concessions' with associated site-based aquaculture. Fishers have engaged and complied with this experimental red snapper 'ranch' initiative by not fishing in the concession area in the trial period, so this may represent an important and politically feasible means of enabling biodiversity protection within a volatile national context. As advised by

government, this work was paused in 2021 until there is clarity on government policies in 2022.

- **Turtle bycatch mitigated through gear change:** Between 2015 and 2017, a hook-exchange programme was established to address the significant issue of turtle bycatch - over 102,400 bycatch-reducing hooks were distributed to 512 longlining fishers from five communities. By 2017, surveys indicated that all fishers interviewed use these hooks, thus reducing a significant threat to turtle populations. In 2018, the fisheries authority mandated the use of bycatch-reducing hooks for all longline fishing methods in national law, due in part to the success of this programme.

PROGRESS IN 2021

- **Turtle bycatch data better reported and mitigated:** An on-board observer programme has been launched to collect fisheries and bycatch data from vessels in four ports, which has shown turtle bycatch occurs in 9% of fishing trips (predominantly gillnet and longline). However, a survey that sampled 10% of vessels in these ports demonstrated that J hooks are no longer used in longline fishing, validating sustained uptake of bycatch-reducing hooks.
- **Strengthened local marine management capacity:** The capacity of six local community groups to proactively participate in marine management has been developed through organisational training and supporting them to define action plans for protecting their natural resources. As a result, a number of local stakeholder groups have participated in the process of updating the management plans of two MPAs.
- **Strengthened community commitment to responsible fishing:** Through a responsible fisher network that promotes learning exchanges, fishers were trained on bycatch, fishing methods and sustainable practices, and have been receptive to having observers on-board, which demonstrates their interest in understanding their impacts and improving their practices. The rate at which illegal fishing incidences are encountered on naval patrols within three MPAs has also decreased.
- **Supported sustainable livelihood development:** Support has been provided to community livelihood groups and cooperative enterprises to improve their organisational management capacities, strengthen market linkages and develop business plans. As a result of this support, beneficiaries have expressed a commitment toward conservation.

NICARAGUA: Tackling plastic pollution along Nicaragua's Pacific coast

BACKGROUND

Building on the ongoing marine conservation efforts in Nicaragua (see [p. 44](#)), plastic pollution was identified as a specific threat to marine biodiversity, including turtles. To address this threat, FFI is focusing on coastal communities, businesses and policymakers to understand barriers and opportunities to tackling priority plastics in order to reduce business and household plastic pollution, as well as build on existing government relationships to enable engagement on tackling plastic pollution at a national level.

ACHIEVEMENTS TO DATE

In 2020, FFI identified the abundant use of single-use plastics in the food sector as a key intervention point. Appropriate methods for mapping the plastic production and recycling chains were developed to identify key actors to engage in mitigation activities, and initial steps were made to investigate the viability of alternatives to single-use plastics such as banana leaf containers.

PROGRESS IN 2021

- **Improved understanding of plastic pollution context:** strategic relationships have been built with the relevant municipalities, who were critical actors in the collection and characterisation of solid waste littering four Pacific coast beaches, which identified plastic bottles and bags as the main sources of pollution.
- **Increased awareness of plastic pollution threats:** talks were delivered to raise awareness of the harmful effects of plastic pollution to coastal and marine ecosystems and encourage improved plastic waste management.
- **Developed a strategy to reduce pollution:** a work plan was developed with four municipalities to reduce solid waste pollution in coastal communities in a participatory manner.
- **Progressed development of a sustainable alternative:** a consultancy was initiated and a research protocol drawn up to develop a prototype for banana fibre-based container using waste banana leaves that could replace the single-use plastic packaging used by street vendors and small shops in one municipality.



Plastic pollution in the sea. Credit: Naja Bertolt Jensen/Unsplash



POLICY & PRACTICE

ANTIGUA & BARBUDA: Redonda marine reserve

BACKGROUND

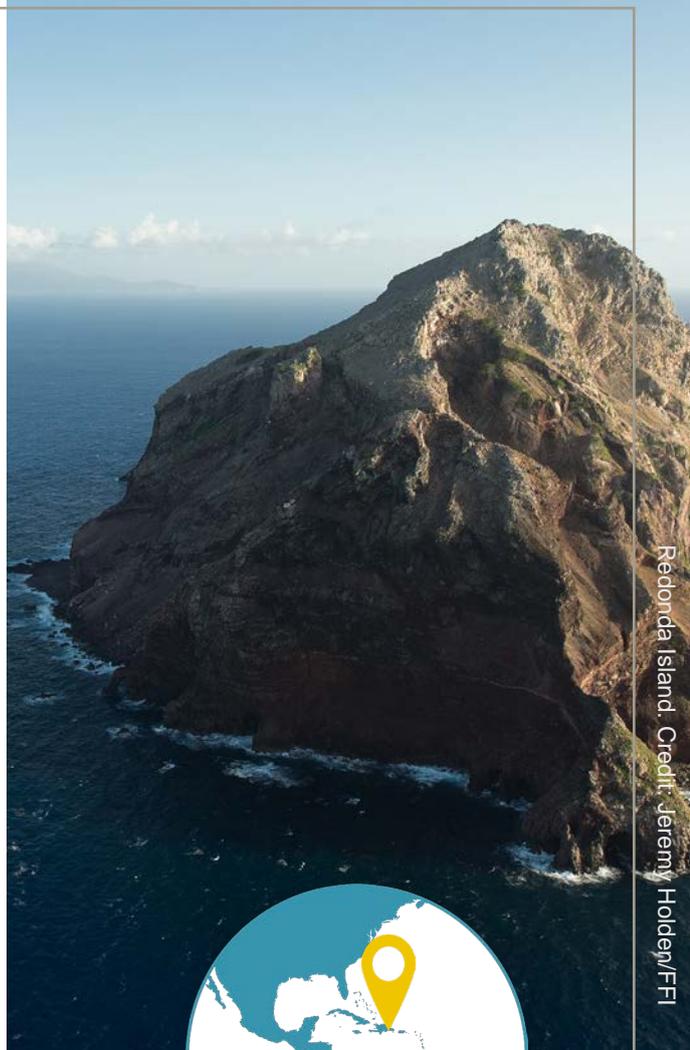
Redonda Island is a recognised biodiversity hotspot and is inhabited by a number of highly threatened endemic species. Following the successful eradication (led by FFI) of invasive species from the island, the vegetation of this site has dramatically recovered and the threats to terrestrial species have reduced. However, the need for an integrated designation (encompassing the island's landmass and surrounding ocean area) has been identified as a priority for its future protection, so as to also ensure protection of its rich reefs and important marine species assemblages. FFI is now building on its previous work to increase the capacity of local groups to engage on marine conservation (see [p.67](#)) and is supporting the designation and effective management of the Redonda Ecosystem Reserve, which encompasses both terrestrial and marine elements.

ACHIEVEMENTS TO DATE

- **Biodiversity monitored:** In 2018, FFI led in-water and drop-camera monitoring around Redonda, which revealed a relatively pristine and extensive area (180km²) of coral reef in the north of the proposed reserve, significantly adding to understanding of the site's biological importance.
- **MPA designation and management:** Following FFI's work with the Environmental Awareness Group and the Department of Environment to develop both terrestrial and marine reserve designation for Redonda, the Redonda Ecosystem Reserve was secured in principle in 2019. The size of the reserve increased from the initial proposal and now covers 240 km², and is home to at least 30 globally threatened species. Management of the Reserve has required innovative thinking and cross-sector collaboration as a result of its remoteness. In 2020, FFI and the Environmental Awareness Group spearheaded the development of three separate bodies to oversee how access, activities and monitoring are regulated for the site.

PROGRESS IN 2021

- **Securing dedicated staffing capacity for MPA management:** Management of the Redonda Ecosystem Reserve was given a significant boost this year by the recruitment of a full-time Antiguan coordinator. This has helped to secure a more formalised plan and zonation for the site, which now involves three separate bodies covering everything from day-to-day management to technical input. Securing final zonation remains complex, largely due to Covid-19-induced travel delays, which have prevented meaningful fisher outreach from occurring. Given that the Reserve's designation now falls under a wider government plan for ecosystem restoration, more momentum is expected in 2022.



Redonda Island. Credit: Jeremy Holden/FFI



Focal Sites:

Redonda Ecosystem Reserve

Area Of Impact:

24,159 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE



TANZANIA: Co-management of marine resources on Pemba Island

BACKGROUND

The Pemba Channel Conservation Area (PECCA) in Zanzibar was declared in 2005 to protect its unique biodiversity and critical habitats, including inshore and deep water coral communities, seagrass beds and concentrations of sailfish, black marlin and tuna. However, at present, PECCA is effectively a ‘paper park’, existing in name only, meaning it has limited enforcement capability and no local support for the less destructive and more sustainable fishing practices that will be vital to the site’s long-term protection. In partnership with the Tanzanian NGO Mwambao Coastal Community Network, FFI identified an opportunity to strengthen the management of this important site. Since 2015, the project has sought to establish and equip village-level associations (known as Shehia Fishers Committees) along the south coast of Pemba island to play an active role in the management of their marine resources. This is an important first step in improving the sustainability of artisanal fishing practices within PECCA, and in reducing illegal and destructive fishing practices currently damaging the important reef systems around the island.

ACHIEVEMENTS TO DATE

- **Local fishing restrictions piloted:** Focusing initially on two communities in southern Pemba, the project piloted local fishing restrictions which were designed, implemented and patrolled by the local village-level Shehia Fisher Committees. Communities had recognised previous declines in their catches and supported trial restrictions to see if catches could be improved, focusing initially on temporary closures within octopus fishing grounds. From 2017 to 2019, as initial communities began recording increased catches, this approach was subsequently scaled to five additional communities, bringing the total number of communities involved to seven.
- **Larger-scale marine governance:** In 2020, the first Collaborative Management Group in Zanzibar was established, and includes four of the Shehia Fisher Committees. This group will agree on patrol procedures and governance arrangements for the collaborative

Focal Sites:

PECCA

Kukuu Fishing Grounds

Kisiwa Panza Fishing Grounds

Makoongwe Fishing Grounds

Shidi Fishing Grounds

Michenzani Fishing Grounds

Stahabu Fishing Grounds

Fundo Fishing Grounds

Area Of Impact:

10,400 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

management area. This approach builds on similar initiatives in mainland Tanzania, wherein individual fisher committees collaborate to manage a shared area and overall strengthen management of joint marine resources.

- **Reduced infractions of restrictions:** Foot and canoe patrols of fishing grounds have been initiated by four communities, and at two of the seven sites initial data indicates that the total number of arrests and fines issued has decreased between 2019 and 2020 (although the average number of patrols of fishing grounds conducted each month remained relatively consistent), indicating a reduction in infractions.
- **Fishery benefits and wider ecological recovery:** Locally led data collection has shown that octopus closures resulted in increased octopus catches (2.7 times higher when comparing pre- and post-closure in 2016) in the initial project site. There are early indications that other reef species, such as parrotfish, are also benefitting from restrictions in these fishing grounds. In 2020, participatory coral reef monitoring has been started at two sites to establish baselines for coral reef health within and outside the octopus closures, using a reef health scoring system.
- **Sustainable fisher-led management:** Working towards a vision of a network of financially and operationally self-sustaining Shehia Fishers Committees along the coast of Pemba, the project is testing different income streams to underpin the management costs of the committees. FFI and Mwambao collaborated in 2017 to facilitate an octopus market system improvement initiative, in which fishers, buyers and intermediaries collaborated to develop the business case for sustainable octopus management. This allows fishers to earn more for octopus caught after a closure and, as a result, fishers themselves have invested some of their profits into the ongoing operation of the committees. Through the collection of fines for infringements, the Shehia Fisher Committees are now more viable as community enterprises.
- **Incentivising protection through eco-credits:** Working with a local microcredit specialist, Mwambao trialled an eco-credit scheme at one village in 2019, providing small loans in exchange for increased patrolling and habitat restoration. Through provision of over 150 loans, borrowers

committed to conducting additional patrols of the closure site and surrounding fishing grounds, effectively tripling the patrol effort. In addition, over 6,000 mangrove seedlings were planted through this scheme. In 2021, the scheme expanded to encompass loans for seaweed farming and sourcing lower impact fishing gears.

PROGRESS IN 2021

- **Ongoing fishery benefits:** Across seven community-managed areas, the temporary booms in octopus productivity after closed periods is gradually becoming a predictable cycle of increased catches. The average weight of individual caught octopus can be up to 185% higher to those recorded prior to closures, suggesting that populations of octopus may be becoming more stable. These improvements act as a strong incentive to follow rules, avoid use of more damaging methods and, in time, it is hoped (and has been evidenced in similar conditions) they may reduce the amount of fishing effort overall, thereby protecting coral reefs.
- **Larger-scale collaborative enforcement to tackle destructive fishing:** The Collaborative Management Group established in 2020 – now known as ‘Stamishima’ – is now a fully functioning local enforcement network, focused on patrolling strategically and jointly to prevent illegal fishing. Focusing largely on destructive practices such as small-mesh nets and beach seines, the first collaborative patrols began in May 2021. With plans to involve local coastguards and land-based rangers, Stamishima will be key to ensuring the transition of PECCA from a ‘paper park’ to an effective MPA.
- **Emergence of new threats and opportunities:** 2021 saw an enormous increase in political, financial and development interest in the islands of Zanzibar, from the devolved government trying to promote investment in the archipelago to the launch of a variety of large-scale development bank initiatives to ensure good environmental stewardship. FFI and Mwambao are well-placed to respond to this changing seascape and are working tirelessly to ensure the small-scale fishing communities are represented in these fora and that financial flows into the islands benefit and improve their spectacular ecosystems, rather than diminishing them.



Poached sea turtle shells.
Credit: Evan Bowen Jones/FFI



KENYA: Coordinated Community Conservation in Lamu and Tana River counties

BACKGROUND

The north Kenya coast from the Tana Delta to the Somali border supports a mosaic of largely intact coastal and marine habitats, including the country's largest wetland and 60% of the country's mangroves. These ecosystems support diverse marine species, including sharks, dolphins, dugongs, and sea turtles, as well as rich inshore and pelagic fisheries, and coastal communities depend on them for their livelihoods and well-being. However, these marine ecosystems are threatened by unsustainable harvesting, pollution, deforestation and habitat conversion by large commercial interests and land speculators.

