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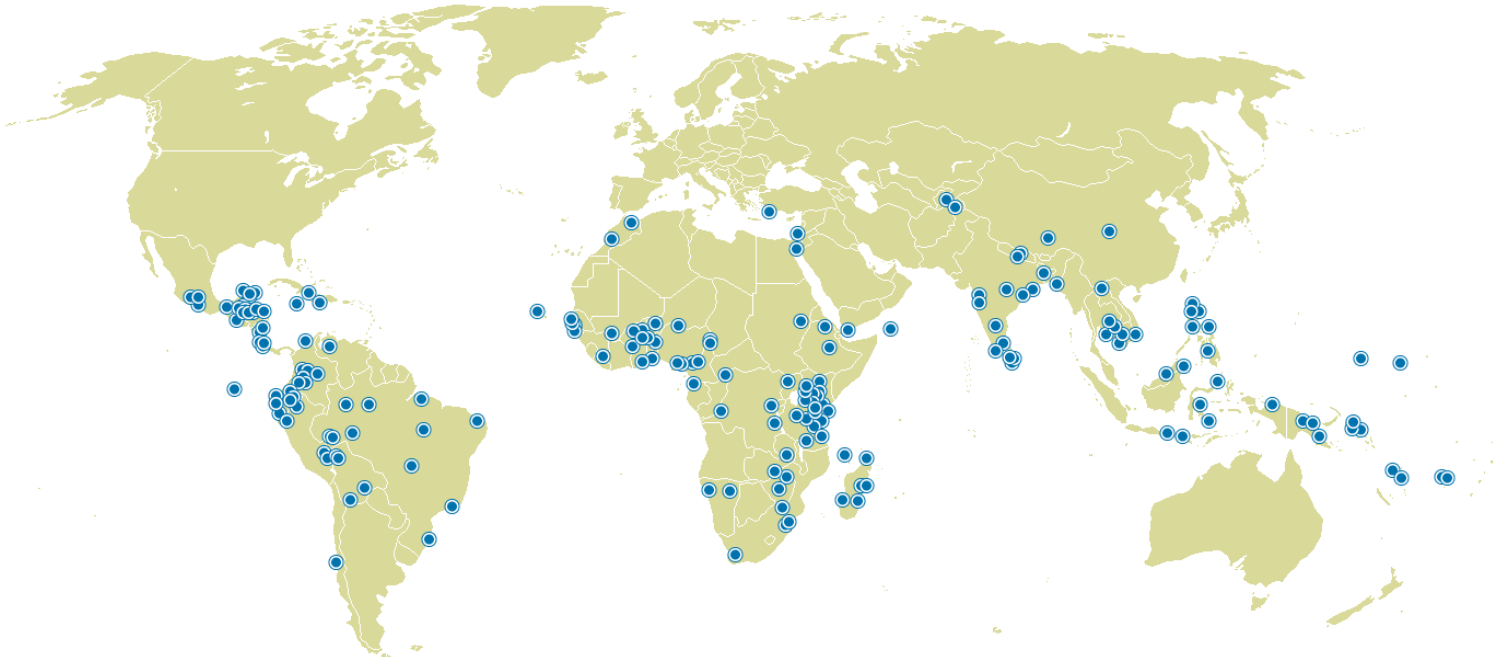
UNDP EQUATOR INITIATIVE CASE STUDY SERIES

Local and indigenous communities across the world are advancing innovative sustainable development solutions that work for people and for nature. Few publications or case studies tell the full story of how such initiatives evolve, the breadth of their impacts, or how they change over time. Fewer still have undertaken to tell these stories with community practitioners themselves guiding the narrative. The Equator Initiative aims to fill that gap.

The Equator Prize 2014 was awarded to 35 outstanding local community and indigenous peoples initiatives working to meet climate and development challenges through the conservation and sustainable use of nature. Selected from 1,234 nomination from across 121 countries, the winners were recognized for their achievements at a prize ceremony held in conjunction with the UN Secretary General's Climate Summit and the World Conference on Indigenous Peoples in New York City. Special emphasis was placed on forest and ecosystem restoration, food security and agriculture, and water and ocean management. The following case study is one in a growing series that describes vetted and peer-reviewed best practices intended to inspire the policy dialogue needed to take local success to scale, to improve the global knowledge base on local environment and development solutions, and to serve as models for replication. Case studies are best viewed and understood with reference to *The Power of Local Action: Lessons from 10 Years of the Equator Prize*, a compendium of lessons learned and policy guidance that draws from the case material.



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PROJECT SUMMARY

Developed in response to marine ecosystem degradation, declining fish diversity and abundance, and associated losses to fishermen's and fisherwomen's incomes, the Mediterranean Conservation Society, or *Akdeniz Koruma Derneği* in Turkish, has created a network of 'no-take zones' that put local fishing communities at the lead of marine biodiversity conservation. Focusing on the southern Mediterranean coast of Turkey, the organization is effectively communicating the value of sustainable fishing techniques to ensure the long-term viability of the local fishing industry. Community-based enforcement strategies are complemented by cooperation with regional and national authorities and scientific studies to monitor ecosystem health. Fish stocks have grown dramatically, as have the average incomes of cooperative members. Monitoring activities confirm rejuvenated marine species diversity and abundance in the bay, which is an important nursing ground for diverse endangered marine species, including Mediterranean monk seals and sandbar sharks.

