

Efforts to control illegal fishing activities in the Marine Reserve

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Galapagos National Park

Legal Framework

The Galapagos National Park Service (GNPS) is responsible for the administration and management of the Galapagos Marine Reserve (GMR) and has jurisdiction over the management of its natural resources. It coordinates patrolling activities in the GMR with institutions such as the Ecuadorian Navy, which provides the necessary personnel¹. The Marine Control and Surveillance Unit of the GNPS carries out its activities in collaboration with the Navy within a 40-nautical-mile zone, measured from a baseline that surrounds the main islands and interior waters. This article presents information regarding the marine infrastructure of the GNPS, summarizes the results of interventions of illegal vessels in the GMR since its creation, and evaluates the success of seizures of important resources, such as sea cucumbers, sharks, and shark fins.

GNPS vessels and personnel dedicated to control of the Marine Reserve

The Marine Control and Surveillance Unit of the GNPS possesses three ocean-going vessels for long-range operations, two medium-range vessels, and six speed boats. It also operates two remote bases in the Bolivar Channel and Cartago Bay (Table 1). The vessels are distributed among the Technical Offices of the GNPS and the remote bases. At present, 49 crew members man the vessels; however, 81 are required, leaving a deficit of 32. Marine patrolling is also supported by an air unit – a *SeaWolf* hydroplane.

Despite a good infrastructure for marine patrol and surveillance within the GNPS, there remains a major shortage of crew for the necessary level of patrolling.

Table 1. Vessels employed in the Marine Control and Surveillance Unit of the GNPS.

| Naval/Air Unit | Category | Administrator |
|--------------------------------|-----------------|----------------------|
| M/N Sierra Negra* | Ocean-going | Santa Cruz Office |
| M/N Guadalupe River | Ocean-going | Santa Cruz Office |
| M/N Yoshka | Ocean-going | Santa Cruz Office |
| L/P Sea Mar | Coastal-marine | Santa Cruz Office |
| L/P Araucaria | Coastal-marine | San Cristóbal Office |
| Sea Ranger 1 | Coastal-marine | Canal Bolívar Base |
| Sea Ranger 2 | Coastal-marine | Santa Cruz Office |
| Sea Ranger 3 | Coastal-marine | Santa Cruz Office |
| Sea Ranger 8 | Coastal-marine | San Cristóbal Office |
| Sea Ranger 9 | Coastal-marine | Santa Cruz Office |
| Sea Ranger 10 | Coastal-marine | San Cristóbal Office |
| Sea Ranger 11 | Coastal-marine | Isabela Office |
| Canal Bolívar base | Operations base | Santa Cruz Office |
| Tiburón Martillo floating base | Operations base | Santa Cruz Office |
| Sea Wolf hydroplane | Air | Baltra Airbase |

Note:

* Also carries out logistical and scientific activities.

Source: Marine Control and Surveillance Unit databases, GNPS.

Control of illegal sea cucumber fishing

Pressure by local fishers to open sea cucumber fisheries has had ongoing support and financing from Asian merchants based in continental Ecuador who used a series of operational and technological methods to carry out illegal fishing and smuggling activities. The control of this fishery, both during fishing seasons and in closed seasons, was always complicated, conflictive, and costly.

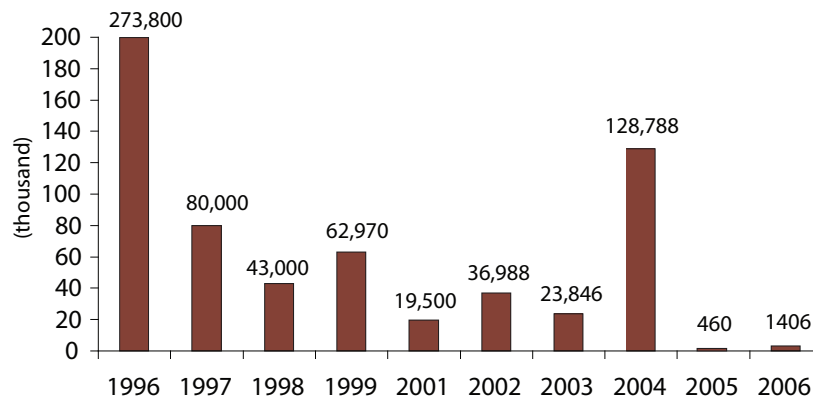
Currently, control operations focus on preventing the illegal harvesting of species of sea cucumber other than *Isostichopus fuscus*, the only species that, to date, can be legally harvested. Operations are carried out on land and at sea, and at probable storage sites.