Since 2011, FFI has been working with the Northern Rangelands Trust–Coast, a regional office of the Northern Rangelands Trust (NRT – see the accompanying Halcyon Land & Sea report for more details). It supports several community conservancies in the north Kenyan coastal zone around Lamu. This project particularly focuses on the support and further development of Pate, Kiunga and Lower Tana Delta Community Conservancies. It will ensure the effective management of this area by integrating governance and management mechanisms across different scales, empowering coastal communities to engage in biodiversity conservation and sustainable fisheries management.

ACHIEVEMENTS IN PREVIOUS YEARS

- Management plans and fisheries restrictions:** Management plans were developed for the six community-managed areas in Pate and are being implemented. Two no-fishing zones (totalling 80 hectares) were established under these management plans, and two temporary octopus closures were trialled in 2018. Throughout 2019 and 2020, these closures became more established, resulting in increased total octopus catch, larger sizes of octopus, and improved market prices, as well as increased participation of women in marine management activities.



Focal Sites:

Pate Community Conservancy

Pate-Shanga Ishakani-Shanga Rubu Co-management Area

Mtangawanda Co-management Area

Kizingitini Co-management Area

Faza/Siyu/Mbwajumwali Co-management Area

Tchundwa Co-management Area

Ndau Co-management Area

Kiunga Community Conservancy (with five pending Co-management Areas)

Lower Tana Delta Community Conservancy

Area Of Impact:

161,240 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

PROGRESS IN 2021

- **Improved patrolling and enforcement:** Pate Conservancy and local community-based Beach Management Units are responsible for managing fishing grounds and jointly enforce regulations in the community-managed areas. Twelve community rangers conduct daily beach and boat patrols to monitor illegal fishing, turtle poaching and mangrove destruction. As a result, in 2018, over 190 illegally extracted mangrove poles were confiscated, illegal logging camps were disbanded, and loggers and turtle poachers were apprehended. Improved prosecution by the authorities has since reinforced the recognition of the rangers' authority and promotes better compliance with the regulations.
- **Improved livelihoods through fisheries development and microfinancing:** A Fish-to-Market programme was piloted in 2016 at Pate, aiming to improve returns for local fishers (and thus improve compliance with fishing restrictions) by adding value through production, processing and marketing of fish. NRT-Coast evaluated this programme after a challenging initial implementation and relaunched it in 2020 with a new commercial partner; alongside the launch of a successful women's microfinance programme launched in the same year.
- **Illegal fishing activities addressed:** Pate Conservancy staff engaged with local communities around the use of destructive and illegal beach seine fishing, which can damage the seabed and leads to significant bycatch including vulnerable and/or unused species. A local conflict resolution committee was established to address issues arising from beach seine fishing, which is particular problem in Kiunga Marine Reserve. In 2020, conservancy rangers and community patrol teams from both conservancies were trained on fisheries Monitoring, Control and Surveillance to increase the level of compliance, and joint patrols with the Fisheries Department, Kenya Wildlife Service and Kenya Forestry Service have been undertaken.
- **Improved octopus fisheries contributing to healthier ecosystems:** Through the gradual improvement in small-scale fishery governance across all three Conservancies and the trialling of octopus fishing closure zones, improved local fisheries are now actively contributing to healthier reefs and improvements in material wellbeing. In Pate Island, for example, the largest recorded octopus size has nearly doubled between 2019 and 2021 and community members are also reporting increases in the diversity of reef fish species and improvement in reef habitat condition (potentially through the reduction in reef pressure caused by more structured patterns of exploitation).
- **Better protection of sea turtles from poaching and bycatch:** A more coherent, multi-Conservancy approach to sea turtle protection (on land and in water) has delivered successful releases of individuals entangled in fishing gear as well as improving recording of turtle nests and seeing subsequent poaching protection put in place. This has been particularly important in Kiunga Conservancy where NRT-Coast and FFI have targeted turtle-specific multi-stakeholder training efforts and action planning.
- **Commitment to reduce illegal destructive fishing practices:** The longstanding issue of beach seine use – a nationally illegal fishing gear that can cause major damage to reefs through the dragging motion of its deployment – received a major breakthrough this year. The practice is particularly prevalent in northern Kenya and, through ongoing efforts by FFI, NRT-Coast and a range of other partners, a significant majority of beach seine users agreed to exchange the use of this gear for less damaging and more selective alternatives. This initial commitment is only the beginning, but we hope to see a major reduction in the prevalence of this gear in 2022.





SECURING MARINE SITES

POLICY & PRACTICE

MOZAMBIQUE: Development of marine conservation opportunities

BACKGROUND

Mozambique is home to Africa's fourth longest coastline of nearly 2,500km, supporting mangrove forests of approximately 305,400 hectares - the highest coverage in the Western Indian Ocean. This country forms part of the Indian Ocean marine biodiversity triangle, containing extensive coral reef areas as well as important habitats for tuna, cetaceans and large numbers of shark and ray species. Around 60% of Mozambicans live along the coastline, and small-scale fishers catch 85% of the country's fish. Although Mozambique's fisheries sector only represents 2% of its GDP, there are increasing concerns of large scale IUU fishing given the relatively small number of marine protected areas established.

In 2020, FFI undertook an assessment of opportunities to support marine conservation in Mozambique. This provided a baseline of knowledge in several areas: key biodiversity hotspots and threats, the work of other organisations, the distribution of existing MPAs, illegal trade networks for marine species, marine plastic issues, national marine conservation targets and relevant legislation to inform potential new project development.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Focusing on fisheries:** A review of our initial scoping assessment resulted in the decision to initially focus future project development on fisheries. Mozambique's small and large-scale fishing sectors pose significant conservation challenges, from sea turtle bycatch in semi-industrial shrimp trawlers to unregulated coastal fishing depleting inshore reef fish populations.
- **Scoping partnership opportunities:** In 2020, FFI began outreach with marine-focused NGOs and coastal community-based organisations. This outreach led to particularly promising discussions with Istituto Oikos Onlus, an organisation helping coastal communities introduce locally-led management to reduce the impacts of small-scale fishing.

PROGRESS IN 2021

- **Building on strong foundations through challenges with institutional capacity:** Various complications surrounding FFI's own operational capacity in Mozambique have meant that development of marine work has progressed more slowly than anticipated. We continue to have strong foundations on which to act and are proactively engaged in stakeholder discussions around improving fisheries governance, reducing plastic pollution and supporting locally-led marine management. We anticipate strengthening the FFI team in Mozambique in order to drive forward initial plans with renewed impetus in 2022.



SÃO TOMÉ AND PRÍNCIPE: Supporting the Development of a National MPA Network

BACKGROUND

São Tomé and Príncipe is a small nation of two islands off the coast of West Africa. The islands and waters surrounding São Tomé and Príncipe include important breeding grounds, habitats and nesting areas for sea turtles and seabirds, and the country is known for its high levels of fish endemism and important shark and cetacean populations. The islands' communities are dependent on fisheries for livelihoods and protein, but have experienced a decline in catch. With local and international NGO partners, government and local communities, FFI is supporting the designation of an MPA network and engaging communities with the process of MPA design and subsequent management to ensure local support and ownership, while also working with these communities to reduce their dependence on fishing.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Information for MPA development:** Surveys supported in 2019 and 2020 produced information to inform designation of the proposed MPA network and/or provide baselines for assessing its impact. Survey methods included the use of baited remote underwater video surveys (which helps to identify spatial distribution of fish species), seabird tracking (to identify foraging areas) and community-led fish landing

Focal Sites:

The Island of Príncipe

Biosphere Reserve (marine component)

Area Of Impact:

57,604 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

surveys (to determine quantity and composition of fish catches). Parallel socio-economic surveys gathered data on people's perceptions regarding the condition of the marine environment and MPAs, as well as information on how and where local people fish. Underwater mapping of Sao Tome, overlaid with fishing hotspots, is being used to better locate possible sites for MPA designation.

- **Co-management legislation:** Stakeholder consultation around MPA design has included both government representatives and local communities. A formal consultation process on proposed 'co-management' (management by both government and fishing communities) is underway on São Tomé, and in 2021 a review of the national fisheries law resulted in MPAs being recognised as a mechanism for fisheries management, thereby establishing government support for MPAs.
- **Significant leveraged funding:** In 2019, a large grant from the Blue Action Fund was secured to support continued surveys, consultations and mapping to lay the groundwork for future designation of an evidence-based and participatory MPA network for São Tomé and Príncipe that will benefit both biodiversity and people.

PROGRESS IN 2021

- **MPA development:** Following the second meeting of the co-management assembly on Príncipe, six priority sites have been proposed as provisional MPAs, totalling approximately 2,050ha. Baseline data collection continues with fish landings data collection now underway in 15 communities on Príncipe and 7 on Sao Tome.
- **Advocacy and government engagement:** In 2021, Sao Tome and Príncipe joined the Global Ocean Alliance thereby committing to designating 30% of land and sea as protected areas by 2030. In practice, however, there has been relatively little political traction on Sao Tome and detailed advocacy strategies have been drafted to support a dedicated focus on this from 2022.
- **Community engagement:** Community members continue to be engaged in training to support data collection. Ongoing support was provided to three existing small business groups on Príncipe who have successfully targeted their products at domestic markets given the dramatic decline in tourist visitors.



Fishing crew. Credit: Fundacao Príncipe



Fish catch. Credit: Fundacao Príncipe



CABO VERDE: Participatory research and action for conservation on Maio and Brava Islands

BACKGROUND

The archipelago nation of the Republic of Cabo Verde is a marine biodiversity hotspot supporting a wealth of globally important and endemic marine species. This includes 17 species of whales and dolphins, more than 60 species of sharks and rays, and five species of marine turtle, with one of the three largest nesting populations of loggerhead turtles in the world.

Lying close to the main island of Santiago, Maio is under increasing pressure from tourism, coastal habitat destruction, and unsustainable and illegal fishing. In contrast, the remote and highly biodiverse island of Brava has low levels of development, with a population highly dependent on fisheries for livelihoods and protein. FFI is working with two local conservation NGOs – Maio Biodiversity Foundation (FMB) on Maio and Biflores on Brava - to support the development of an effective, and locally supported, national network of five MPAs.

ACHIEVEMENTS IN PREVIOUS YEARS

- Maio MPA management plan approved:** A management and zoning plan was developed for an island-wide protected areas network, which included new protection measures for important marine habitats. FFI worked with in-country partners to ensure available data and local community perceptions were built into the design of the MPAs. The management plan for the protected areas was submitted to the government in 2014, then a monitoring plan in 2016, and was finally approved by government in October 2020. This is the first fully approved protected area management plan for the country.
- Enhanced MPA support and compliance:** Since 2018, the five protected areas with marine components were regularly patrolled by government agencies and FMB rangers, with fish inspectors checking local ports. The group called Guardians of the Sea (a voluntary fisher-led reporting system to monitor inshore fishing grounds

Focal Sites:

Maio UNESCO Man and Biosphere Reserve

Parque Natural do Norte da Ilha do Maio MPA

Reserva Marinha das Casas Velhas MPA

Reserva Natural da Praia do Morro MPA

Reserva Natural da Lagoa Cimidor MPA

Paisagem Protegida das Salinas do Porto Ingles MPA

Brava Island

Area Of Impact:

28,487 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

for illegal activities and to record megafauna sightings) has gained significant momentum since it started, and in 2020 it was being replicated in Boavista and Sal through local partners. Social surveys in 2017 demonstrated high awareness and support for MPAs (e.g. 90% of respondents believed that protection of MPAs could increase job opportunities).

- **Shark and ray conservation improved:** In 2014, surveys confirmed the presence of nursery and breeding grounds for sharks around Maio, as well as the [first country record](#) of the smoothtail mobula ray (near threatened); these were supplemented by additional snorkel and baited remote underwater video surveys in 2020. The surveys highlighted the threats posed by local fishing, with sharks comprising 72% of non-target catch. A code of conduct for the safe handling and release of sharks was developed for sport and recreational fishers, and 129 fishers were trained in shark monitoring and safe release techniques. Approximately 50 fishers (~50%) have now pledged to stop catching sharks.
- **Turtle poaching reduced:** FMB patrol nesting turtle beaches, and the rate of egg poaching has consistently fallen over the last seven years. A national legal framework for the protection and conservation of marine turtles was introduced in 2018 and will reinforce FMB's work.
- **Sustainable livelihood generation:** Recognising that a diversified income base is essential to reduce dependence on fishing, a homestay programme enabling visitors to stay with local hosts was launched on Maio in 2017. By 2019, the programme had generated significant income which is helping to diversify livelihoods beyond fishing and provide earnings for women in the communities.
- **Development impacts reduced:** FMB has successfully informed impact assessments for proposed construction projects on Maio that could have otherwise significantly impacted marine environments. FMB also suggested ways in which to prevent and mitigate potential impacts for future developments, demonstrating their growing reputation as a well-informed and trustworthy organisation.

- **Partner capacity built:** FFI's extensive institutional and financial support to FMB over the past seven years has been critical to the continued existence of the organisation and has supported them through a period of instability and significant staff turnover.
- **Extending marine operations to Brava:** In 2018, we began engaging with partner Biflores, a small NGO on Brava Island. Through this partnership, we collected extensive data to help identify marine conservation needs and provide baselines for measuring change, including a study into the extent of human-shark conflict on the island, showing that fishers perceive sharks to be competing for the same fish stocks.

PROGRESS IN 2021

- **Enhanced MPA support and compliance:** The MPAs around Maio continued to be effectively enforced, strengthening protection of key fishery species, including lobster and flagship marine species such as turtles and sharks. The Guardians of the Sea programme is also now being effectively implemented in Sal and Boavista by partners. Additionally, fishing associations in Maio have been engaged in more awareness raising events and leading their own marine biodiversity conservation activities, demonstrating a greater interest in, and ownership of, the MPAs.
- **Shark and ray conservation improved:** Anecdotal reports suggest that there has been a reduction in targeted shark killing in Brava as a result of awareness-raising campaigns. Training was delivered by a shark expert to both FMB and Biflores on shark monitoring methods, and baited remote underwater video surveys have been deployed around Maio and Brava to locate critical shark nursery grounds.
- **Partner capacity built:** FFI has supported Brava-based partner Biflores to build their technical ability and institutional capacity, resulting in the independent implementation of project activities, including awareness raising and community surveys, and Biflores securing their own funding.