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KEY FACTS

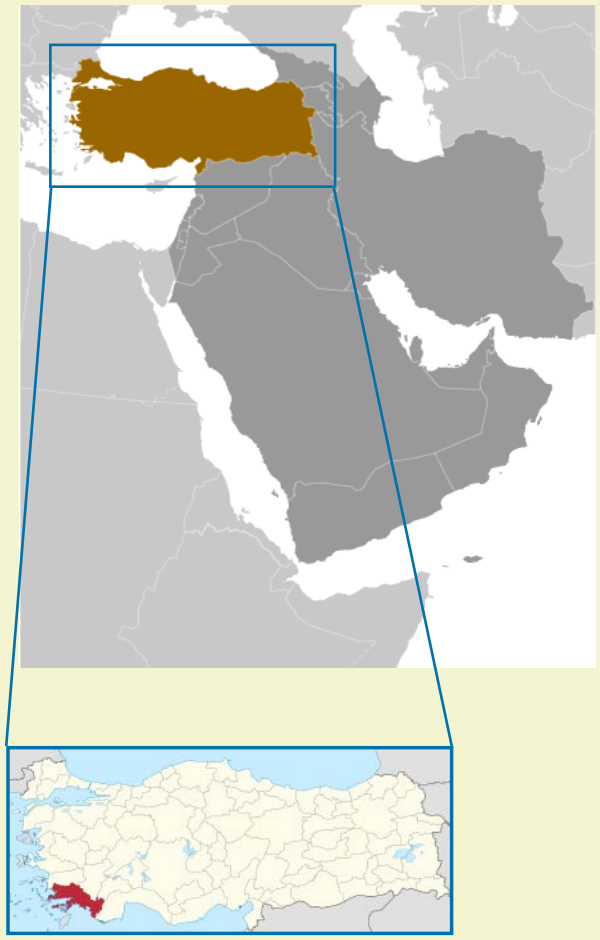
EQUATOR PRIZE WINNER: 2014

FOUNDED: 2012

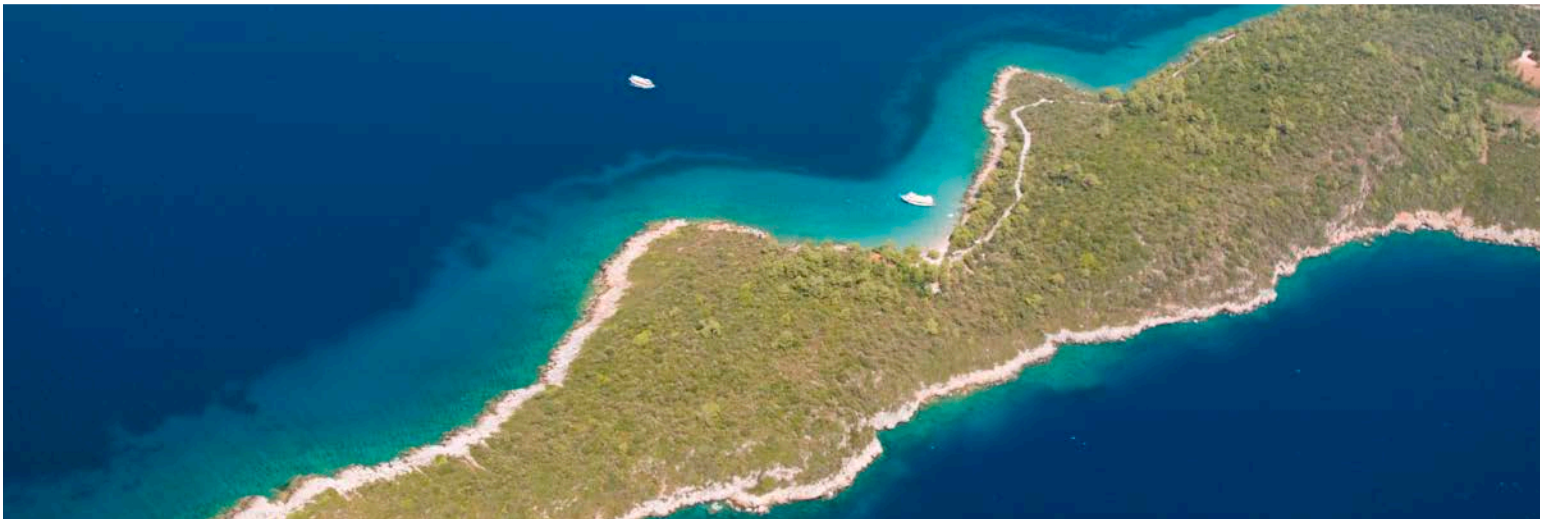
LOCATION: Gökova Bay, Turkey

BENEFICIARIES: Over 200 fishermen and 80 fisherwomen in Gökova Bay

AREA OF FOCUS: Community-managed marine conservation and sustainable fisheries



Background and Context



Marine biodiversity and Gökova Bay

Gökova Bay is located on the southern Mediterranean coast of Turkey in the 'Mediterranean Basin' global biodiversity hotspot, and in the WWF Global 200 ecoregion. A designated marine protected area, Gökova Bay is also one of Turkey's 305 Key Biodiversity Areas, targeted as a network of core breeding and resting sites for rare and threatened species. Gökova Bay is one of the most spectacular marine-scapes in the Aegean Sea. The turquoise waters of the 45-mile long bay make the area a hotspot for sailing and tourism. Gökova's habitats include extensive beds of the endemic Mediterranean seagrass (*Posidonia oceanica*) that provide refuge to and feeding grounds for commercially important fish species; they also serve as a critical habitat for the endemic giant wing-shell (*Pinna nobilis*). Approximately 73 percent of all fish species recorded in Turkish waters can be found in this bay, including the endangered dusky grouper (*Epinephelus marginatus*), giant devil ray (*Mobula mobular*), and bottlenose skate (*Rostroraja alba*), as well as the critically endangered sawback angel shark (*Squatina aculeate*) and smoothback angel shark (*Squatina oculata*). Gökova's Boncuk Cove is also the only known nursing ground for the Mediterranean population of endangered sandbar sharks (*Carcharhinus plumbeus*) and a feeding and nursing site for the endangered Mediterranean monk seal (*Monachus monachus*).