Illegal fishing of *I. fuscus* has been carried out by members of the fishing cooperatives as well as by

poachers (unlicensed fishers). They process the sea cucumbers in illegal camps, store them at adjacent sites, and then transport them in fiberglass launches to strategic points. From there they are transferred to fishing vessels from the Manta industrial fleet (mainly longliners) and then to the continent where they are sold to Asian countries where this product is consumed. Some fishers also transport small quantities on commercial airlines, and then collect the product once on the continent. In some cases, sea cucumbers have been seized from private homes in the islands.

From 1996 to 2006, the highest number of sea cucumbers seized by the GNPS during a closed season was near 275,000 in 1996 (Fig. 1). The second highest number was in 2004, when almost 130,000 sea cucumbers were seized. In contrast, seizures in recent years declined, totaling 460 in 2005 and 1,406 in 2006.

Figure 1. Seizures of illegally harvested sea cucumber *Isostichopus fuscus* carried out by the GNPS, 1996-2006. No data are available for 2000



Source: Marine Control and Surveillance Unit databases, GNPS.

However, this reduction in seizures may be due to two reasons. Firstly, the collapse of *I. fuscus* populations led to merchants seeking out new areas; some merchants who used to purchase sea cucumbers in Galapagos are now known to buy *Holothuria atra* (another species of sea cucumber) in Nicaragua. Alternatively, over half the GNPS fleet was out of commission in 2006, resulting in a major decrease in patrolling efficiency and a subsequent decrease in seizures.

On the other hand, illegal harvests of another sea cucumber species, *Stichopus horrens*, known locally as “cachudo” (horned), has been detected since 2004, in both the central areas near Santiago and in Cartago Bay in Isabela (Table 2). This illegal fishery began due to the collapse of the *I. fuscus* populations (see the article in this report: “Declining profitability of fisheries in the Galapagos Marine Reserve”).

Recently, the GNPS has detected the illegal harvesting of a third species of sea cucumber, *Holothuria atra*, which is a protected species in the GMR but is fished currently in Nicaragua. The first seizure of this species occurred on 12 January 2007. GNPS personnel and members of the Navy onboard the launch *Speed*, based at the Tiburón Martillo floating base, found an illegal campsite in the south of Isabela, designated "Santa Rosa," with 18,788 specimens of this species. Harvesting this species highlights the decline of the more commercially valuable *I. fuscus* population to the point that the black market for sea cucumbers is now accepting species of lower nutritional and economic value because of their greater abundance in the area.

Table 2. Seizures of illegally harvested *Stichopus horrens* by the GNPS, 2004-06.

| Year | Units |
|--------------|---------------|
| 2004 | 20,448 |
| 2005 | 20,168 |
| 2006 | 33,580 |
| Total | 74,196 |

Source: Marine Control and Surveillance Unit databases, GNPS.

Seizures of shark fins

Between 1989 and 2006 there have been 63 recorded seizures of sharks or shark fins in the GMR, carried out by ocean-going and coastal patrol vessels of the GNPS and Navy (see annex). The confiscated fishing equipment included nets, longlines, and purse seines. Since 1997, 22,727 shark fins and 686 shark bodies of various species have been impounded, resulting in an estimate of at least 5,000 coastal and pelagic sharks harvested in the GMR during the past nine years. These figures

During the last nine years, an estimated 5,000 coastal and pelagic sharks were harvested in the GMR, based only on those that were impounded.

obviously do not include undetected illegal activities. In 2005, the Environmental Justice Foundation estimated that, in some parts of the world, illegal, unregulated, and unreported fishing made up a third of all catches.²

Half of all seizures were carried out directly on vessels intercepted at sea, 19% at landing sites, and 14% at airports and on cargo ships.

Patrolling in the GMR and capture of industrial fishing vessels

In 1996, there were 42 sightings and captures of tuna vessels. In 2001, 20 vessels were captured, 19 of which were industrial fishing boats, with the majority (13) from the port of Manta on mainland Ecuador. Over the last three years however, the number of industrial vessels entering the GMR has declined, due to the increase in patrol vessels, air patrols by the Sea Wolf, and the enforcement of GNPS sanctions, including successfully auctioning off several impounded vessels (Table 3).

In 2002, seven industrial fishing vessels from continental Ecuador (Manta) were captured. The majority of sightings (72%) were off the coast of Española and to the south of Floreana, while 28% were northwest of Santa Cruz and southwest of Fernandina. Nearly all these vessels were equipped with longlines (Table 3). In 2003, three of the seven vessels sighted escaped capture by GNPS launches, either because no members of the Navy were onboard at the time or because they escaped after pursuit by Park vessels. The remaining industrial fishing boats were detained and taken to the closest port to begin administrative actions (Table 4).