Georgian fish market. Credit: Fleur Scheele/FFI

GEORGIA: Developing effective fisheries management along the Black Sea coast

BACKGROUND

The Black Sea is threatened by over-fishing, pollution and hydro-power dam development, and its marine fauna (which includes six highly threatened sturgeon species and three cetacean species) is under grave pressure. FFI has been working to protect sturgeon in Georgia since 2017, with a focus on the Rioni River, as the last known spawning habitat for these six species.

In 2020, building on the successful work to date, efforts expanded to improve understanding of threats to sturgeon in the marine environment and to identify potential solutions. Bycatch from both small-scale and industrial fishing fleets were identified as a major threat to sturgeons, and by funding action-oriented research and collaboration with fishers, the project has begun to generate important information on the scale and location of sturgeon bycatch as a basis for mitigating this complex threat.



Focal Sites:

Georgia Black Sea coast

Area Of Impact:

57,604 hectares

STRENGTHENING PARTNERS

POLICY & PRACTICE

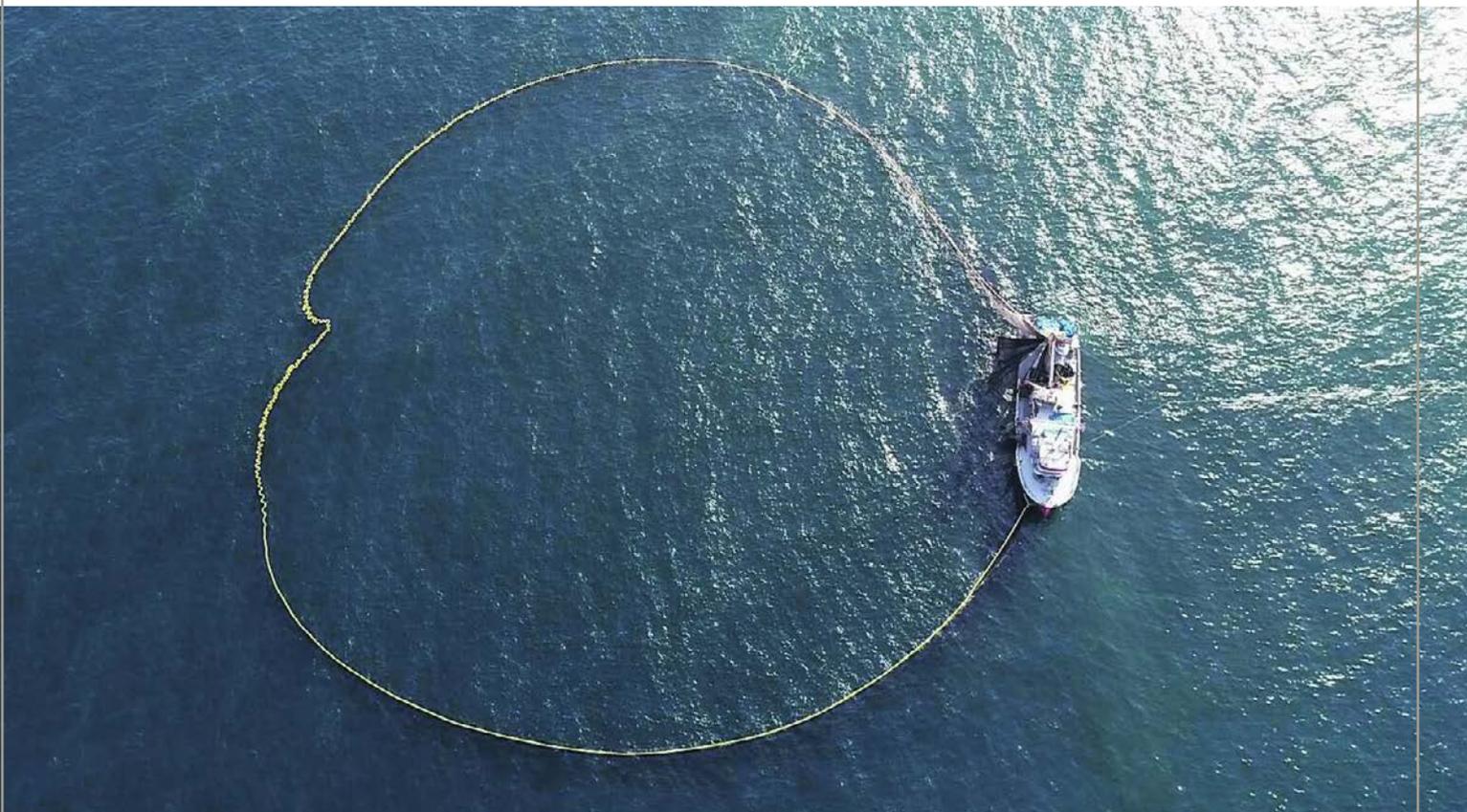
ACHIEVEMENTS IN PREVIOUS YEARS

- **Building relationships in the commercial fisheries sector:** Securing meaningful dialogue with both local fishing communities and larger scale fishing companies is critical to mitigate the environmental impacts such as bycatch. In 2020, FFI built on its well-established connections with river fishers to expand its networks in Georgia, building relationships with small-scale coastal fishers, and the captains and crews of larger trawling vessels, both of whom have insights that are vital towards helping secure better protection of sturgeon.
- **Mapping leverage points:** A market survey of sturgeon meat completed in 2020 informed further investigation of legal and illegal supply chains for these species and will further help to identify key intervention points.

PROGRESS IN 2021

- **Trust-building to support bycatch identification:** In 2021, FFI was able to secure meaningful first steps in accessing commercial trawling vessels (largely fishing for anchovy) in order to observe fishing operations and understand directly from working fishers about the likelihood, location and mechanisms of sturgeon bycatch. While Covid-19-induced delays meant that a formal bycatch observation programme had to be delayed to late 2021, this initial vessel-based outreach will be vital in ensuring FFI gathers reliable, actionable evidence on this otherwise hard to observe impact.

- **Sharing of fishers' own observations of bycatch:** A further result of the trust built between FFI and commercial fishers was the sending of regular images of sturgeon bycatch to the FFI team, directly from vessel crew members. These images have helped improve understanding about which sturgeon species are most commonly caught, what size they are and at what times of year these catches occur. From these observations, FFI now has a strong case to put to Georgian fisheries authorities that sturgeon bycatch occurs frequently, and that political and financial support is needed to mitigate it.
- **Planning to support fishery policy engagement:** Georgia is an increasingly important geopolitical player in the fisheries of the Black Sea, increasing its catches of anchovy and attracting more scrutiny from the multitude of other nations that fish in this basin. Understanding how decisions about fisheries are made in Georgia, who is responsible for them and what opportunities exist to influence those decisions, is vital for FFI in ensuring that sturgeon conservation is central to fisheries management in the region. As a result, in 2021, we have begun the process of completing an in-depth review of Georgian and Black Sea fishery policy in order to guide future engagement on ensuring sturgeon bycatch is recognised more widely as a critical issue.



Fishing in the Black Sea. Credit: DHA photo



Diving team. Credit: FFI



Diving team. Credit: FFI



SCOTLAND: Supporting the development of effective marine conservation NGOs

BACKGROUND

Scotland's coasts support an astonishing array of sea life with cold-water corals, iconic species such as critically endangered common skate, and high densities of cetaceans. However, high impact fishing continues to erode sensitive inshore habitats, upon which both biodiversity and fish productivity rely. Building on FFI's early work in the Firth of Clyde (see [p. 87](#)) we continue to support two local NGOs to advance effective marine conservation in Scotland: Community of Arran Seabed Trust (COAST) and Sustainable Inshore Fisheries Trust (SIFT). The missions of these partners complement FFI's wider programme of marine work in Scotland, helping to highlight the need for reforms that will help to address damaged inshore fisheries and demonstrate the value of locally-led conservation action.

Focal Sites:

Firth of Clyde, Scotland, UK (South Arran Nature Conservation Marine Protected Area)

Area Of Impact:

27,987 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

ACHIEVEMENTS IN PREVIOUS YEARS

COMMUNITY OF ARRAN SEABED TRUST (COAST)

- **MPA establishment and management:** Building on the no-take zone in Lamlash Bay previously established by COAST, FFI subsequently supported them in their efforts to establish a larger MPA across the whole of South Arran, which was successfully designated in 2014. Further consultations and efforts by COAST led to statutory management regulations to prohibit dredging and limit trawling activities within the MPA. These ground-breaking measures were put in place by the Scottish Government, despite strong lobbying efforts by the fishing industry, demonstrating the value of local community leadership.
- **Partner capacity built:** FFI has helped COAST to develop its institutional strategy and governance systems and has provided ongoing organisational mentoring and advice. Our engagement with COAST paved the way for the development of the Coastal Communities Network (see [p. 70](#)). FFI continues to provide support to COAST as necessary, but they are now a well-established and independent community-based organisation.

SCOTTISH INSHORE FISHERIES TRUST (SIFT)

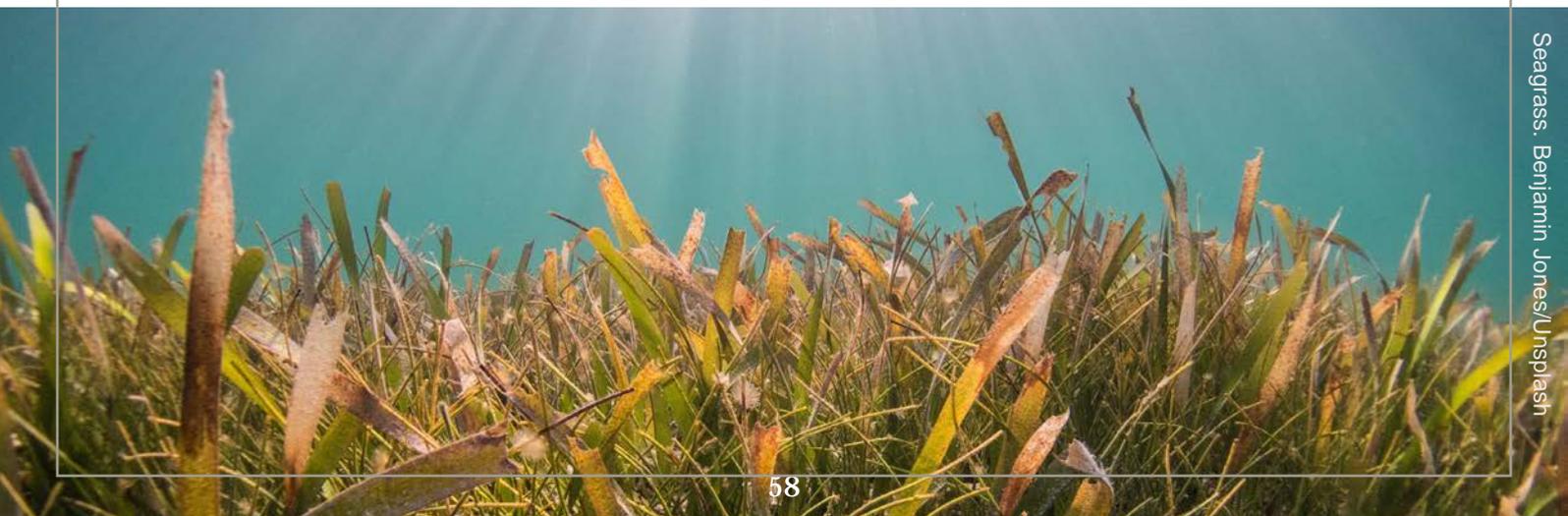
- **Marine legislation reforms:** In 2015, SIFT submitted an ambitious proposal for zoned fisheries management in the Firth of Clyde, including restrictions to dredging and bottom trawling, which was unfortunately rejected by the Government. SIFT continue to lobby for reform of fisheries legislation in Scotland. In 2018, SIFT identified a new threat to inshore waters: proposed commercial mechanical dredging for kelp. They led a strong campaign of political engagement to help ensure the law was amended to prevent such developments. In 2019, they contracted independent reviews on the importance of kelp and the damage caused by mechanical harvesting, to generate an evidence base to inform government

lobbying and ensure that legislation remains firmly in place. In 2020, SIFT identified another new threat - the issuing of significant numbers of commercial concessions for seaweed harvesting without plans for approval processes, impact assessments or community consultation.

- **Blue carbon:** In 2020, SIFT led the consideration of blue carbon within both marine management and carbon campaigning spaces working with the Scottish Government and Stop Carbon Chaos.
- **Partner capacity maintained:** FFI has worked with SIFT since its inception to help develop governance systems, strategies and fundraising capacity so that it is now an active and distinctive player in Scottish marine conservation. We continue to support SIFT both financially (underpinning specific project work) and technically (through advice and board membership) and provide responsive mentoring when required.

PROGRESS IN 2021

- **Partner capacity maintained:** FFI continued to support both COAST and SIFT in strengthening their institutional capacity and with high-level input into their strategic direction, governance and management systems.
- **Improved management of seaweed cultivation sector:** SIFT developed, submitted and presented a policy document on the management of the seaweed cultivation sector to Scottish Government that laid out their vision for seaweed cultivation regulations. A [guide was published](#) for community participation in seaweed farm applications, which was circulated to coastal community groups, industry and other relevant stakeholders, and will help to ensure communities make their voices heard in the debate about the development of the seaweed industry in Scotland. SIFT also commissioned a report exploring the potential role of various mechanisms, including cooperatives, in enabling sustainable, community-owned seaweed cultivation to compete in global markets.





POLICY & PRACTICE

GLOBAL: Preventing potential impacts of Deep-Sea Mining to marine ecosystems

BACKGROUND

The world's increasing demand for mineral resources has resulted in the exploration of new frontiers, including the deep sea, which is being targeted for a number of rare earth minerals key to new technologies. Deep-sea mining exploration and exploitation poses a severe threat to marine wildlife and ecosystem health. Unique and understudied environments are at risk of wholesale destruction in both national and international waters. Through engagement with corporations, governments and inter-governmental bodies, FFI has the opportunity to integrate marine biodiversity considerations into a burgeoning sector before its predicted boom into a ubiquitous and highly damaging industry. FFI is challenging and supporting companies and regulators to better assess biodiversity risk and to adopt best practice guidance in avoidance and mitigation of impacts.