Because of its unique marine and terrestrial biodiversity, selected marine and terrestrial areas of Gökova Bay were declared a special environmental protection area (SEPA) in 1988, meaning that no development has been allowed in the coastal basin in an attempt to protect the marine habitat and biodiversity. The vast majority of the coastal belt is state-owned, with only a few coastal villages retaining community-based property rights. On the terrestrial side, the entire coastline is covered by red pine forests, also state owned, which are governed by strict regulations on extraction and resource access. Marine resources, however, are covered by no such regulations. The coastal waters were, until the creation of no-take zones, subject to open access fishing, which created a recipe for overexploitation and illegal fishing.

Threats to the small-scale fishing industry

Along with the seasonal tourism industry, fishing is the primary employment sector in Gökova Bay. Local fishing resources had been in steady and serious decline over recent decades, with fishing communities suffering significant income loss. Part of this decline can be traced to overfishing and illegal fishing practices that put unsustainable pressure on marine ecosystems. At the same time, climate change has altered ecosystem function and balance, and has facilitated the introduction of invasive alien species. The rivulated rabbitfish (*Siganus rivulatus*), squaretail rabbitfish (*Siganus luridus*), and spotted roughback blowfish (*Lagocephalus sceleratus*), for

example, have migrated into the region, negatively impacting the ecosystem by preying on important commercial species, damaging fishing gear, and limiting the productivity of the local fishing sector. Recent studies on the composition and health of Mediterranean marine ecosystems confirm the impact of these stresses, showing fish biomass in Gökova to be the lowest out of all areas surveyed on the Mediterranean coast.

Although small-scale fisherfolk are not the main drivers of overfishing and environmental decline, they are significantly affected by these ecosystem declines. There are three fishing cooperatives in Gökova Bay, which collectively operate approximately 100 small fishing vessels. These fisherfolk use traditional and small-scale fishing gear such as long-lines and gillnets to fish throughout the year. Before the inception of Mediterranean Conservation Society, no fishing quotas were in place, there were very few regulations on gear or catch sizes, and no seasonal closures were in place to safeguard and allow for the rejuvenation of certain species. Critically, there were also no regulations in place to manage the proliferation of large-scale, commercial fishing boats and trawlers in the bay. Open access to the bay's fisheries created a free-for-all that damaged the livelihoods of local fisherfolk and, in combination with climate change associated changes in species function, eroded the ability of marine ecosystems to function. As one example, two staples of the local fishing economy, golden grouper (*Epinephelus costae*) and caramote prawn (*Melicertus kerathurus*), accounted respectively for 32 and 10 percent of fishing incomes in 2006. In the 2009-2010 fishing season, those numbers dropped to 10 percent and 0.02 percent, with the caramote prawn almost disappearing completely from the bay's ecosystem.

Developing a network of marine protected areas through the use of 'no-take zones'

It became clear to local stakeholders that existing fisheries management strategies and approaches were not sufficient to protect marine biodiversity or to ensure long-term sustainability in local marine fisheries. Defined steps needed to be taken. Mediterranean Conservation Society, known as Akdeniz Koruma Derneği in Turkish, thus emerged as a locally grounded organization engaging with both local knowledge and scientific data to develop ideas for conservation and poverty reduction in Gökova Bay. The primary objective of the organization's work has been to institute and enforce a series of interconnected 'no-take' zones – in which fishing of any type is prohibited – in order to complement existing SEPA marine protected areas in the bay. This program is orchestrated through a marine guard program that puts small-scale fisherman at the forefront of monitoring compliance. At the core of this approach is a participatory marine resource management model that engages a wide range of stakeholders in monitoring, evaluation, and program design. This model also ensures that local fisherfolk are highly engaged with the ownership and management of the process.

The organization has worked with the government to formally register the program in order to legitimize and amplify the reach of community-based surveillance and patrol activities through support from the national authorities. Although community rangers cannot fine other actors for committing an illegal activity, they can record any incident by camera and report it to the Coast Guard. Equipped with this information – photo and video evidence – the Coast Guard can then take legal action against transgressors. In some cases, local officers from the Directorate General of Fisheries and Aquaculture have joined community rangers during their patrols to bolster the alliance between government and community members. This cooperation with government authorities has dramatically improved communication, monitoring, and, in turn, enforcement.

Mediterranean Conservation Society has supported these community-based enforcement strategies in order to protect and restore marine ecosystems. The approach has been highly successful, with more than 2,400 hectares of sensitive marine habitat protected in either marine protected areas, which allow fishing but limit development, or in no-take zones, which forbid all fishing. Although marine protected areas offer opportunities for ecosystem protection, no-take zones are critical to fully restoring marine ecosystem function after years of overfishing. No-take zones in the Mediterranean, however, currently account for less than one percent of total marine area. The organization envisions raising that number to 20 percent through a combination of local empowerment and community capacity building. The organization maintains the highest level of respect and reverence for small-scale fisherfolk, who have accumulated generations of knowledge about local fishing conditions that enable them to best understand how to navigate the human-nature interactions in Gökova Bay. It is this integration of traditional knowledge with multi-stakeholder partnerships and enforcement mechanisms that enables Mediterranean Conservation Society to serve as a model for other marine areas around the world.

