



December 2009



# Galápagos

Newsletter

## Letter from the Field



Dear Friends of the Galápagos:

During the past six months, WWF has worked with partners in Ecuador to achieve two significant results. First, we were honored to sign a Memorandum of Understanding regarding responsible fishing with the Ecuadorian government and fishing sector. The MOU provides the foundation for working together to promote an ecosystem approach to sustainable fisheries management and competitiveness in the fisheries sector.

Key activities included in the MOU focus on supporting the Marine Stewardship Council certification for the mahi-mahi fishery, developing management approaches based on property rights for the use of natural resources, reducing bycatch and eliminating unsustainable fishing practices, implementing traceability processes for marine products, and implementing management and conservation plans for sharks. This agreement will help move fisheries in the Eastern Pacific Ocean toward sustainability. It will also help us respond to urgent problems due to overfishing, climate change and other threats in seas worldwide. We believe that the agreement will contribute to making Ecuador a regional and global example of sustainable fisheries management.

The second big result achieved in the last few months is the implementation of a Vessel Monitoring System (VMS) to reduce illegal activities in the Galápagos Marine Reserve. This included installation of a VMS Command Center – funded by WWF, Conservation International and WildAid, and managed by the park service – at the Galápagos National Park Service office on Santa Cruz Island.

The VMS is now being implemented on tourism, fishing and cargo vessels that are over 20 metric tons and authorized to operate in the reserve. (The WWF Galápagos Program is seeking additional funding to expand the system to vessels of less than 20 metric tons.) The system sends real-time positioning, course and speed data through a satellite link to the Command Center. This information allows the park service and the Ecuadorian Navy to significantly improve monitoring, control and surveillance in the marine reserve. As an immediate result, the efficient use of patrol vessels and aircraft will be optimized.

We hope you are as pleased with these results as we are!

**Lauren Spurrier**  
*Managing Director, Galápagos Program*

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# 1 Progress Made on Human Migration Issue

Eliécer Cruz, M.Sc., Ecoregional Director, WWF Galápagos Program

Human migration is considered one of the main threats to the conservation of the Galápagos Islands because it places increased pressure on natural resources. During the past decade, population growth has reached 6 percent annually. Not only does this growth generate more waste, but it necessitates the importation of more goods from the mainland – with the accompanying risk of introducing more nonnative species. More people also means a higher demand for energy. Meeting that demand requires increased transport of fossil fuels, which raises the risk of oil spills like the one from the tanker *Jessica* in 2001 – spills that threaten the islands' fragile ecosystem.



Although population growth is not the only cause of environmental degradation in the islands, it has profound implications at the environmental and socioeconomic levels. For example, municipalities face increasing challenges as they try to meet the demand for basic services from a constantly growing population. In June 2007, UNESCO added the Galápagos Islands to its List of Endangered World Heritage Sites in consideration of factors such as migration, nonnative species entry, and increased tourism.

In 1998, the government issued the Galápagos Special Law, creating a legal framework for addressing the human migration issue. Nine years later, in August 2007, the president of Ecuador passed the actual migration regulation needed to allow significant progress in the management and control of residency in the islands.



WWF has been working for several years with the Galápagos National Institute (INGALA) to support the Ecuadorian government in establishing a migration regulation for the islands. The main focus of WWF's support has been building the capacity of INGALA, which is the local institution charged with implementing the regulation. WWF has provided INGALA with the assessments and equipment necessary to improving the control system through (1) the issuing of Resident Cards, beginning in 2006, to permanent and temporary legal residents; and (2) the implementation of a Transit Card System to track every person traveling to and from the islands and store that information in a database. A person who stays beyond the 90-day limit is not permitted back on the islands. The transit card is issued when a ticket to the Galápagos is purchased, and a \$10.00 charge is added to each ticket to cover the cost of this system.

Now, in accordance with the new Ecuadorian Constitution approved in September 2008, the development of a new Galápagos law is under way. It is imperative that the new law define a migration policy that can stabilize the islands' population and improve education and training. The law must also define a new tourism management model that reduces incentives to migrate, and a policy that specifies the kinds of investments needed in Galápagos.