ACHIEVEMENTS IN PREVIOUS YEARS

In 2019 FFI undertook a detailed review into the impacts of offshore and deep-sea mining on biodiversity, and identified a significant risk that deep sea mining activities could affect vulnerable biodiversity and habitats, and damage or destroy fundamental elements and functions of marine

ecosystems. FFI actively engaged with a call for a moratorium on deep sea mining and joined the Deep Sea Coalition to collectively lobby on this issue. The [FFI deep-sea mining report](#) was formally launched in March 2020 by Sir David Attenborough in an interview with Sky News, and created significant media coverage on these issues. Building on this profile, FFI was invited to provide tailored technical support to corporate and government stakeholders, including five briefing papers for the UK Government and input to the International Seabed Authority, and we helped a range of other NGOs to access and use the information in the report ([short summary available here](#)).

PROGRESS IN 2021

FFI led a motion at the IUCN World Conservation Congress calling for a global moratorium on Deep Sea Mining which was voted for by a resounding majority of IUCN members (81% government members and 95% civil society members). FFI is now working to expand support for the motion at other key global conferences including COP26. Lobbying by the Deep Sea Coalition (in which FFI is very active) and direct requests via the UK government have contributed to the International Seabed Authority's decision to delay the development of regulations and permitting to 2023 (at the earliest). There is now more time to develop effective procedures for environmental impact assessments and mitigation strategies, and more time for the moratorium to gain traction. With this extra time FFI is ensuring the development of the most stringent principles and standards for the ISA, based on the 13 recommendations of our 2020 report.

GLOBAL: Transforming Destructive Fisheries

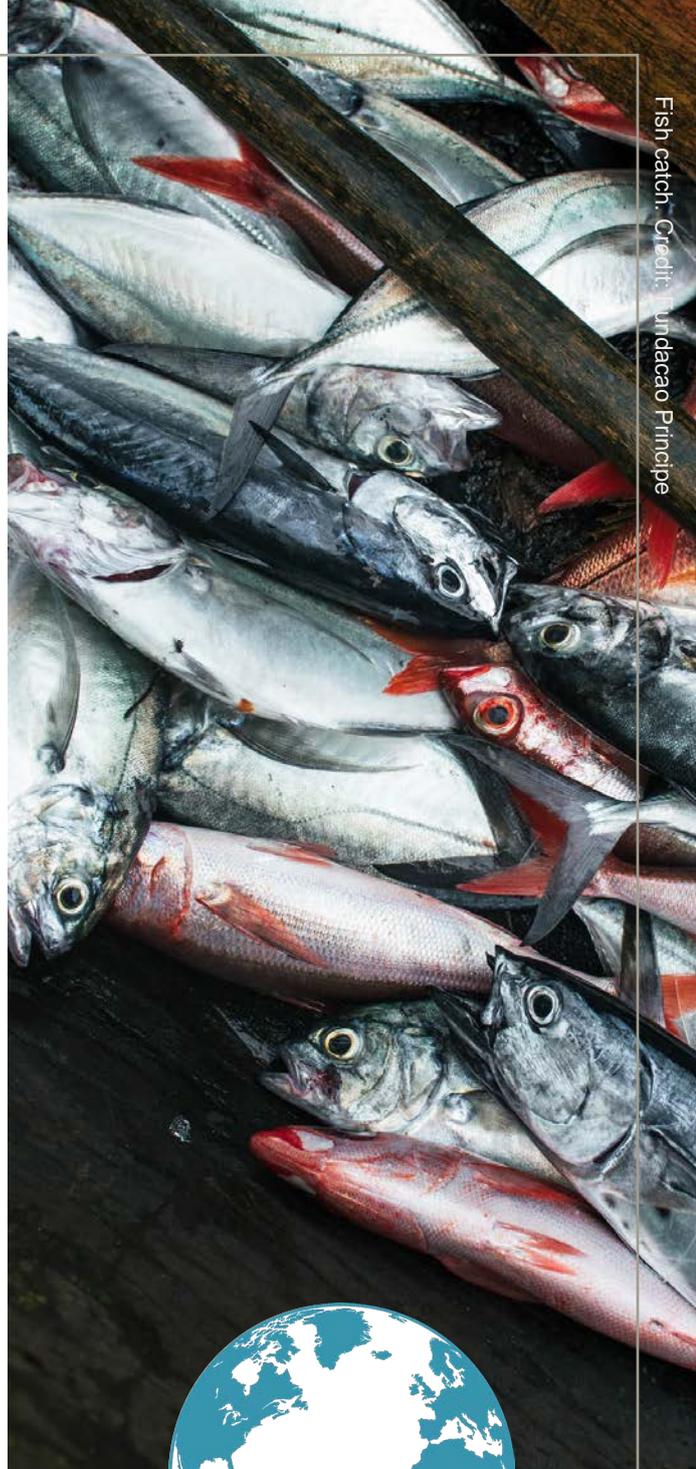
BACKGROUND

Fisheries are the most common, widespread and enduring threat to marine biodiversity, and thus are a component of many of FFI's marine projects (several of which have already had significant success in reducing this threat on a local scale). In 2020, in recognition of a long-standing institutional ambition and in response to recommendations within the External Review commissioned by Arcadia, FFI undertook an extensive internal and external analysis and consultation to prioritise the need for additional input, support and positioning around fisheries. We identified a priority need to ensure that global, regional and local fisheries' decision-making goes beyond sustainability, supports reductions in destructive fishing as well as overfishing, and better accounts for the wider biodiversity impacts of fishing (for both species and habitats). Going forward, we will be developing a programme of work to reduce the direct impacts of destructive fishing, which causes collateral damage to non-fished species and habitats.

Based on evidence from across our regional marine portfolio, FFI has identified a particular need to tackle fisheries that use bottom-trawl and dredge methods. These fishing methods simultaneously can catch too much, damage the ocean floor and bycatch other marine animals. To address the prevalence of bottom trawl fisheries we will need to leverage supply chain/corporate action, advocate within multilateral governance bodies, and explore deployment of innovative fishing technology.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Developing a project to ensure improved global destructive fishing policy:** In 2020, FFI developed a collaborative initiative (funded by a Cambridge Conservation Initiative (CCI) collaboration grant) to better define the term 'destructive fishing' as used in global policy commitments. Working with UNEP-WCMC, the University of Cambridge and Birdlife International, FFI constructed a dynamic project team to tackle the lack of a clear definition through various avenues, from peer-reviewed research to enhanced relationship-building in multilateral fisheries conventions.
- **Designing interventions to tackle bottom trawl fisheries at regional level:** In 2020, FFI began to scope for opportunities to tackle one of the most pervasive forms of destructive fishing: poorly managed bottom trawling. From trawlers targeting red mullet in the Georgian Black Sea to multi-species "trash fish" trawl fisheries in Southeast Asia, FFI gathered vital on-the-ground insights from teams and partners across the global marine portfolio and began to explore intervention opportunities where identified in these regions.



Fish catch. Credit: iundaeao Principe



POLICY & PRACTICE

PROGRESS IN 2021

- **Gathering evidence to catalyse global action on destructive fishing:** In 2021, FFI and CCI officially launched the “Defining destructive fishing” project. In this first year, we set out to gather evidence on the extent of political action on “destructive fishing” –something many world leaders are already committed to – but which appears to be severely limited by the lack of a clear, useable definition of the term. FFI built strong relationships across the marine community – from fisheries managers to the seafood industry – in order to support an expert review of the use of the term, a process that will conclude in late 2021. FFI reviewed the use of the term across academic literature, fisheries laws and the popular media, analysis that test our assumption that the term needs significantly more clarity in order to drive meaningful political action on fisheries. The findings from this study will be submitted for peer review and open access publication.
- **Leading global efforts to address bottom trawling:** FFI was invited to co-lead the authorship of a significant, forthcoming new report on bottom trawling – New perspectives on an old fishing practice – which aims to assess the global extent, status and impacts of this pervasive and contentious practice. Alongside venerable fisheries scientists (such as The University of British Columbia’s Dr. Daniel Pauly), FFI plan to use this report to ensure that debates and political action on trawling are informed by evidence, supporting effective, fairly designed and implemented actions that lead to a healthier ocean.
- **Spearheading a new coalition seeking transformative change on bottom trawling:** Alongside peer organisations Blue Ventures, Environmental Justice Foundation and the #OurSeas alliance, FFI co-launched the “Transform Bottom Trawling” coalition at the IUCN World Conservation Congress in September 2021. This group aims to bring together small-scale fisheries actors and environmental NGOs to push for better global policy action on bottom trawling, from MPA restrictions to subsidy reductions. FFI has been strongly involved in ensuring the coalition advocates for a “just transition” away from this practice, building on the evidence that this is more likely to lead to effective engagement and change on this contentious fishing practice.
- **Regional project development to tackle bottom trawling:** In 2021, FFI regional teams engaged in more determined efforts to catalyse local action on bottom trawling. This included our work in Georgia, with establishing on-board bycatch monitoring on bottom trawl vessels (p. 57), raising awareness of high-level decision makers in Kenya to alarming increases in sea turtle bycatch in shrimp trawl fisheries and, developing a project in Myanmar to investigate the trade routes associated with trawled catch, as a basis to channel market pressure to improve fisheries. We look forward to these initiatives developing further in 2022.



Ongoing Projects

These are projects that FFI is still active in delivering, but that did not receive Arcadia Marine Initiative funding this year.



TURKEY: Expanding effective MPAs across the Mediterranean Coast

BACKGROUND

The Gökova Bay MPA was established in the rich and diverse waters around Turkey’s Mediterranean coast to offer protection to globally important seagrass beds, commercially important fishing grounds and nursery habitats for critically endangered sharks. Insufficient capacity within the management authorities, however, has meant that implementation of the MPA regulations have been ineffective, allowing overfishing and illegal fishing to continue with consequent damage to sensitive habitats and species.

In 2012, FFI started working with local NGO Akdeniz Koruma Derneği (AKD) to develop a community-based management model for Turkey’s first network of six strictly protected no-take zones in the Gökova Bay MPA ([documented here](#)). These no-take zones were created through collaborative lobbying and action by AKD and local fishers, and have proven so successful, in terms of fish biomass recovery, that other sites along the coast have shown interest. The project is now actively scaling up its successful approach to a further three MPAs along 570km² of the Mediterranean coast.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Reduced illegal fishing:** Collaborative patrols led by AKD, involving community rangers and the coastguard, were initiated in 2013. Regular surveillance and patrols, including random night watches, using [SMART](#) are now in place for 11 no-take zones across two MPAs. As a result of patrolling efforts, illegal fishing was reduced by 60% between 2014 and 2017. Most incidents now concern amateur or recreational fishers rather than commercial trawlers or purse seiners, which have been banned from the bay.
- **Fish population recovery:** Monitoring has shown that fish biomass in the no-take zones is up to six times higher than in unprotected sites, with numbers of commercially



Focal Sites:

Gökova Bay Special Environment Protected Area (SEPA)

Fethiye-Gocek SEPA

Kaş-Kekova SEPA

Köyceğiz-Dalyan SEPA

Patara SEPA

Datça-Bozburun Peninsula SEPA

Cape Gelidonya No Fishing Zones

Area Of Impact:

289,297 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

important groupers also significantly greater. This is probably attributable to a complex range of factors, and ongoing analyses of the monitoring data will better explain the unexpected scale of recovery observed. Fisher income has also increased almost four-fold since the project started, boosting community support for the management measures. The use of mobile technology by the local fisheries cooperative is improving monitoring of fish landings and generating information to help inform management of this area, and analyses conducted in 2019 indicate a potentially significant increase in fish densities in the region; further data is needed to corroborate these findings.

- **Recovery of key species:** In 2014-15, sandbar sharks (regionally endangered), loggerhead turtles (vulnerable) and Mediterranean monk seals (endangered) were observed in the bay for the first time in many years. More regular patrolling has revealed permanent populations of sharks in the area. Mediterranean monk seals subsequently bred in four different caves in the MPA, and a pilot constructed haul out shelf was subsequently used.
- **Replication of the management approach:** Impressed by the results from the no-take zones in Gökova Bay, the Turkish Government invited AKD to propose further sites for protection and, in September 2020, approved the designation of an additional 350 km² of marine protected areas (comprised of both complete no-take zones, and broader fisheries restricted areas).
- **Partner capacity built:** FFI has helped AKD build the governance and operational systems that will allow it to grow into a stable and professional organisation, able to capitalise on the opportunities emerging for wider marine conservation influence in Turkey. The project has received awards, including one from the UN Food and Agricultural Organisation for its model of fisheries co-management. As a result, AKD's profile is further increasing and they were invited to speak at the UN Ocean Conference in New York in 2017. FFI secured a generous grant from the Endangered Landscapes Programme (ELP) that is helping the project scale up its work and providing important investments into AKD's financial management and impact tracking. Concerted efforts are underway to identify and develop appropriate mechanisms to generate sustainable financing to secure project costs over the longer term.

PROGRESS IN 2021

- **MPA management and compliance:** AKD-led ranger patrols were maintained in Gökova Bay, initiated in Gocek and temporarily suspend in Kas due to political issues. In addition, 11 joint patrols with the coastguard were conducted in 2021. 107 underwater clean-up dives over 22 days along the coast removed approximately 16kg of lead, 69m of fishing net, 136kg of fishing line, 86m of rope/thick line, 155kg of chain and 320kg of other plastic debris, reducing the threat of entanglement within the project area.
- **Key species recovery:** Surveys for Mediterranean monk seals have identified 10 individual seals using monitored caves in Gökova Bay, and AKD are continuing to advocate for their enhanced protection. Shark monitoring in Boncuk Bay has been improved through the use of a new system with a solar powered live feed, and the shark sighting rate has doubled with this more consistent monitoring.
- **Replication of the management approach:** An amendment to amateur fishing restrictions was introduced in March 2021, which effectively protects an additional 727ha from all fishing.
- **Partner capacity built:** In 2021, AKD received funding from three new donors, including a grant in direct support of core costs. The staffing structure has evolved with additional management support brought in to better distribute key task across higher level management.
- **Financial sustainability:** While progress has slowed on this front due to covid related restrictions and changes in markets, AKD have successfully promoted the consumption of invasive, alien species such as the lionfish and long spine urchin, resulting in a 50% increase in the number of restaurants selling them. Blue carbon fieldwork was delayed in 2020 but has now been completed and sample analysis is underway.