Governance and institutional structure

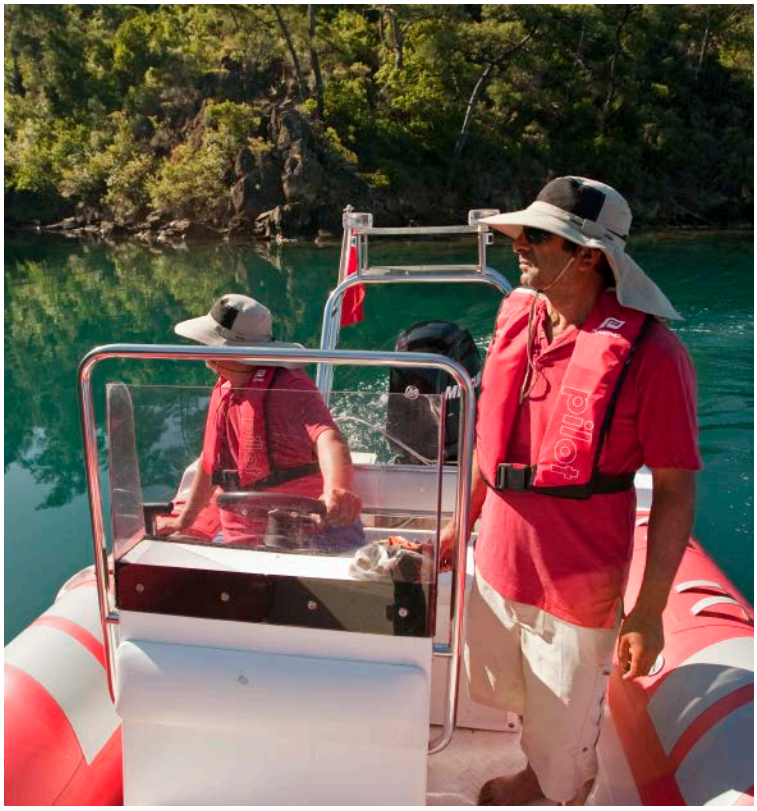
Mediterranean Conservation Society is ultimately governed by a General Assembly that is composed of all members of the organization, including local fisherfolk and founders. The General Assembly meets every two years, providing an open space for members to discuss and critique the organization's specific activities and overall direction in fisheries management, marine conservation, and socioeconomic development. The General Assembly serves as a platform to discuss constitutional changes to the organization's charter, to review the projects and results since the last General Assembly meeting, to review and approve the budget, and to elect a new board of directors. Mediterranean Conservation Society's five-member board of directors is charged with the day-to-day operations of the organization, including management of working groups, specific projects, and budget issues. The board meets once a month to stay abreast of the organization's work, and relies on a stable advisory cohort of lawyers, financial advisors, and other technical experts. The organization does not employ any permanent salaried staff; project staff are paid according to the nature of their projects. As a rule, the organization spends at least 80 percent of funds on project implementation. Scholarships are given annually to two students who support project implementation. The organization also employs two full-time and two part-time rangers.

Key Activities and Innovation

This project is among the first bottom-up decision-making initiatives for the management of natural resources in Turkey. Small-scale fisherfolk are positioned as key stakeholders in the conservation of marine biodiversity, the enforcement of no-take zones, and the transformation of fishing practices and behaviors of the most active 'sea users' in order to protect marine ecosystems and to ensure the long-term viability of the local fisheries sector. Local fisherfolk have been empowered to monitor and report illegal fishing activities to government authorities, closing the loop between local knowledge and enforcement authority. Local communities and national authorities are working in full cooperation and sharing innovative ideas on how to further improve the sustainable management of local fisheries. Training in scientific data collection and monitoring has equipped local fisherfolk with the toolbox needed to track fish biomass within no-take zones over time and to accurately assess the effectiveness of the organization's interventions. Parallel projects work to rehabilitate marine environments damaged by abandoned fishing nets, to develop alternative livelihoods through 'pesca tourismo', to monitor and protect the habitats of endangered Mediterranean monk seal and sandbar shark habitats, to assess the impact of recreational fishing and invasive species on local marine ecosystems, and to increase the consumption of invasive commercial species .

Promoting community-centered marine conservation

The central activity of Mediterranean Conservation Society is to promote community-centered conservation of marine and coastal ecosystems in Gökova Bay. In order to establish the interconnected series of no-take zones throughout Gökova Bay that are the centrepiece of the organization's conservation efforts, the society conducted a careful review of scientific data and fishing cooperative records in partnership with local community members. No-take zones were established only after ensuring consensus on number and location by local resource users. Establishing the no-take zones, however, was only the beginning of the organization's work; no-take zones cannot be viable without concerted work towards awareness raising and enforcement. The organization provides marine guard training modules that integrate a combination of theoretical knowledge and practical training in order to build capacity of local communities to enforce and monitor designated no-take zones. Trainings span topics that range from protected area patrolling to boat safety, from marine biodiversity assessments to public awareness raising strategies. Local fishing cooperatives choose the trainees for the program, selecting experienced fisherfolk with the most intimate knowledge of the fishing grounds and illegal activities that need to be addressed.



A central part of this enforcement campaign has been raising local awareness about the location and importance of no-take zones. In collaboration with marine guard units, the organization has set up 20 prominent signboards in the no-take zones, with detailed information about no-take zone boundaries and conservation status. All entry points to no-take zones have likewise been marked with sign poles to raise awareness among community members and amateur fisherfolk. The organization also produced and disseminated 'Codes of Good Practice' to all local resource users, detailing proper conduct in and around no-take zones. Awareness raising is complemented by rigorous enforcement with marine guard units actively surveying no-take zones thrice daily to monitor activity and apprehend any violators. Mediterranean Conservation Society has provided a framework and methodology for establishing community-based enforcement strategies and empowering local fisherfolk to lead cooperation efforts with the support of all other stakeholders, including government. This approach provides a high level of community ownership over the enforcement and benefits of the no-take zones.