## 2 Planning Climate Adaptation for the Galápagos

Irma Larrea, M.A., Senior Program Officer, WWF Galápagos Program

In 2007, a report from the United Nations Environment Programme warned that “the human population is now so large that the amount of resources needed to sustain it exceeds what is available...humanity’s footprint [its environmental demand] is 21.9 hectares per person while the Earth’s biological capacity is, on average, only 15.7 hectares per person....” Climate change is one of the results of this heavy footprint, and its effects are being more strongly felt all the time. In December 2009, in Copenhagen, Denmark, world leaders will meet to reach agreements on facing this global challenge together.



The Galápagos is among the many places in the world already feeling the impacts of climate change. Endemic species such as flightless cormorants and Galápagos penguins showed clear population declines at monitored sites after the last two strong El Niño events, and similar patterns were evident for marine iguanas. Predictions are that climate change will increase sea levels, change ocean temperatures and alter oceanic currents around the islands. Changes in the amount and distribution of rainfall are expected as well. The potential impacts on biodiversity will directly affect local communities, as their livelihoods – primarily tourism, fisheries and agriculture – depend on the health of these natural resources.

WWF and our partners are working to develop adaptation strategies to deal with these impacts. In September 2008, WWF and Conservation International, in cooperation with Ecuador’s Ministry of the Environment and the Galápagos National Park Service, started a vulnerability assessment to gauge the likely impacts of climate change on the marine and terrestrial

ecosystems and the human communities dependent upon them. The assessment also looked at the expected response of given species and ecosystems to those impacts, and the actions needed to ensure the adaptability and resilience of all life on the Galápagos Islands.

In April 2009, WWF helped convene a three-day climate adaptation workshop which brought together experts on the Galápagos marine and terrestrial environments, climate scientists, social scientists, government officials and local stakeholders. Based on analysis of existing data and modeling, and on an understanding of how Galápagos responds to El Niño, the workshop participants worked to determine the likely impacts of climate change on the islands and make preliminary management recommendations. The workshop concluded with an expression of commitment to implementing the workshop recommendations on the part of the Galápagos National Park Service, WWF, CI, the workshop participants and Ecuador’s minister of the environment.



Workshop recommendations included (1) establish a monitoring and early warning system for impacts of climate change in order to improve the quality of generated data; (2) target the protection of critical upwelling zones, coral reefs, sea mounts, mangroves and climate-vulnerable species; (3) strengthen institutions, programs and research initiatives that will minimize the risk of invasive species arriving in the islands and better control established introduced species; (4) decrease the vulnerability of local human communities to climate change through actions such as diversifying livelihoods and economic opportunities through education and access to credit.

# 3 Oil Recycling Program Tackles Serious Waste Issue

Ulf Hardter, Ph.D., Program Officer, Energy & Waste Management, WWF Galápagos Program

The Galápagos Islands are recognized worldwide for their high level of endemism and their pristine marine and terrestrial ecosystems. At the same time, they are home to more than 30,000 people and attract more than 160,000 tourists annually. This has led to an ongoing increase in demand for energy and fuel, and a consequent increase in the amount of waste oil generated – to approximately 60,000 gallons per year.

Until recently, the islands had no organized service to collect and dispose of oil in an environmentally friendly way. This highly toxic waste was dumped on the ground of inhabited islands or spilled into the marine reserve by tour operators, fishermen, car owners and other users who lacked environmental awareness.



The result was an increased risk to public health and damage to the islands' fragile ecosystems. When waste oil is dumped on the ground, it filters through the porous lava rocks and contaminates the scarce underground sweet water resources. When dumped in the sea, it forms a thin toxic layer on the sea's surface, blocking the exchange of oxygen between air and water and inhibiting the photosynthesis of the plankton – two processes essential to the survival of marine wildlife. And because oil spreads only at the surface, even a small oil spill can affect a huge area.



As part of WWF's work to promote sustainable development in Galápagos, we began to address the waste oil issue in 2006 by supporting the creation of an oil recycling project (RELUSAN) on the second most populated island, San Cristobal. This project – funded by Toyota – has been implemented in partnership with a former fisherman who started collecting waste oil for use as fuel in a cement factory on mainland Ecuador. WWF provides on-site technical assistance with the aim of increasing the quantity of waste oil collected on San Cristobal.