EASTERN CARIBBEAN: Mobilising partnerships for effective Marine Protected Area governance

BACKGROUND

The Eastern Caribbean islands and surrounding waters support intricate networks of coral reefs, seagrass beds and mangrove forests, and contain regionally significant biodiversity. These are hugely threatened by the rising tide of island development and the difficulty of restricting damaging and illegal fishing. Despite strong political interest in MPAs, funding for their effective management is often limited. Building on its globally recognised invasive species eradication work across several Caribbean islands, FFI has identified opportunities to deliver more effective MPAs in this region. FFI's first engagement was to catalyse the establishment of the North East Marine Management Area in Antigua in 2009, in collaboration with the national fisheries department and FFI's Antiguan NGO partner, the Environmental Awareness Group. Subsequently, FFI has worked to support the development of marine protection around two islands in Anguilla, and the remote, uninhabited island of Redonda (part of Antigua & Barbuda – see p 47).

ACHIEVEMENTS IN PREVIOUS YEARS

- **MPA management supported:** After its designation, FFI supported management planning for, and reef monitoring in, the North East Marine Management Area. This MPA is now threatened by plans for tourism infrastructure which will damage marine habitats within the MPA; and the lack of government willingness to tackle illegal development on the island means we have gradually phased out direct support for its management.

Focal Sites:

- Dog Island Marine Park
- Prickly Pear Marine Park
- Sandy Island Marine Park
- Shoal Bay-Island Harbour Marine Park
- Sombrero Island Marine Park

Area Of Impact:

5,297 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

PROGRESS IN 2021

- **Wider MPA governance:** A review of MPA governance in the Lesser Antilles, an ‘options paper’ for supporting MPAs in Antigua and Barbuda and a review of opportunities for large-scale financing for improved marine protection, have all been used to inform and develop further MPA work in the region.
- **MPA designation and management:** In 2018, FFI began working with two existing Marine Parks in Anguilla (around the remote Prickly Pear and Sombrero Islands) to put in place effective management for what had previously been largely ‘paper parks’. In 2019, a process began to transition these sites into functional, effective MPAs through the development of demarcation and zonation. Active protection of these sites stepped up in 2020 through the provision and deployment of a new patrol vessel. Proactive steps to improve habitats (e.g. through the provision of artificial reefs) and prevent the spread of invasive species (e.g. through lionfish eradication) has built a basis for wider marine biodiversity recovery.
- **Expansion of MPA work to new sites and a new action plan for sharks:** Building on the successful operationalisation of management planning and patrolling at two former “paper park” MPAs, in 2021, FFI’s partner Anguilla National Trust were invited to expand their activities to three additional existing marine parks. Two of these are on additional outlying islands (Dog Island and Sandy Island) and a further site is on mainland Anguilla (Shoal Bay-Island Harbour). In addition to replicating similar work on neighbouring islands in terms of coastal community livelihood enhancement and user access fees development, this new work will catalyse the launch of the country’s first shark conservation action plan.





SCOTLAND: Improving advocacy for effective marine protection

BACKGROUND

The seas around Scotland are both biologically important and highly contested. The length of Scotland's intricate coastline creates a wealth of varied habitats and associated species, including a range of marine species of European importance. Inshore waters, including vulnerable habitats, continue to be heavily fished, and are regularly damaged through the use of heavy towed gear (bottom trawls or dredgers). The polarised debate around marine management in Scotland created the opportunity to support new actors to promote the cause of marine conservation to government and other sectors.

Building on existing partnerships in Scotland, FFI and the Community of Arran Seabed Trust (COAST - see p. 59) launched a joint initiative that supports communities who want to actively protect key areas of coastline and creates a stronger collective voice in the policy arena. The aim is to create an independent and self-sustained network of community groups offering each other peer-to-peer support and learning that can collectively advocate for sustainable management and appropriate protection of Scotland's vulnerable inshore resources.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Community capacity built:** FFI provided direct support and training to a series of individual communities to help them meet their own aspirations for marine management and to address their self-identified needs. This ranged from ongoing management and governance support (e.g. constructing consultation responses), to direct technical support (e.g. drafting protected area management plans or

Focal Sites:

Loch Sunart to Sound of Jura
Nature Conservation MPA

South Arran Nature
Conservation MPA

Wester Ross Nature
Conservation MPA

Area Of Impact:

79,302 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE

fundraising proposals). A few community groups joined an inshore fisheries reform coalition, #Our Seas, some of which sit on the steering group to direct the coalition's action, thus demonstrating their enhanced capacity to engage in such initiatives. FFI also helped to link communities together into a wider network (see below) through a biannual workshop, direct exchange visits, and the development of a website with key resources available to all members.

- **Marine management improved:** As a result of the work by community groups supported by FFI, two MPAs were established (including in Fair Isle, see below), regulations were put in place for vulnerable sites (such as a ban on scallop dredging in Wester Ross and South Arran MPAs), and communities worked with the government to monitor their local marine habitats. Individual network community groups have campaigned against destructive industrial development, challenged the growth of fish farms in environmentally sensitive locations, collected information on marine litter and contaminants, and promoted effective enforcement of MPA designations. In addition, FFI worked directly with specific government agencies to support them in engaging with communities.
- **Hope Spot designation achieved:** In 2019, an area of sea off Argyll, on the West coast of Scotland was designated as the [UK's first Hope Spot](#) (important marine areas championed by local people), resulting in significant publicity and a boost to local support for marine conservation. This was led by a consortia of local groups supported by FFI.
- **Collective community voice for marine conservation:** The [Coastal Communities Network](#) was established in 2017 and has since gained political influence, through joint advocacy platforms, joint positions to government and media engagement on a number of key issues such as inshore fishing, salmon farming and kelp dredging. Regular cross-group communication occurs via email and social media platforms, allowing members to share experiences, solve mutual problems and agree collective positions on common issues. Sub-groups or Network Initiatives have been formed to engage around areas of mutual interest, and a community support fund provides small grants to communities in support of specific marine management and/or monitoring activities.
- **Community-led monitoring established:** The joint Coastal Communities Network, FFI and NatureScot (formerly Scottish Natural Heritage) community-led monitoring project published the [Community-led Marine Biodiversity Monitoring](#)

[Handbook](#) and a (Covid-19 safe) [virtual training tool](#) in 2020. This will enable more participatory biodiversity data collection and increased data collection, via shared protocols, to feed into management decisions and incorporated into national databases.

PROGRESS IN 2021

- **Community capacity built:** FFI held six virtual sessions designed to share information with CCN members on priority topics including seaweed harvesting, native oyster restoration and GIS. Expert advice provided by a consultant during the political campaigning session resulted in more targeted campaigning by CCN members in the run up to the May 2021 Scottish elections.
- **Marine management improved:** FFI has facilitated discussions with community group Craignish Restoration of Marine & Coastal Habitat (CROMACH) around applying for a Demonstration & Research MPA for Loch Craignish, which will be taken forward in 2022.
- **Hope Spot designation achieved:** The community groups managing the Hope Spot successfully raised funding to contract a Project Officer to drive forward their key objectives, and they are using the area's internationally recognised status to call for more effective management of these MPAs.
- **Collective community voice for marine conservation:** The network has grown in scale and now has 18 community group members who are actively sharing information and expertise, and collaborating on shared issues, such as the use of acoustic deterrent devices on salmon farms, and are increasingly invited to participate in marine management processes nationally in Scotland. In 2021 a CCN Advisory Group was established, composed of individuals from member groups, which has increased independence and improved governance. FFI has also provided seven CCN member projects with c. £15k worth of funding through the dedicated Community Support Fund, strengthening skills such as biodiversity monitoring and lobbying government, and has also secured funding for a CCN coordinator to provide additional network support.
- **Community-led monitoring established:** Various communities and groups, including 14 CCN members, have become actively engaged in the community-led monitoring project, having completed online training and successfully accessed the associated equipment fund to procure equipment to monitor their local waters.



SCOTLAND: Supporting Scotland's first Demonstration and Research Marine Protected Area, Fair Isle

Scottish legislation includes a provision for third parties to propose sites as MPAs that do not necessarily meet the strict requirements of the national network. These sites are known as Demonstration and Research MPAs, where progressive marine management approaches can be tested.

FFI provided direct support to the Fair Isle Marine Environment and Tourism Initiative (FIMETI), one of the members of the Coastal Communities Network (above). FIMETI represents the whole population of Fair Isle and had been campaigning for an MPA for their waters for over 20 years. FFI helped FIMETI develop their proposal to meet the criteria for a Demonstration and Research MPA, and led the process to achieve support from other stakeholders, including government and fishers. The Fair Isle MPA was designated in 2016 and aims to improve marine management practices within a 14,500-hectare area around the island to safeguard the seabird populations that are critical to the island's tourism-based economy. This MPA is the first of its kind in Scotland, and the first site to devolve MPA management responsibilities to a non-fishing community group through a formal co-management agreement.

FFI supported the community to establish the Fair Isle Marine Research Organisation (FIMRO) in 2018, but MPA implementation activities were stalled following a fire which destroyed the Fair Isle Bird Observatory (the main source of income for the island) in March 2019. In 2020, a new partnership approach was developed between FFI, NatureScot (previously Scottish Natural Heritage), and FIMRO and collectively they recruited a new Project Officer for the Fair Isle Demonstration and Research MPA. In 2021 the Project Officer collaboratively developed a co-management and monitoring plan for the site. It is hoped that Fair Isle will provide a ground-breaking model for community-led and managed MPAs in Scotland, which can be replicated at other sites and a [case study](#) to share lessons learnt has been developed.



Focal Sites:

Fair Isle MPA

Area Of Impact:

14,500 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE



GLOBAL: Improving policy and practice to reduce plastic pollution

BACKGROUND

In 2009, FFI identified the risk posed to biodiversity from microplastics, tiny pieces of plastic (microbeads, microfibres and pellets) known to concentrate persistent organic pollutants on their surfaces, which are directly ingested by marine life, including organisms at the base of the food chain. FFI's work on microplastics subsequently provided the basis for an expanding programme of work to address marine plastic pollution, and we have developed significant expertise on this issue over the last ten years.

ACHIEVEMENTS IN PREVIOUS YEARS

- UK microbead ban in cosmetic products:** In January 2018, a UK Government ban on microbeads in cosmetics and personal care products came into force. This ban was the result of six years of work from FFI to highlight the issue of microbeads in cosmetic and personal care products: through publication of the Good Scrub Guide (2015), work to persuade a wide range of producers and retailers to enter into voluntary commitments to remove microbeads, and finally a high-profile advocacy campaign (2016) led by a coalition of four NGOs: FFI, Greenpeace UK, Marine Conservation Society and the Environmental Investigation Agency. This world-leading ban covers all plastic ingredients and avoids potential loopholes seen in legislation elsewhere, and FFI subsequently monitored compliance with the ban through a comprehensive product review.
- Broad dissemination of learning:** Reports (available on our website) to document learning from our work in microplastics include [guidance on microbeads](#) and briefings on



STRENGTHENING PARTNERS

POLICY & PRACTICE

[microfibres](#) and [pellet loss](#). Membership of the Commonwealth Clean Oceans Alliance enabled us to advise member states on how to tackle plastic pollution, and we provided expert advice to the European Chemicals Agency (ECHA) to support development of their legislation on microplastics, including a focus on microplastics in products beyond toiletries. In 2019, we published a high-profile report entitled No Time to Waste (in partnership with Tearfund), which highlighted the consequences of plastic pollution to both biodiversity and humans. In 2020, we [published a report](#) with key recommendations for reducing pollution from foamed polystyrene, a particularly damaging form of marine plastic pollution. We have also highlighted the risks of some alternative solutions (such as biodegradable plastics and bioplastics), contributed to multiple consultations and high-level meetings, and supported decision makers to make evidence-based, rather than reactive, decisions.

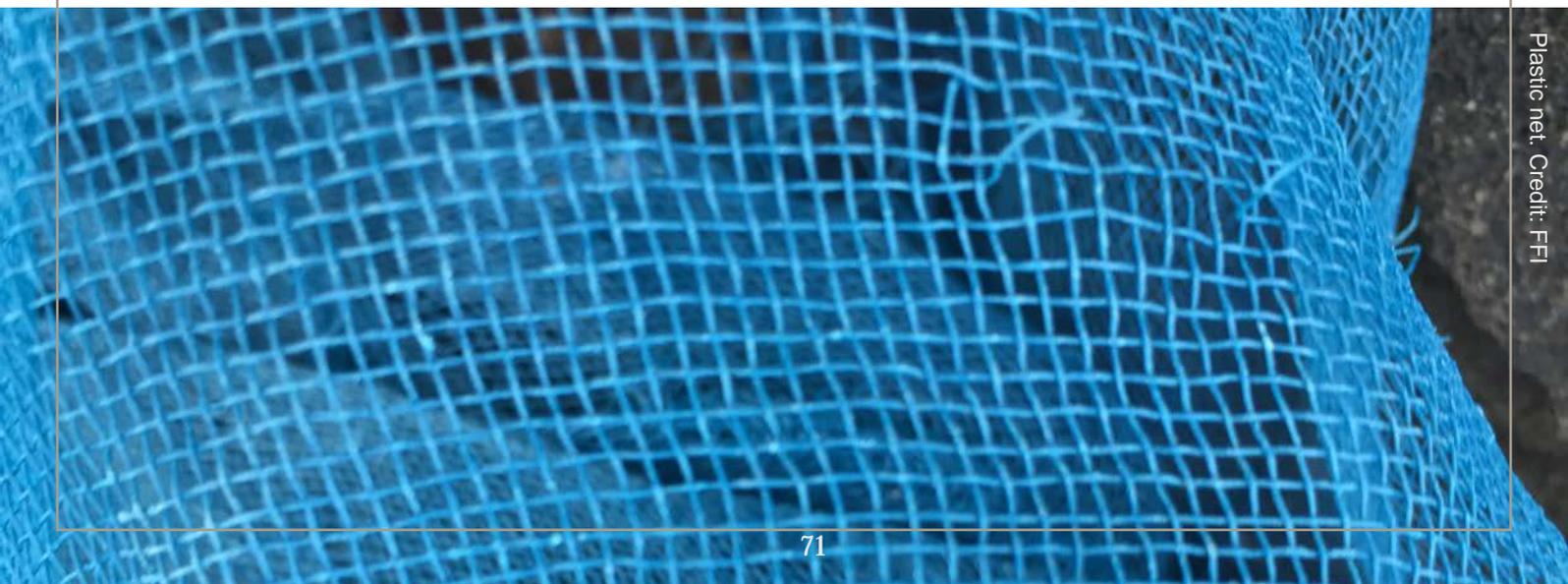
- **Tackling plastic pellet pollution:** FFI worked initially to secure commitments to adopt existing voluntary good practice to prevent pellet spills (and received these from 58 UK-based and 29 multinational companies by 2017). However, we recognised that tracking compliance with such commitments is a significant limitation of current systems. FFI subsequently focused on developing a practical and auditable supply chain approach to pellet management and the development of a pellet certification scheme. This has been done through engagement with a Scottish Government working group, the UK Government, OSPAR (the Convention for the Protection of the Marine Environment of the North-East Atlantic) and individual UK retailers. This approach would put in place mechanisms to externally assess compliance with a set of standards in pellet handling, which could be used by any business handling pellets and certified across the whole supply chain. Recommendations for a supply chain approach to pellet loss have since been included in the EU Plastic Strategy, the G7's Plastic Charter and in a management standard developed by the British

Retail Consortium. FFI also established a Europe-wide NGO coalition to help promote a supply chain approach to industry and EU decision makers.