Transitioning away from damaging fishing practices

In addition to enforcement and patrolling efforts, Mediterranean Conservation Society works with the local population in Gökova Bay to clean up 'ghost nets', which are fishing nets that have been discarded and left behind in the coastal waters, causing serious environmental damage to local marine life. In the process, the organization raises local awareness about the damage caused by ghost nets as well as related issues of ecosystem stewardship and restoration. The initiative has proven to be a particularly powerful platform on which to strengthen communication among fisherfolk and other local authorities and departments. In just one effort towards marine restoration, the group has cleared ghost nets and long lines from more than 5,000 square meters of coastal waters. Awareness of the issues caused by lost fishing gear has also increased, and an active network including a range of stakeholders – such as fisherfolk, divers, and recreational snorkelers – has been formed in order to report lost fishing gear and coordinate response efforts. The organization reports that 'countless' fish and invertebrate species have been rescued from ghost nets and long lines through these efforts.

'Pesca Tourismo': Balancing ecotourism and marine conservation

In addition to supporting community-based conservation, Mediterranean Conservation Society takes an active role in work to support alternative livelihoods through community-driven ecotourism in Gökova Bay. The goal is to make the traditional fishing practices

of small-scale fisherfolk a tourism experience in and of itself, by providing visitors a first-hand experience of how the local population engages in sustainable fishing and marine resource conservation. The initiative puts local culture and traditional knowledge at the very heart of tourism. By doing so, the Mediterranean Conservation Society hopes that additional income from 'pesca tourismo' will decrease pressure on local fish resources and bolster the community-based approach favoured in the bay. In addition to raising incomes, the initiative aims to raise awareness amongst not just tourists, but also the local population writ large, demonstrating that the community-based approach is novel, is of interest to others, and is of value. The organization has run trial tours, engaged in marketing agreements with regional tourism operators, and provided training to 15 community members in ecotourism guiding.

Scientifically assessing species composition in and around no-take zones

To measure the impact of the organization's activities, Mediterranean Conservation Society has built connections between scientific researchers and local fisherfolk to facilitate improved monitoring of marine biodiversity. These diverse stakeholders have collaboratively developed a more rigorous and comprehensive reporting system for local fishing cooperatives. Because local fisherfolk spend more than 300 days a year on the water, they are often best positioned to observe changes in fish stocks, in catch sizes, and in marine resource and species abundance. By combining this local knowledge of the ecosystem with scientific sampling techniques, the group is able to provide quantitative data that demonstrates the effectiveness of their efforts. In the English Bay no-take zone, for example, sightings of the golden grouper (*Ephinephelus costae*), which constitutes a large percentage of local fishing community income, increased 34 times between 2008 and 2014. Sightings of the same species increased eight times within one kilometer outside the no-take zone, proving a positive spillover effect from the no-take zones into nearby areas over a relatively short period of time. Through this system, fisherfolk have also reported frequent turtle sightings in the no-take zones, which marks the first appearance of turtles in more than 30 years. Sandbar sharks have likewise been noted in larger numbers, including baby sharks, suggesting the bay is once again serving as a nursing ground for this endangered shark species.

Mapping the impacts of recreational fishing in Gökova Bay

The group also works with local fisherfolk to measure the impact of recreational fishing in the Gökova Bay marine protected areas. The objective is to better understand the general profile of recreational fisherfolk in Gökova Bay, with a view to gauging what regulations are needed to limit their impact on local fish populations. The organization measures the total catch size of the recreational fishing sector and the impacts this has on fish stocks in the marine protected areas. By mapping the number of recreational fisherfolk and the number of fish they catch, the group has been able to carry out risk assessments and propose regulations that balance the needs of the local economy with the integrity and functioning of the marine ecosystem. These numbers have been shared with relevant government authorities in order to ensure compliance with catch size limits and to build inclusive management plans. The mapping of recreational fisherfolk has also served to improve awareness about no-take zones, ecologically sensitive areas, and threatened species.

Monitoring and marketing invasive alien species

With rising surface temperatures over the last twenty years, the eastern Mediterranean has become increasingly hospitable to the growth, reproduction, and survival of tropical species. This has led to an increasing migration of numerous invasive marine species to the area, with profound effects on the local ecosystem and on the fisheries sector. Among the most devastating invasive species to both fisheries and habitats is the aggressive predatory spotted roughback blowfish (*Lagocephalus sceleratus*). The species was first recorded in Gökova Bay in 2003, and, after a very short period, established a population that is colonizing new territories of the eastern Mediterranean at a relatively rapid rate.

L. sceleratus is a carnivorous species that feeds on crustaceans, including prawns, during their juvenile phase and then shifts to a mollusk diet with maturity and increasing size. It is one of the largest members of its family, reaching 110 cm and 7 kg. These characteristics mean that the invasive both threatens local crustacean and mollusk populations and that it can destroy fishing nets, with large-scale impacts on local livelihoods and quality of life. Only two years after L. sceleratus was first reported in Gökova Bay – and for the first time in the Mediterranean – the prawn fishery, which had previously been the backbone of the Gökova Bay fishing economy, completely collapsed. Similarly, in 2008, landing values of octopus dropped to negligible rates. According to a study assessing the economic impact of L. sceleratus populations in Gökova Bay on fisherfolk incomes, L. sceleratus costs fisherman using long lines US$1,302 annually and fisherfolk using trammel nets US$1,616 per year.

As an additional hazard, the fish bio-concentrates tetrodotoxin (TTX), a potent poison that makes the fish unmarketable and poses a great risk to human health if consumed. Research reveals that TTX is taken up through the food chain, however the exact chain of bioaccumulation remains unknown. Scientists believe that certain bacteria are the primary source of the toxin, with predators such as L. sceleratus ultimately accumulating the chemical in high concentrations.