Since its beginning, RELUSAN has collected more than 15,000 gallons of waste oil and safely shipped it back to the mainland for responsible reuse. And RELUSAN is the second phase of WWF's oil recycling efforts on the islands: Since 2003 we have been supporting a similar effort on Santa Cruz Island which has resulted in the recycling of 290,000 gallons of oil.

The effort received another boost in April of this year, when WWF and the Municipality of San Cristobal obtained a license from the Ministry of the Environment for the construction and operation of a facility for the RELUSAN project.

# 4 WWF Evaluates Experimental Use of Fish Aggregating Devices

Mauricio Castrejón, M.Sc., Fisheries Consultant, WWF Galápagos Program

In August 2009, WWF completed the final evaluation of the project titled “Experimental Use of Fish Aggregating Devices (FADs) in the Galápagos Marine Reserve (GMR).” The project was conducted in collaboration with artisanal fishermen from the local fishing cooperatives of Santa Cruz Island (COPROPAG), Isabela Island (COPAHISA) and San Cristóbal Island (COPESAN). The project was jointly funded by the Galápagos National Park Service (GNPS), ARAUCARIA XXI and WWF.

The evaluation’s main objective was to determine the economic benefits of catching big pelagic fish such as tuna and swordfish through the use of FADs. These are floating objects used to concentrate the abundance of fish around a specific area. The objectives of the device are to (1) reduce search time, (2) increase the catch probability for the target species, and (3) reduce operational costs per fishing trip.



Between January and July 2008, FADs were deployed close to the coasts of Floreana Island, Isabela Island and San Cristobal Island. Information about catch, fishing effort and variable cost was collected over a one-year period, July 2008 to July 2009.



The results obtained from the evaluation confirmed that the use of FADs in the Galápagos Marine Reserve has generated higher concentrations of species such as yellowfin tuna and swordfish. This was evidenced by catch rates comparatively higher than those reported by previous studies carried out in the Galápagos and in other parts of the world. The evaluation also showed high productivity for big pelagics in the GMR, as well as significant economic benefits for artisanal fishermen who used the FADs. Based on those results, the evaluation recommended the extension of the project for an additional five-year period, with the deployment and monitoring of a higher number of FADs.

Additional recommendations are to (1) deploy new FADs in low current zones close to the coasts of Isabela and Santa Cruz islands; (2) assign an adequate budget for the official creation of a maintenance and monitoring team; (3) establish a systematic monitoring program for the big pelagic fishery in the three main landing ports; (4) design and implement a solid and robust stock assessment method for big pelagic species, including the species that are caught incidentally in this kind of fishery; (5) define in the legal framework the management measures that will regulate the use of FADs in the GMR; and (6) establish cofunding mechanisms to ensure the long-term continuity of the project.

# 5 Using Market Forces to Protect Fishery Resources

Pablo Guerrero, M.Sc., Ecoregional Coordinator/Fisheries, WWF Galápagos Program

The oceans remain under enormous pressure from overfishing by fleets too large to conduct sustainable harvests. With the demand for the products of fishing increasing and most stocks dangerously low, never has there been such urgency for a total transformation in fishing.

WWF believes market-based management is a powerful approach to stopping overcapitalization and the race for fish. It entails shifting fisheries management practices so that the fundamental approach of parties involved becomes one of stewardship, rather than exploitation. When coupled with other management measures, market-based management can help to restore fisheries and achieve their long-term sustainability.

We have invested significant time in building relationships with government officers, fishing industry representatives, exporters and local fishermen. In May 2009, we signed a Memorandum of Understanding with the Ecuadorian Fishing Authority and the private fishing sector, agreeing to help promote sustainable management of Ecuadorian fisheries.

In one case, WWF is working in collaboration with the Marine Stewardship Council (MSC) and the Sustainable Fisheries Partnership to ensure that Wal-Mart achieves their commitment to sell only MSC-certified fresh and frozen seafood in their U.S. stores.



The mahi-mahi fishery in Ecuador has been identified as a key Wal-Mart source fishery. So, with the participation of key stakeholders, WWF is developing and implementing a fishery improvement project. The project goal is to create a road map which will help stakeholders improve fishery management, advancing toward sustainability in the short term and MSC certification in the long term. Potential improvements to the fishery include increased monitoring and enforcement of existing regulations and the completion of research that could contribute to a stock assessment.



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