- **New microplastic issues explored:** FFI has undertaken detailed research and consultations to understand microfibre loss from garments, and to build solid relationships in the sector, given the extent of microfibre loss during clothing production (as well as from domestic washing). We also explored a particularly damaging form of marine pollution, polystyrene, which resulted in a publicly available [report](#) (short summary [available here](#)) with key recommendations for reducing pollution in marine settings.

PROGRESS IN 2021

- **Tackling plastic pellet pollution:** The British Standards institute published the world's first discrete pellet handling standard, a key building block for a pellet management certification system and reducing pellet pollution, which FFI was instrumental in catalysing and producing. OSPAR officially adopted a framework for efforts on pellet pollution for its 15 signatory countries, along with guidelines for its implementation, which will reduce pollution entering the North-East Atlantic. This framework included specific minimum requirements for pellet handling which FFI helped to develop.
- **Developing approaches to new microplastics issues:** In 2021 we developed a risk assessment tool for microfibre shedding during the garment manufacturing process and have secured industry collaborators interested in trialling it. Our work on polystyrene resulted in the Yacht Harbour Association including criteria on maintaining polystyrene-containing pontoons within its new Clean Marina Scheme. We also published a position paper on Alternative Plastics to help raise awareness of the unintended consequences of 'false solutions' such as bio-based, biodegradable or compostable plastics, in recognition of their growing popularity.





Credit: FFI



STRENGTHENING PARTNERS

GLOBAL: Supporting marine champions through the Conservation Leadership Programme

BACKGROUND

Marine issues are often under-represented on the conservation agenda in countries with the highest marine biodiversity. Mobilising an effective cadre of new and dynamic marine conservationists and local marine conservation champions will help to drive forward marine protection in countries where it is most needed. FFI is a founding member of the Conservation Leadership Programme (CLP), which champions and provides training, mentoring and career development opportunities to young conservation leaders. Under this framework, Arcadia marine funding was used to support young marine conservationists through the Future Conservationist Award scheme. From 2020, CLP grant giving was secured through the receipt of a separate generous grant from Arcadia.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Capacity of early-career conservationists built:** Since 2016, eight teams of young leaders have received mentoring and funding to undertake and manage their own projects to conserve marine species and habitats, and to develop these into larger programmes. Experience from 30 years of the CLP shows that individuals who have received this investment in their early career development often go on to become successful conservationists, catalysing wider action and becoming significant players in the conservation community within their home countries.

- **Marine conservation improved:** In 2018, a CLP project to enhance community conservation of a threatened population of horseshoe crabs in Odisha, India led to increased local support for, and engagement in, horseshoe crab conservation. In Alor, Indonesia, work to identify and address the drivers of thresher shark decline led to increased conservation awareness and promising discussions with regional government, leading to the development of a new regulation that aims to stop thresher shark fisheries while simultaneously providing alternative livelihood solutions by allocating budget for shark fishers. In Mexico, the work of a previous recipient led to the addition of a species of black coral onto the Mexican Protected Species List. In Honduras, the shark project has been extended and the CLP alumnus received a fellowship under the Blue Pioneers programme. In Peru, a study of the vulnerable smooth hammerhead shark (where many juvenile hammerheads are caught by inshore fisheries) garnered the support of high-level government officials to improve regulations to protect critical areas for this species.

PROGRESS IN 2021

- **Marine conservation improved:** Projects funded between 2016 and 2018 continue to show progression. In Honduras, a CLP project has led to the formation of a new local NGO focussed on shark conservation, and the thresher shark project in Indonesia has successfully leveraged substantial funds to maintain activities following support from CLP in 2018. Furthermore, a grant recipient in India is now undertaking a PhD as a result of opportunities developed during the CLP funded project.

GLOBAL: Reducing the negative impacts of extractive industries on the ocean

BACKGROUND

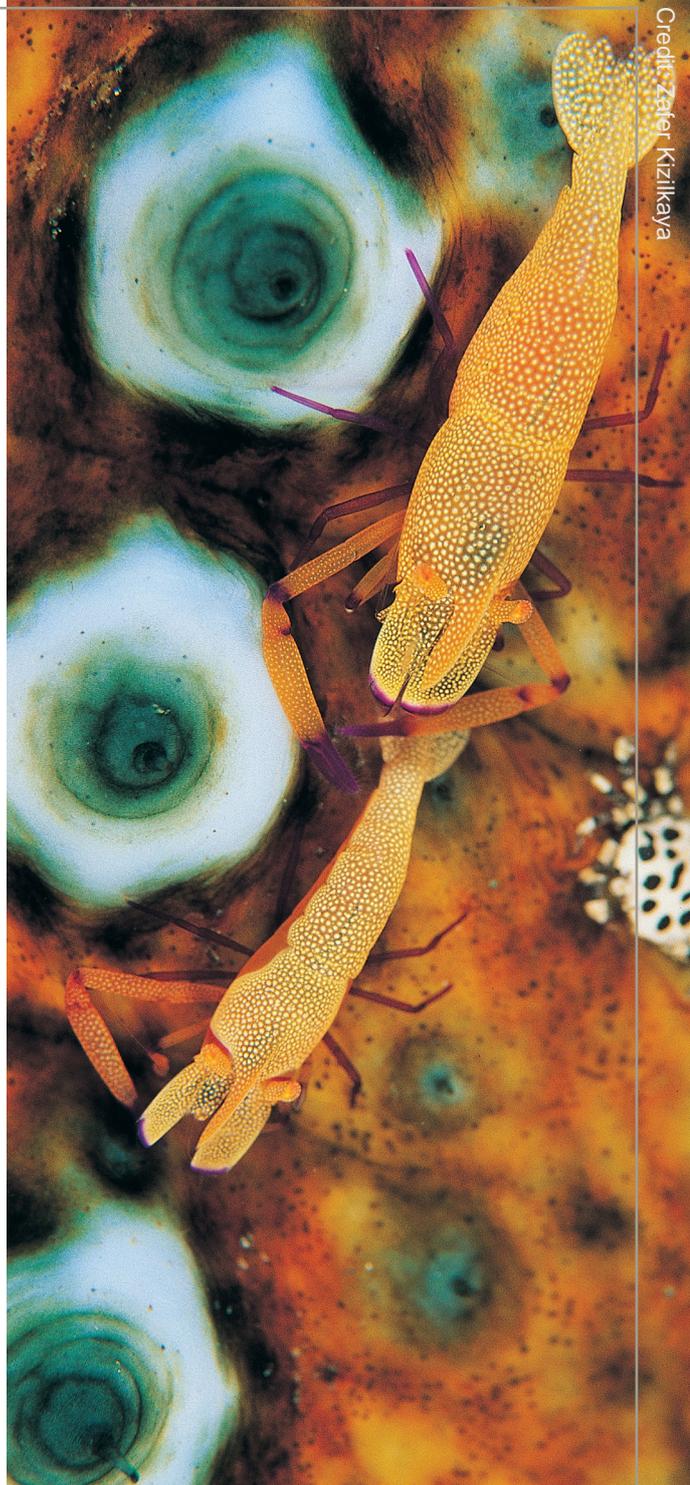
To meet the world's increasing demand for energy and resources, offshore fossil fuel exploitation is growing, posing a serious threat to marine wildlife and ecosystem health. Through engagement with corporate design, engineering, and construction teams, FFI has the opportunity to integrate marine biodiversity considerations into the operations of companies working in the oil and gas sector, ensuring a more sustainable approach to working in sensitive marine habitats. FFI challenges and supports companies to better assess biodiversity risk, and to adopt best practice guidance in avoidance and mitigation of impacts. These approaches have been applied to operations in offshore coral reef and deep-water habitats in at least 11 countries.

ACHIEVEMENTS IN PREVIOUS YEARS

- **Good Practice Guidance:** In 2016, FFI developed [publicly available guidance](#) and recommendations for oil and gas companies on how to identify and mitigate the impacts of their operations on marine biodiversity and ecosystem services. The guidance was promoted at key international meetings and with international financial institutions. As a result of work by FFI, lender standards on the risks from oil and gas development affecting turtle nesting sites were changed; now, companies seeking investment in developments within turtle ranges anywhere in the world have to consider mitigating any potential impacts on these species. The guidance has since been adapted for use in West Africa and forms the basis for impact mitigation recommendations by East African States in the Western Indian Ocean.
- **Direct mitigation:** FFI has put in place mitigation plans for specific companies to address the biodiversity impacts of their operations, including sea turtles at risk from planned oil and gas activities in Ghana and cetaceans impacted by seismic testing.

PROGRESS IN 2021

- **Good Practice Guidance:** FFI continues to engage with countries and projects in both East and West Africa to provide technical support in line with the guidance and encourage transboundary cooperation. The guidance has also formed the basis of a move towards net positive impact with an additional oil and gas partner in West Africa.



Credit: Zafar Kizilkaya



POLICY & PRACTICE

Legacy Projects

These are projects where we track ongoing progress, but are no longer actively engaged, except in cases where support is specifically requested.





KENYA: Community Conserved Areas on the South Coast

The south Kenya coast along the Tanzania border is an area of outstanding natural beauty and biodiversity. Between 2009 and 2015, FFI worked with The East African Wildlife Society to develop, inform and test a process for establishing Beach Management Units and their associated Community Management Areas (previously termed Community Conserved Areas) in seven communities in the Shimoni-Vanga area, south of Mombasa.

Through this project, governance arrangements were established and by-laws for fishing practices were introduced that led to the establishment of no-take zones and community patrols. Extensive capacity building helped to ensure effective operation of management committees and transparent selection of representatives. Communities have benefited from enhanced rights and influence over resources and remain supportive of the development of these co-managed areas. The project continued after FFI withdrew in 2015. The seven areas where the project had worked were brought together as a Joint Community Managed Area that integrated the individual Community Management Area plans drawn up through the previous work.

Subsequent ecological surveys have emphasised the importance of this network of community-led management areas. Results show that they have higher coral cover and diversity than areas open to fishing. Fishers report a perceived increase in fish populations in some Community Management Areas, particularly near the boundaries of no-take zones, which was corroborated by monitoring in one of the no-take zones that showed notably high levels of fish biomass.

As of 2021, FFI's original partner – The East African Wildlife Society – is no longer focused on the Shimoni-Vanga seascape, however other local and international organisations have continued to build on the legacy of these pioneering Community Management Areas, which remain some of the best implemented examples of their kind in Kenya. With local fisheries in Kenya dramatically affected by Covid-19, more emphasis has been placed on securing livelihoods in the seascape and the networks of fishers and conservationists catalysed by the initial project are now responding to new challenges, such as the need to restore degraded coral reefs systems and opposing the threat of future coastal developments.

Focal Sites:

- Majoreni
- Vanga
- Kibuyuni
- Shimoni
- Wasini
- Mkwiro
- Jimbo

Area Of Impact:

9,040 hectares

STRENGTHENING PARTNERS

SECURING MARINE SITES

POLICY & PRACTICE



Grouper in Aceh, Indonesia. Credit: FFI

CONCLUSION

The substantial and continued support provided by Arcadia since 2011 toward FFI's Marine Initiative has underpinned all of the significant achievements that the programme has made to date, as detailed in this report. The portfolio continues to grow and develop tackling key thematic issues and providing critical support to local actors engaged in marine conservation on the ground.

Arcadia funds also helped to leverage significant funds since the last report. We are tremendously grateful to the Donor Board and Advisors of Arcadia for this opportunity to carry out this vital long-term conservation work.

Thank you.

Annex 1: Self Assessment of Progress

We use the following impact milestones to assess status of each project against key Arcadia marine criteria, and to identify year-to-year change in progress against these.

It is too soon to evaluate the impact of projects established in 2021.

Please note that this table is designed to provide a snapshot in time with regards to project progress achieved. Plus, where a project is working at multiple sites with multiple partners, for example, the scores are based on an assessment of the 'best performing' site or partner.

The first four indicators align closely with the core marine criteria (see p.8-9) and are assessed from 1-5 with five being the most positive (green scale).

Evidence of cumulative biodiversity impact in the final column is also ranked on a five point scale (blue scale) with a five indicating that biodiversity at the site is either recovering or has stabilised.