In response to this threat, the Mediterranean Conservation Society works to monitor the negative impacts of L. sceleratus in marine protected areas. The goal has been to investigate the population dynamics and biology of L. sceleratus and to evaluate its impacts on local fish stocks. The project team has also been working to isolate TTX from samples gathered in the Gökova Bay marine protected area. Special efforts have been made to investigate the seasonal TTX concentrations of the invasive species – which vary considerably – and to explore the potential economic use of TTX as a pharmaceutical agent. Although damaging in the wild, TTX has high potential for use in the pharmaceutical industry due to its ability to selectively inhibit pain signaling pathways in the nervous system. This, combined with the fact that it is non-addictive, has led several companies to seek to develop it as an alternative to opioids such are morphine to treat severe, chronic pain.

In order to document the effect of L. sceleratus and other invasive species on local fisheries, the Mediterranean Conservation Society draws on the scientific reporting system for local fishing cooperatives, discussed above, to obtain information about invasive species. This data has established that invasive species now constitute more than 40 percent of the total catch of Gökova Bay fisheries. As stopping the spread of invasive species is nearly impossible in a marine environment, and as many of these invasives are edible but unknown in local markets, the Mediterranean Conservation Society has also made significant efforts to promote their consumption and transform their sale into a commercially viable sector of the local fisheries industry. The organization is working to increase public awareness and increase market price of these invasive species, with an overall goal of increasing the value of these species in regional markets by 20 percent over a two-year period. Targets for this project include Randall's threadfin bream (*Nemipterus randalli*), brushtooth lizardfish (*Saurida undosquamis*), marbled spinefoot (*Siganus rivulatus*), and goldband goatfish (*Upeneus moluccensis*). Randall's threadfin bream alone constituted 31 percent of the total catch in 2013.

Impacts

ENVIRONMENTAL IMPACTS

The location of Gökova's no-take zones within the Mediterranean Basin global biodiversity hotspot provides an excellent opportunity to protect many threatened and keystone species of the region. These include Mediterranean seagrass (*Posidonia oceanica*), Mediterranean monk seal (*Monachus monachus*), dusky grouper (*Epinephelus marginatus*), sandbar sharks (*Carcharhinus plumbeus*), loggerhead sea turtle (*Caretta carettai*), and green turtle (*Chelonia mydas*). The positioning of the no-take zones around the bay encourages ecological connectivity between the protected areas. The Mediterranean Conservation Society is involved in the regular evaluation of protected areas using standard protocols, contributing to a Mediterranean-wide monitoring effort initiated by partner organization Mediterranean Protected Areas Network (Med-PAN). Environmental monitoring includes also fish populations, algae, and macro-benthic species. Fish biomass, however, is the single most important indicator for the health of marine protected areas that have previously suffered from overexploitation.

In 2008, research in Gökova Bay suggested fish biomass lower than any other area in the Mediterranean, with less than 4 grams per square meter, and with apex species – important top predators such as groupers (*Epinephelus* spp.) and the common dentex (*Dentex dentex*) that control the ecosystem balance – at less than 1 gram per square meter. A study conducted in 2013, one year after the inception of the no-take zones, demonstrated that total fish abundance had risen 27 percent and that populations of the endangered dusky grouper (*Epinephelus marginatus*) had increased 19 percent in the English Bay and Akyaka no-take zones. An in-depth study instigated by Mediterranean Conservation Society throughout Gökova Bay further demonstrated that between 2013 and 2015, biomass of apex predator fishes increased significantly in several no-take zones, with the English Bay no-take zone demonstrating average biomass nearly 25 times that observed in unprotected sites. This same study additionally showed that the biomass of apex predators increased most dramatically of all species studied, and led to a reduction of invasive herbivorous species. As several scientific studies have showed the negative impact of invasive herbivorous species on overall ecosystem health in the Mediterranean, this increase in apex predator biomass and decrease in invasive herbivorous biomass is a promising signal for ecosystem conservation in the region. Ultimately, these studies demonstrate the positive effects of Mediterranean Conservation Society's interventions on ecosystem health and biodiversity conservation.

Although changes in fish biomass can be reliably tracked within a few years of the instigation of no-take zones, invertebrate and algal communities typically take longer to recover, so monitoring efforts will need document changes in composition of these species over the next five to ten years. To contribute to this goal, Mediterranean Conservation Society began a project in 2015 that uses camera-traps in monk seal breeding caves and in sandbar shark nursing groups within the marine protected area to monitor populations of these charismatic endangered species.

One of the most important impacts of the work of Mediterranean Conservation Society has been increased public awareness around the locations, rules, and benefits of no-take zones. According to the results of a survey performed by the UNDP-implemented GEF Small Grants Programme (SGP) and MCS, 93 percent of the local community is aware of the no-take zones and the Gökova Bay marine protected area. An overwhelming 98 percent of the fishing community believes that no-take zones with proper enforcement are a useful management technique for marine resources. Regular patrols in the no-take zones have resulted in the apprehension of numerous violators. During a four month period in 2012 community marine patrols, in partnership with the Coast Guard, confiscated 12 illegal fish traps, warned 82 amateur fisherfolk that they were attempting to fish in a no-take zone, fined five professional fishing boats, and fined two spear fisherfolk.

Through community marine patrols, the initiative has protected more than 2,400 hectares of territory as no-take zones and marine protected areas. For the first time, there is a viable model of marine conservation backed by legitimate enforcement mechanisms in the bay. This integrated approach to fisheries management, conservation, and enforcement has shifted the tides for both ecological conservation and local livelihoods that directly depend on marine resources.

SOCIOECONOMIC IMPACTS

Local fishing communities – with the support and guidance of Mediterranean Conservation Society – have effectively addressed issues ranging from overfishing to invasive species, all of which had negatively affected local incomes. The initiatives of the Mediterranean Conservation Society have led to positive improvements in local fisheries management, which has meant increases in fish catches and local fisherfolk incomes. Akyaka Fishery Cooperative, the largest in the bay and just one example among many, reports an increase in fishing revenue of over 180 percent following three years of community-based enforcement of no-take zones. This increase is indicative of improvements across other Gökova Bay fishing cooperatives.

Mediterranean Conservation Society has likewise made investments in peer-to-peer learning and knowledge sharing amongst local fisherfolk, as well as identifying best practices from other areas of the

world where small-scale fisherfolk are facing similar challenges and capitalizing on new opportunities. This has been particularly valuable for livelihoods enhancement and diversification strategies to reduce marine resource dependency by developing new skills, and exploring the various opportunities that marine protected areas provide in conservation, tourism, and scientific research. Knowledge sharing workshops have allowed the organization to map local skills, interests, and ideas, which culminated in the initiative of a sustainable marine tourism initiative, 'pesca tourismo', which was piloted in cooperation with the Akyaka Fishery Cooperative and the Directorate General of Fisheries and Aquaculture. The initiative brings in extra money for fisherfolk who serve as guides for tourists on professional fishing trips; at the same time it decreases pressure on fisheries' resources because fisherfolk deploy fewer fishing lines with tourists onboard. By conserving and restoring local ecosystems, Mediterranean Conservation Society has been able to increase local fishing income and support the development of alternative livelihoods, which has led to dramatic increases in overall quality of life.

GENDER IMPACTS

Fisherwomen have traditionally been marginalized and excluded from marine management decisions and cooperative membership in Turkey. A recent study reported that female members comprise less than one percent of fishing cooperatives, despite the fact that one in five fisherfolk is a woman. In Gökova Bay, traditional social roles are maintained in a rigid cultural hierarchy, in which women typically fill gender-based roles in the home. Fisherwomen typically are inducted into the trade either through their husbands, or through rare circumstances such as the loss of children at sea or the inability to bear children. The focus on traditional gender roles in the region has resulted in a lack of consideration of the role and potential contribution of women to fisheries management, as well as lack of material support to fisherwomen from both civil society and government.

Mediterranean Conservation Society is working to change these facts. Recognizing the importance of a collaborative approach to marine management and a gender inclusive stance on improving socioeconomic conditions in the region, the organization initiated a project in 2013 to support over 70 fisherwomen in the Bozburun-Datça Area of Gökova Bay. Mediterranean Conservation Society has linked fisherwomen in this area, who work in predominantly poor and challenging conditions without many forms of social security, and has also provided spaces to discuss challenges such as overfishing and consequent declines in income. This network supports its members to locate and use sustainable, environmentally-friendly fishing gear and to actively participate in cooperative governance of fisheries management. The women have been given training in sustainable fishing, labour rights, women's leadership, and microcredit. The cooperative is notable for its activities and achievements, but perhaps even more noteworthy are its successes as a women's group in a male-dominated, Muslim society. The cooperative has proven to be a unique and empowering platform for local women to express themselves, to engage in dialogue about resource management, and to lead resource governance by advancing solutions that are by women, for women. Many of the women have used their cooperative as a springboard to broader participation in the larger fishing cooperatives that are involved in managing the bay.

Women also make up a majority of the Mediterranean Conservation Society general assembly and the current board of directors, with 62 women out of a total 122 members and three women out of the five-member board of directors. A critical component of the organization's work is collaboration with the scientific research community, which enables Mediterranean Conservation Society to document its impacts on biodiversity and species abundance in the bay. A number of researchers supporting this program are women, including the leader on the program studying the invasive spotted roughback blowfish (*L. lagocephalus*). This intentional focus on advocacy for inclusion of women's voices in all dimensions of the organization's work points to an important shift towards more equitable gender roles in the region.

POLICY IMPACTS

The creation of no-take zones in 2010 that are monitored and enforced by both local communities and the national government has answered urgent needs in the Mediterranean Basin to link policy and practice. This achievement has been amplified by the Mediterranean Conservation Society's successful advocacy campaign to restrict the access of industrial fishing companies and vessels such as purse seiners and trawlers from inner Gökova Bay. Today, more than 150,000 hectares of the Gökova marine protected area ban purse seiner fishing, and more than 260,000 hectares are closed to trawlers.

Despite these unprecedented achievements in the region, there remains an unmet need for a comprehensive fisheries management plan in the bay that will address overfishing, competing fishing interests, and balancing conservation needs with local incomes over the long-term. Fisheries cooperatives of small-scale fishermen and fisherwomen that comprise the Mediterranean Conservation Society strongly support the creation of an integrated management plan for Gökova Bay and have begun to delineate the tenets of such a plan. Given the success of the community guard program and the dividends seen this far from the no-take zones, local fishing cooperatives advocate for community-based management of marine areas. In answer to this call, the European Union has provided funding for Mediterranean Conservation Society to implement European Union Common Fisheries Policies in Gökova Bay. The UN Food and Agricultural Organization's East Mediterranean Project, moreover, has chosen Gökova Bay as the site for an ecosystem-based fisheries management template, a project which includes Mediterranean Conservation Society as a major stakeholder. This represents a clear case where not only are local communities keen on stepping forward to steward and manage Gökova Bay, but this interest is supported by strong data illustrating the efficacy of community-based management and funding from diverse stakeholders. The work of the Mediterranean Conservation Society has built a bridge between community-based conservation and government policy development that previously did not exist; this bridge provides the foundation to address the yet unmet need for a collaborative fisheries management plan in Gökova Bay.

Sustainability and Replication

SUSTAINABILITY

The sustainability of Mediterranean Conservation Society is clear through its seamless work to address environmental, social, economic, and political challenges in an integrated fashion. The approach has led to quantifiable, interconnected impacts across these diverse areas. There has been a substantial improvement in marine biodiversity and ecosystem health, as indicated by increases in fish biomass and species diversity in and around the no-take zones. Increases in fish stocks have translated to economic benefits for local fishermen and fisherwomen, who have greater food security and a greater abundance of fish to take to market. The fact that these benefit streams have come about due to community-based action and a marine guard system run by local fisherfolk has led to social cohesion and a sense of local empowerment. As the success of these interrelated benefit chains becomes increasingly apparent, government policymakers have become more aware of community capacity and are more willing to invest in community-based solutions. The mutually reinforcing benefits begin with proper enforcement and responsible management of marine resources by the people who rely on them most.