	Area of impact (ha)	Effective marine management	Improved policy and practice	Strengthened conservation capacity	Sustainable income	Cumulative biodiversity impact
ACTIVE PROJECTS						
2015-21 Cambodia: Underpinning the design and management of a national MPA network	126,643	5	4	4 ↑	3	5
2017-21 Cambodia: Community-led marine species conservation in Cambodia's waters	n/a	n/a	3	4	n/a	3
2018-21 Cambodia: Developing locally-led solutions to prevent plastic entering Cambodia's ocean	n/a	n/a	3 ↑	1	1	1
2011-21 Myanmar: Collaborative conservation of marine biodiversity in the Myeik archipelago	24,165	3 ↓	5	3	2	5 ↑
2011-21 Indonesia: Protecting and preserving the coral reefs by preserving traditional fishery management in Aceh province	171,116	5	4	3	2	5
2020-21 Indonesia: Establishing effective management in the high biodiversity Raja Ampat Seascape	308,693	2	1	2	1	1
2020-21 Indonesia: Strengthening the Pulau Banyak MPA, Aceh	227,500	2	1	1	1	2
2020-21 Indonesia: Securing the coral reef complexes of Kalimantan	77,000	1	1	2	1	1
2019-21 Vietnam: Identifying solutions to threats facing marine biodiversity on the islands of Con Dao	14,000	1	1	1	1	1
2015-21 Honduras: Connecting coastal communities for integrated seascape management in Atlántida	180,313	4	3	4	2	3
2019-21 Honduras: Building a platform for evidence-based regional plastic policy on the Northern Coast	n/a	n/a	1	2	1	1
2015-21 Nicaragua: Conserving turtles and their marine habitats on the Pacific coast	152,402	2	4	2	1	2
2020-21 Nicaragua: Tackling plastic pollution along Nicaragua's Pacific coast	n/a	n/a	3	2	1	1

	Area of impact (ha)	Effective marine management	Improved policy and practice	Strengthened conservation capacity	Sustainable income	Cumulative biodiversity impact
ACTIVE PROJECTS Continued						
2011-21 Antigua & Barbuda: Strengthening marine management of Redonda Ecosystem Reserve	24,159	2	3	2	1	1
2015-21 Tanzania: Co-management of marine resources on Pemba Island	10,400	4	4	4	4	3
2011-21 Kenya: Coordinated Community Conservation in Lamu and Tana River counties	161,240	4	4	3	3 ↑	3
2020-21 Mozambique: Development of marine conservation opportunities	n/a	1	1	1	1	1
2019-21 São Tomé and Príncipe: Supporting the Development of a National MPA Network	57,604	3 ↑	3	3	2	3 ↑
2011-21 Cape Verde: Participatory research and action for conservation on Maio and Brava Islands	28,487	5	5	5	3	5
2020-21 Georgia: Developing marine conservation on the Black Sea coast	n/a	1	2	1	1	1
2011-21 Scotland: Supporting the development of effective marine conservation NGOs	27,987	4	5	5	3	5
2019-21: Preventing potential impacts of Deep Sea Mining to marine ecosystems	n/a	n/a	4 ↑	2	n/a	n/a
2020-21 Transforming destructive fisheries	n/a	n/a	1	1	1	1
ONGOING PROJECTS						
2011-19 Turkey: Expanding effective MPAs across the Mediterranean Coast	289,297	4	4	5	3	5
2011 Eastern Caribbean: Mobilising partnerships for effective Marine Protected Area governance	5,297	3	3 ↑	3	2	1
2011-19 Scotland: Improving advocacy for effective marine protection	79,302	3	4	4	2	3
2011 Improving policy and practice to reduce plastic pollution	n/a	n/a	5	n/a	n/a	n/a
2015-18 Supporting marine champions through the Conservation Leadership Programme	n/a	n/a	n/a	5	n/a	n/a
2015-20 Reducing the negative impacts of extractive industries on the ocean	n/a	n/a	4	3	n/a	n/a

Annex 2: Historical Projects

These are projects where FFI is no longer actively engaged and it is no longer appropriate to expect ongoing updates. Projects are ordered by the date Arcadia support finished with the most recent projects first.

COSTA RICA: Reducing threats of destructive fishing and promoting fisher livelihoods

Costa Rica's highly biodiverse inshore waters support outcrops of coral habitat, high levels of marine species diversity and endemism and widespread artisanal fisheries. However, despite its global prominence as an environmental leader, Costa Rica had not historically made ocean protection a national priority, meaning that destructive fishing had become a significant conservation concern. From 2012 to 2019, FFI collaborated with a Costa Rican fisheries development NGO called CoopeSoliDar to address widespread threats from destructive fisheries and to support local fishing cooperatives to sustainably manage their waters. This involved the application of spatial protection, the development of improved fish catch tracking technology to incentivise compliance and the promotion of much-needed national fisheries governance reform to tackle bottom trawling for shrimp.

FFI and CoopeSoliDar's work principally focused on Tárcoles, a Pacific coast community that hosts one of the most well-established local fishing associations in Costa Rica. This fishing association led the way in declaring its local waters off limits to bottom trawling in 2011, seeing huge associated gains in catches and ecosystem complexity. From 2012 to 2016, FFI and CoopeSoliDar worked with them to amplify this evidence of local recovery in order to inform debates around a national restriction on bottom trawling. In 2020 the Costa Rican President vetoed a proposed new law which would have revived shrimp trawling, signalling the country's long-term move away from this destructive fishing practice.

During the project community-based management in Tárcoles flourished, and new threats such as the rise of unregulated recreational fishing and excessive levels of unlicensed small-scale fishing (which can, itself, lead to ecosystem declines) were addressed. From 2017 to 2019, FFI and CoopeSolidar worked with a consortium of government bodies, seafood trade experts and fisheries economists to launch an innovative electronic catch monitoring and traceability

system. By better tracking catch and who catches it, NGOs and fishing associations were able to better regulate levels of fishing effort and ensure only legally registered, compliant small-scale fishers gained access to legitimate fish catch markets.

From 2012 to 2019, FFI and CoopeSoliDar worked in a second community, Cabuya to support the development of a new model for ocean protection in Costa Rica, where governance of the site is shared between the community and the government under a co-management agreement. As a result, the Cabo Blanco Area of Marine Management, encompassing the waters used by Cabuya community, was established in 2017. In 2018, the fishing association of Cabuya became legal entity and this is now Costa Rica's first genuinely co-managed inshore MPA.

With significant capacity built in Costa Rica, the decision was made to hand this work over to local partners and for FFI to phase out in 2020. A consolidated exit strategy was developed to ensure that pipeline initiatives had a clear trajectory and partners would be able to implement them without future FFI support. A series of partner-focused workshops reviewing eight years of complex project history were completed virtually throughout 2020. In particular, the role of policymakers and corporate decision-makers in relation to fisheries market systems and their role in securing a healthy ocean were reviewed, and this will help to inform FFI's emerging institutional approach to transforming destructive fisheries (see p. 62).

Focal Sites: Tárcoles Marine Area of Responsible Fishing, Cabo Blanco Area of Marine Management

Area Of Impact: 109,413 hectares

GLOBAL: Sustainability rating for the fisheries sector

Between 2012 and 2017, FFI worked with three other organisations (the North Sea Foundation, Synnervate, and Gaia Values) to test an innovative approach to using investors' influence on the fishing industry to improve fisheries sustainability. This resulted in the Sustainable Seafood Finance tool, which provides financiers with the information to evaluate sustainability performance of, and catalyse improvements in, the fishing companies in which they invest.

Having identified the 50 largest seafood companies and their financiers, FFI engaged with financial institutions (particularly those based in Asia, such as UBS Hong Kong and Aviva Investors) to improve their understanding of the operation of the seafood sector and the risks of financing unsustainable seafood production. Initially the Sustainable Seafood Finance tool focused on improving transparency in the sector. Feedback suggested that the tool was useful for financial institutions to assess risk exposure in terms of their seafood portfolio; however, there was a lack of appetite from these users for development of a toolkit to support performance improvement.

Since the end of the project, there has been an increasing recognition by financial institutions of the need to understand emerging risks around fisheries. An increasing array of projects now seek to build on the approach piloted by the Sustainable Seafood Finance tool in attempting to guide the influence of banks, stock exchanges and corporate shareholders in demanding fishery reform, from the Seafood Tracker Initiative to the Principles of Responsible Investment in Wild-Capture Fisheries. In 2020, FFI's own emerging fisheries programme (p. 16) has begun to re-engage with key actors from the project in order to identify relevant opportunities to catalyse investor influence to reduce destructive fishing.

SCOTLAND: Documenting the impacts of no-take zones, Firth of Clyde

Commercial fisheries caused significant declines in native marine biodiversity and habitats in Scotland which led to the collapse of key white fish fisheries, and a reliance on destructive fishing practices to target species lower in the food chain. This is particularly evident in the Firth of Clyde, where the Community of Arran Seabed Trust (COAST) has worked for over a decade to campaign for the establishment of a no-take zone at Lamlash Bay. From 2011 to 2014 FFI supported the University of York to study and monitor the Lamlash Bay no-take zone –the first and only fully protected marine reserve in Scotland, and one of the few marine reserves in the UK proposed by local communities. The research sought to establish the rate, trajectory and recovery of commercially important marine species following the cessation of all forms of fishing.

This research provided clear evidence of ecosystem recovery, with greater species diversity and abundance, including juveniles of commercially important species such as scallop, and greater habitat complexity observed inside the no-take zone than in the surrounding area. These results added to growing evidence for the benefits of closing areas to fishing, and has been widely published (five peer-reviewed papers) and disseminated in the broadcast media. The study directly informed the successful campaign by COAST to establish a new South Arran Marine Protected Area in 2014, informed their arguments for more effective management of this site in 2016, and has provided the basis for ongoing ecological monitoring within the no-take zone. FFI continues to provide strategic support and advise COAST as required (p. 49), however, COAST now manages Lamlash Bay entirely independently.

ECUADOR: Galera San Francisco Marine Reserve

Galera San Francisco Marine Reserve, on the Pacific coast of Ecuador, was designated in 2009 recognising that it is an area of international biodiversity importance, with a species inventory larger than the Galápagos Marine Reserve. FFI became involved in 2010 and worked with NGOs and communities around the reserve to revise the management plan. This was approved in 2014 and included provisions for no-take zones (the first in mainland Ecuador), and enabled local management of fisheries by establishing preferential access rights for artisanal fishers. A management committee was established, bringing together representatives of 10 local organisations and six government bodies. This committee also established responsible fishing practices and resolved conflicts around access and resource management. Incidences of trawler infringement in the reserve have since reduced, partly as a result of improved information exchange between the maritime authorities, environment agencies, and communities.

A team of Marine Reserve community rangers undertake patrols and has powers to seize illegal fishing gear. Local NGOs continue to monitor the marine biodiversity and fisheries catches (particular octopus and sea cucumbers) with community support.

Focal sites: Galera San Francisco Marine Reserve

Area of conservation impact: 54,600 hectares

ECUADOR: Trawling policy reform

In 2011, Ecuador made the decision to ban all but one bottom trawl shrimp fishery from its waters. Learning from similar work in Costa Rica (see p. 55), FFI worked with the government to establish the likely socio-economic and biodiversity impacts of the proposed ban. This work brought together fisheries and MPA authorities, engaged government representatives in monitoring, and allowed experience sharing between Costa Rica and Ecuador.

The work was informed by existing data from two Ecuadorian MPAs, where shrimp trawling was already banned and that had demonstrated increased abundance of at least two commercially important species (starry grouper and yellow snapper) after bottom trawling had ceased, suggesting some initial ecosystem recovery. Artisanal shrimp fishers interviewed in both Ecuador and Costa Rica reported improved shrimp catches (although this information

was largely anecdotal), and by 2016, local fishers in Ecuador reported few negative impacts of the ban. It is not clear how far the artisanal shrimp fishery might in future need regulation itself, should it expand to fill the space left by the industrial fleet.

Focal sites: Machalilla National Park; Reserva de Producción de Fauna Marina Costera Puntilla de Santa Elena

Area of conservation impact: 127,290 hectares

PHILIPPINES: Developing models of local indigenous marine management

The Philippines lies within the Coral Triangle, considered the epicentre of marine biodiversity, and contains 9% of the world's coral reefs. Many of the indigenous peoples maintain customary laws, beliefs and practices relating to the use of natural resources, including demarcations of ancestral waters for fishing. Between 2011 and 2015, FFI helped two indigenous communities (General Nakarand Aramaywan) to establish Indigenous Community MPAs in their ancestral waters. Co-management agreements were signed between these tribes and the local government. Management plans were developed that included no-take zones and enforcement strategies. Baseline information on threats and illegal activities were collected, and levels were agreed for both visitor fees and fines from infringements. This project was one of the first in the Philippines to create a mechanism by which indigenous people's groups could engage in marine resource management. The model was considered applicable to other areas of Palawan and Quezon Provinces where municipal and ancestral waters overlap. The Center for Conservation Innovation, an independent NGO that evolved in 2015 from FFI Philippines, took on oversight of this initiative.

Focal sites: General Nakar Ancestral Waters; Aramaywan Ancestral Waters

Area of conservation impact: 27,724 hectares

LIBERIA: Community Management of Mangrove Ecosystems in Lake Piso

Liberia's mangroves have been extensively degraded, in turn affecting coastal fisheries, nearshore water quality and shoreline stability. Lake Piso Multiple Use Reserve is a Ramsar Site, with significant but degraded mangrove areas. In 2012, FFI and local partners worked with 34 local communities to map the mangroves in the reserve and to develop a better understanding of the threats they face and their importance for local livelihoods (mangrove wood being traditionally used for both construction and fish smoking). A management plan for the reserve was developed (a first in Liberia), and local communities led its implementation and management, including resolving any infractions.

By 2014, it appeared that mangrove harvesting had declined (based on anecdotal reports). Reports suggested that the height of the canopy and mangrove area coverage had increased, and 14 of the communities were respecting a self-imposed moratorium on mangrove destruction within the Reserve. The locally-led action network for mangrove conservation established by this project is now being supported through a largescale Global Environment Facility project led by Conservation International.

Focal sites: Sustainable Mangrove Use Zone within Lake Piso Multiple Use Reserve

Area of conservation impact: 6,361 hectares

INDONESIA: Impact investing for marine conservation in Aceh

Impact investment is a form of socially responsible investment made into a company or organisation with the intention of generating measurable social or environmental benefits alongside a financial return.