This is among the very first initiatives in Turkey to show community leadership in both fisheries management and ecosystem conservation. The use of a bottom-up, co-management strategy has been highly effective at protecting and restoring a degraded ecosystem and improving local incomes in the process. Shirking a historical trend of top-down policymaking and regulations, the initiative is putting local fisherfolk at the forefront of fisheries management.

Mediterranean Conservation Society has also worked to ensure that the initiative has the highest probability of success over the long-term and that there are models in place to create institutional sustainability. The organization's no-take zones are among the most popular sailing and boating destinations in Gökova Bay. The organization is advocating for a marine park access fee, which would require the support of government authorities. With government approval, such a fee could both finance the community ranger system and allow for creation of a conservation fund that could further support a range of activities around monitoring, enforcement, and income diversification in Gökova Bay. By engaging the Ministry of Environment and Urbanization and the General Directorate of Fisheries and Aquaculture, Mediterranean Conservation Society is working both to implement this access fee as well as to advocate for the loftier goal of scaling up the community-based model in Gökova Bay to the national scale in order to create a national community guard certification scheme. In a step towards this goal, the General Directorate of Fisheries and Aquaculture has provided a patrolling boat that will be located in Akyaka, Gökova. Mediterranean Conservation Society will provide training for the Directorate's staff and collaborate on a joint-patrolling scheme in 2016, with the ultimate goal of campaigning for upscaling to a national marine ranger system.

REPLICATION

Since the initiative was launched, Mediterranean Conservation Society has participated in a number of knowledge exchanges in Turkey. The organization has also established good working relationships with local and national media, using press releases, public events, and news briefs in local newspapers and magazines to facilitate public awareness around the impact of ongoing projects. Members regularly present updates from the field in video reports that they post on the Mediterranean Conservation Society website and distribute using social media. The organization also uses photo exhibits to tell the stories of the local fisherfolk. Mediterranean Conservation Society is likewise in the process of creating synergies with other conservation initiatives in the area, including with the UNDP GEF Small Grants Programme and the Turkish Ministry of Environment and Urbanization through a joint project entitled 'Strengthening the Marine Protected Areas Network in Turkey'.

The replicability of Mediterranean Conservation Society's model in marine areas throughout Turkey, and throughout the Mediterranean is readily apparent. The organization has facilitated meetings in Datça Peninsula and Hisarönü Bay to share the successes and challenges of the community guard program in Gökova Bay. These meetings resulted in the creation of four new no-take zones in the Datça area and Hisarönü Bay. Although the no-take zones in Datça and Hisarönü are small compared to Gökova, their inception provides evidence that Mediterranean Conservation Society's model can be successfully initiated in other areas. WWF Turkey has also initiated a similar project in the Kas-Kekova marine protected area, modeled after Mediterranean Conservation Society's work in Gökova Bay. In 2013, an international private estate that holds rights to the single largest piece of coastal land in the Mediterranean likewise contacted the Mediterranean Conservation Society for advice replicating the no-take zone model, providing further evidence of the appeal of the organization's model. The estate, which holds a 10 kilometer section of coastline, would like to create a no-take zone based on Mediterranean Conservation Society's work. If the project goes forward, it will be the largest no-take zone marine protected area in the Mediterranean. The most recent evidence of the initiative's replicability has been the decision of the General Directorate of Fisheries and Aquaculture to replicate the Mediterranean Conservation Society's model of community-based conservation across Turkey, with the active engagement of the organization in the selection of sites and training of stakeholders.

PARTNERS

- ***Fauna and Flora International:*** Fauna and Flora International has supported MCS since its inception. They have provided major sources of funding source for numerous projects, including the Community Marine Rangers program.
- ***Mediterranean Protected Areas Network (Med-PAN):*** Med-PAN is one of the most important marine protected area-related networks in the world. The groups actively works to network among marine protected area managers and scientists in the Mediterranean basin by providing capacity building, project support, exchange trips, and workshops. Med-Pan has provided MCS support for specific projects and for knowledge exchanges with other communities in the region.
- ***Ege University, Faculty of Fisheries:*** Ege University works with MCS to scientifically document the effects of climate change and invasive species on ecosystem composition, as well as the conservation
- ***Akyaka Fisheries Cooperatives:*** The cooperatives supported MCS through resource and knowledge sharing.
- ***GEF Small Grants Programme (GEF SGP):*** GEF SGP provided funds to support the fisherwomen's project in the Bozburun-Datça Area of Gökova Bay and to support Med-PAN.

- ***Whitley Fund for Nature:*** The Whitley Fund provided funding for MCS projects and supported knowledge sharing exchanges.
- ***National Geographic Mission Program:*** National Geographic supported knowledge sharing in the Mediterranean region.
- ***Akçapınar Fisheries Cooperatives:*** The cooperatives provided resource and knowledge sharing to MCS.
- ***General Directorate of Fisheries and Aquaculture:*** The directorate shared resources with MCS.
- ***Ministry of Environment and Urbanization, Nature Protected Areas General Directorate:*** The directorate provided resource and knowledge sharing.
- ***Turkish Gendarme:*** The Turkish Gendarme provided MCS with needed resources.
- ***Coast Guard:*** The Coast Guard collaboratively enforces no-take zones with the Community Marine Rangers.

"It took us twenty years until we managed to agree and finally establish the no-take zones. Neither the sea, nor I, have another twenty years to wait for somebody to make it work, for then it will be too late."

Gökova Bay Fisherman

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