In 2014, FFI initiated a pilot impact investment project to incentivise more sustainable fisheries businesses in Simeulue Island, Aceh, thus encouraging a shift towards practices that would minimise impacts on biodiversity. This work complemented the work on MPAs and Locally Managed Marine Areas (LMMAs) in the same area (see p. 33).

This experimental project developed a good understanding of the local fisheries sector and markets in Simeulue, and identified how impact investment could offset the impacts of LMMAs on local businesses, but it did not yield any investable prospects at the time. However, the project raised awareness of sustainable fishing practices, increased fishers' business skills, informed our wider programme of work in Aceh (see p. 18) and fed into learning about conservation finance and enterprise approaches globally.

CENTRAL AMERICA: Building capacity for marine conservation

In 2012, FFI developed a regional alliance with locally based organisations in Honduras, Costa Rica and Nicaragua, which focused on building capacity for MPA establishment and management, sustainable fisheries, community engagement in decision making and sustainable resource use. This work resulted in the current initiatives in Honduras (p. 35), Costa Rica (p. 55) and Nicaragua (p. 38). Governments in the three countries have been supportive of greater community engagement in marine management. However, this work has demonstrated the considerable time required to establish formal collaboration between communities and government.



BELIZE: Conserving the Mesoamerican Barrier Reef at Turneffe Atoll

Turneffe Atoll, the largest and most biologically diverse coral atoll in the Western Hemisphere, was previously unprotected and highly threatened. In 2012, FFI worked with Blue Marine Foundation, alongside several other donors and NGOs, to ensure it was designated as a Marine Reserve by the Belizean Government. A local NGO (Turneffe Atoll Sustainability Association) was formed to co-manage the MPA, and FFI provided this NGO and the Belizean government with technical assistance between 2013 and 2014. By the end of 2014 the MPA was sufficiently well managed and funded and FFI's support was no longer necessary.

Focal sites: Turneffe Atoll Marine Reserve

Area of conservation impact: 131,690 hectares

GLOBAL: Support to the Blue Marine Foundation

The Blue Marine Foundation (BLUE) was formed by the team behind the film *The End of the Line* and aims to channel significant private donor and corporate funding into marine conservation. In particular, it aims to secure large-scale or high profile MPAs to achieve both biodiversity benefits and increased public awareness of the need for marine conservation.

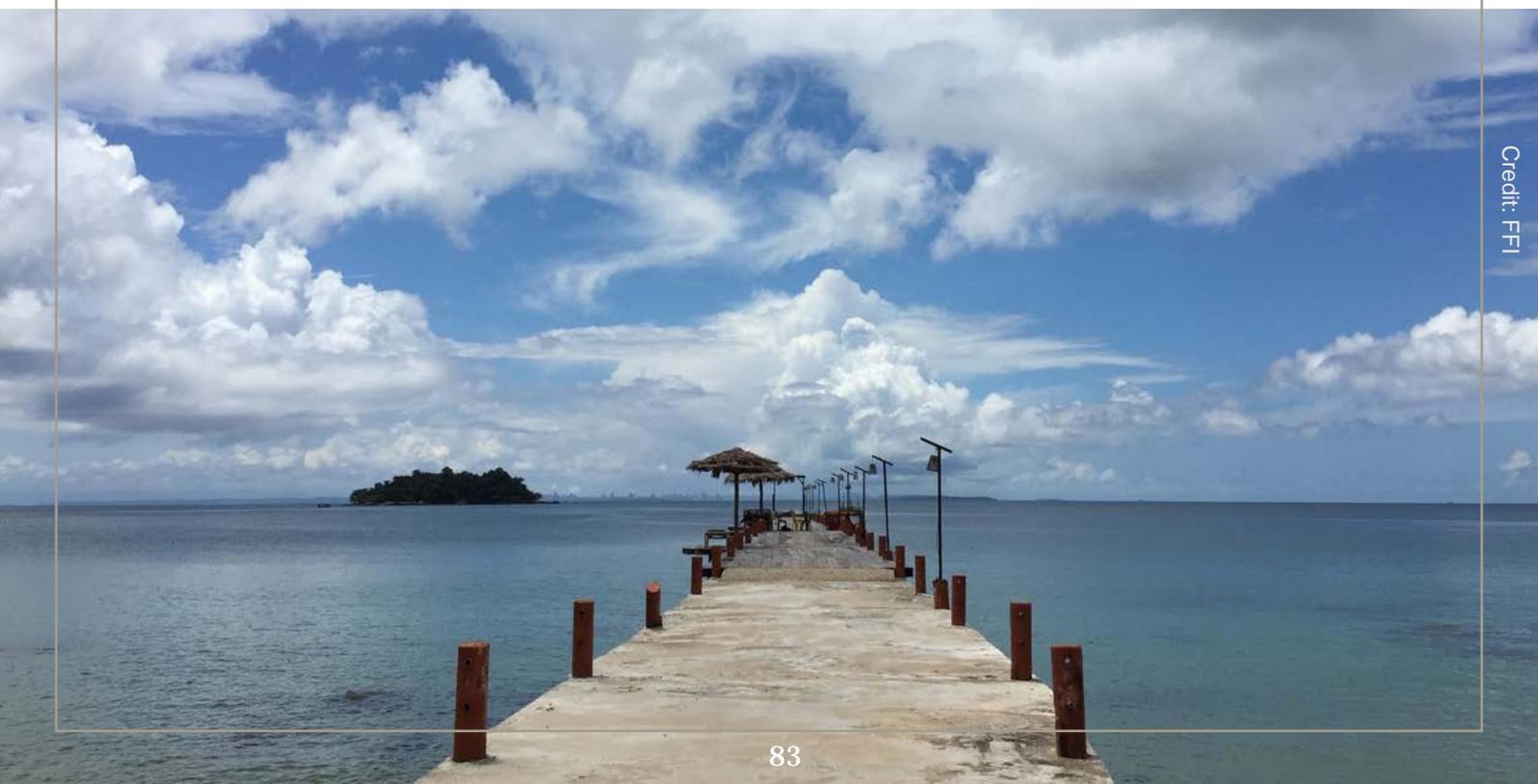
Over the years, FFI's support has involved financial assistance that helped to underpin the organisation's early development (through Halcyon Land & Sea - see separate report), in-kind support (mentoring on

organisational development, governance, fundraising and recruitment) and the secondment of a marine specialist to BLUE to build in-house technical skills and underpin the strategic development of its programme of work. We also worked with them to develop a joint project in Belize (see above). FFI continues to support BLUE through membership on its board.

BLUE is now a thriving marine NGO with a 24-strong team in place and is increasingly recognised as an effective organisation that achieves results. BLUE has stated that support from FFI (including funding from Halcyon Land & Sea) was vital to lay the foundations for the growth of the organisation.

INDONESIA: Catalysing partnerships for marine conservation in Bali

Bali has some of the highest coral diversity in the world, abundant fish populations and rich mangroves and seagrasses, all of which are under significant pressure from tourism, coastal development, intense trade in marine ornamental species, and destructive fishing practices. Between 2012 and 2013, FFI undertook an assessment of conservation needs in northern Bali, and developed partnerships with two local NGOs. FFI provided these NGOs with support and training and help with the development of their strategic plans and long-term financial strategy. Following this, a review indicated that further support from FFI was not required.



PREVIOUS SCOPING PROJECTS

Cuba: Supporting marine conservation efforts

Cuba's waters support rich and, in many places, largely pristine marine and coastal ecosystems. In 2015, growing liberalisation and changes in Cuban-U.S. relationships posed a risk that the tourism and fisheries sectors could open up, potentially increasing damage to marine and coastal resources. FFI undertook an initial scoping exercise to identify potential partners and projects in Cuba, but the uncertain political, social and economic situation precluded further project development.

Croatia: Exploring opportunities

FFI explored opportunities for marine projects and partnerships in Croatia in 2013. Despite interest from environmental agencies, the significant political restructuring and legislative changes associated with accession to the European Union at that time meant that further project development was not feasible.

Indonesia: Ridge-to-reef conservation on Halmahera

Weda Bay in Halmahera supports both rich marine biodiversity and local community livelihoods. Although a priority site for MPA development, the Indonesian Government lacked funding to address this. In 2015, FFI took up the opportunity to help develop this MPA, using experience gathered through the project in Aceh. However, limited partnerships with local groups and an emerging threat from mining created substantial uncertainty about how effective any intervention could be in this context, and the decision was made not to proceed with this project.



Turtle tracks on the beach. Credit: Jeremy Holden/FFI

Annex 3: Summary of Publications and Communications

OPEN ACCESS PUBLICATIONS

The following is a list of open-access publications that were either directly published by FFI/its partners on the marine programme or were published by others about marine conservation work funded by Arcadia. This list includes both peer-reviewed and grey literature (publications are marked (*) if they are peer-reviewed).

This list only includes new (published in 2021) or previously unreported publications.

- Briefly (2021). [Coastal areas important for seabirds feeding in pelagic environments](#). Oryx, 55(5), 643-648*. [A summary of paper: Correia, E., Catry, P., Sinclair, F. dos Santos, Y., Robalo, J., Lima, C. & Granadeiro, J.P. (2021). Foraging behaviour and diet of Brown boobies *Sula leucogaster* from Tinhosas Islands, Gulf of Guinea. Mar Biol, 168, 91].
- Fauna & Flora International (2021). [A Case Study of Demonstration & Research Marine Protected Area development in Scotland](#). FFI: Cambridge.
- Slade, L. (2021). [Conservation with coastal communities in the Pemba Channel](#). The WIOMSA Magazine, 14, 14-17.
- Sour, K., Steadman, D. & Duffy, H. (2021). [Cambodia Community Fisheries: Complex History, Hopeful Future](#). Samudra Report, 85.
- Steadman, D., Thomas, J.B., Villanueva, V.R., Lewis, F., Pauly, D., Palomares, M.L.D., Bailly, N., Levine, M., Virdin, J., Roccliffe, S. & Collinson, T. (2021). [New perspectives on an old fishing practice: Scale, context and impacts of bottom trawling](#). FFI: Cambridge.
- Steadman, D. (2021). [Evaluating inclusive marine conservation at scale in northern Honduras](#). Oryx Blog.
- Steadman, D. (2021). [Towards ecological and social impact through collaborative governance of a seascape of marine protected areas in Honduras](#). Oryx, 55(4), 507-518.*
- Steadman, D. (2021). [What is Destructive Fishing?](#) Samudra Report, 85.



OTHER COMMUNICATION OUTPUTS IN 2020

FFI WEBSITE NEWS ARTICLES AND BLOGS RELATING TO OUR MARINE PROGRAMME

- Annkathrin Sharp. (2021, January 26). [Raising ambition: UK can lead plastics shift in a post-Covid world](#)
- Dan Steadman. (2021, March 18). [Why bottom trawling affects the entire planet, not just the seabed](#)
- Tim Knight. (2021, March 21). [Multitalented mangroves – Spotlight on the trees that could save us all](#)
- Dan Steadman. (2021, April 6). [Seaspiracy – Let's not lose sight of the urgent message behind the flawed arguments](#)
- Tim Knight. (2021, June 8). [Hands up if you think it's time to stop abusing our oceans?](#)
- Tim Knight. (2021, June 28). [Root and branch reform – Protecting and restoring the world's mangrove forests](#)
- Tanya Cox. (2021, July 2023). [Trailblazing standard set to tackle plastic pellet pollution](#)
- Pippa Howard. (2021, September 1). [Out of our depth? Why deep-sea mining is not the answer to the climate crisis](#)
- Tim Knight. (2021, September 15). [One step closer to a global moratorium on deep-sea mining](#)
- Tim Knight. (2021, October 11). [Listen to local voices – A message from Scotland's coastal communities](#)
- Tim Knight (2021, November 26). [Why Anguilla's protected areas are no longer in danger of missing the boat.](#)
- Dan Steadman (2021, December 9). [Bottom trawling: Report highlights urgent need to solve an age-old problem.](#)

COVERAGE IN OTHER OUTLETS

- British Retail Consortium (2021, July 27). [NEW STANDARD HELPS COMPANIES ELIMINATE PLASTIC PELLET LOSS FROM SUPPLY CHAINS.](#)
- CoopSoliDaR (2021, February 10). [Conservación con la gente del mar: Avance y retos hacia el futuro.](#) [YouTube video highlighting the success and challenges of FFI's partner CoopSoliDaR in supporting small-scale fishers in Costa Rica]
- Express (2021, December 9). [EU shamed in new fishing report that exposes shocking impact of bloc's supertrawlers.](#)
- Guardian (2021, November 29) [Nurdles: the worst toxic waste you've probably never heard of](#)
- La Vanguardia (2021, December 9). [Informe sitúa a España en puesto 10 en emisiones CO2 por pesca de arrastre.](#) [Article references the bottom trawling report]
- Tribun Jakarta (2021, October 6). [Terpantau Pertama Kali Dara Laut dari Alaska di Perairan Cagar Alam Laut Kepulauan Karimata.](#) [Article references the marine monitoring activities completed by FFI in Karimata]
- UN Environment Programme (2021, December). [7 conservation projects win grants for underwater innovation.](#)

CONFERENCE PRESENTATIONS

- A'an [plus Panglima Laot fisher]. Fisher Voices on Covid: Session 1. SSF Hub, 15 September, 2021.
- Cagdas Yasar. Community-led marine conservation in Turkey. SMART Marine Webinar: Implementing SMART in the Marine Environment. 25 May 2021.
- Daniel Steadman & Jessica Walker. What is "destructive fishing"? Using consensus-based expert review to define a key fisheries and conservation policy term. World Fisheries Congress, 20-24 September 2021.
- Filippo Carli, Henry Duffy, Phallin Chea, Ratna Ningsih, Sophie Benbow & Youvan Teuku. SSF management and governance in Southeast Asia. Too Big To Ignore SSF Open House, online, 2-8 June 2021.
- Hazel Akester, Tanguy Nicolas & Youvan Teuku. Strengthening small-scale fisheries supply chains through Participatory Market Systems Development. World Fisheries Congress, 20-24 September 2021.
- Maria Arteaga & Martiza. Fisher Voices on Covid: Session 2. SSF Hub, 16 November 2021.

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