Table 3. Tuna fishing and longline vessels observed or captured in the GMR, 1996-2004.

| Year | Tuna Boats | Longliners | Total No. of Sightings |
|------|------------|------------|------------------------|
| 1996 | 42 | | 42 |
| 1997 | 40 | | 40 |
| 1998 | 37 | | 37 |
| 1999 | 3 | 2 | 5 |
| 2000 | 8 | 2 | 10 |
| 2001 | 3 | 17 | 20 |
| 2002 | 1 | 6 | 7 |
| 2003 | 2 | 5 | 7 |
| 2004 | 3 | 9 | 12 |

Source: Marine Control and Surveillance Unit databases, GNPS.

Table 4. Register of industrial vessels that have been captured while fishing in the Galapagos Marine Reserve, 2002-04.

| Name | Port of Origin | Position | Date | Fishing Method | Infraction |
|-------------------------|-----------------|--------------------------|------------|----------------|--------------------|
| B/P Abraham III | Ecuador | S 01° 21' W 091° 31' | 08-mar-02 | Longline | Illegal entry |
| B/P Sarita | Ecuador | S 01° 45' W 090° 07' | 21-mar-02 | Longline | Industrial fishing |
| B/P El Dorado | Ecuador | S 01° 36' W 090° 03' | 31-mar-02 | Purse Seine | Industrial fishing |
| B/P Sergio Gustavo | Ecuador | N 00° 38' W 092° 21' | 30-jul-02 | Longline | Industrial fishing |
| B/P Piliman | Ecuador | S 00° 58' W 089° 58' | 13-aug-02 | Longline | Industrial fishing |
| B/P Siempre Angelito VI | Ecuador | S 01° 51' W 090° 00' | 06-sept-02 | Longline | Illegal entry |
| B/P Adonai IX | Ecuador | S 00° 27' W 092° 21' | 02-oct-02 | Longline | Industrial fishing |
| B/P Don Daniel | Costa Rica | Pinta | 17-jan-03 | Longline | Industrial fishing |
| B/P Don Jhonny | Costa Rica | S 00° 052' W 091° 58' | 06-feb-03 | Longline | Illegal entry |
| F/M Industrial | Ecuador | S 01° 51' W 090° 02' | 19-feb-03 | Longline | Industrial fishing |
| B/P Adonay V | Ecuador | S 01° 40' W 090° 45' | 19-mar-04 | Longline | Industrial fishing |
| Industrial boat | No registration | Caleta Iguana | 26-jun-03 | Longline | Industrial fishing |
| B/P Mirian D | Ecuador | S 01° 59' W 092° 03' | 16-aug-03 | Purse Seine | Illegal entry |
| B/P Angel III | Ecuador | South of Fernandina | 03-oct-04 | Longline | Industrial fishing |
| B/P Don Antonio | Unknown | N 00° 37' W 092° 16' | 17-oct-04 | Purse Seine | Illegal entry |

Source: Marine Control and Surveillance Unit databases, GNPS.

The problem of sanctions

Before the creation of the GMR, fisheries were managed and controlled by the Fisheries Sub-Secretary, with policies and regulations introduced via Administrative Resolutions from that office. Since the creation of the GMR, the Reserve and fisheries have been managed by a participatory system consisting of a Participatory Management Board (PMB) of the users of the GMR, and the Inter-institutional Management Authority (IMA), the highest decision-making body for the GMR, consisting of ministerial delegates. The role of the GNPS in this system is to administer and manage the human uses of the protected areas, including tourism and fishing.

Despite a good infrastructure for marine control and surveillance in the GNPS, there remains a major shortage of crew to operate the vessels. However, since 1997, the institution has been relatively successful in detecting illegal activities related to fishing, both in coastal and pelagic areas. This is worthy of mention, because the law has been applied rigorously regarding industrial vessels, including impoundment and sale of vessels, as in the case of the ADONAY V from Manta, the INDIO from Costa Rica, and several other fiberglass vessels.

Strengthening the legal system, improving coordination of both internal and external mechanisms, and implementing sanctions are all vital to improving the efficiency of fishery control in the GMR.

Even so, this success has not been reflected in the number and type of sanctions imposed against local fishers, which have tended to be very weak. In 2001-02, the average fine for a local fisher was \$214, and officials were unable to collect 48% of the fines issued.³

In 2006, the GNPS hired three lawyers to strengthen its legal department and this decision is beginning to show positive results. Since then, several fishers have received the maximum fine of \$4,000 and their actions have been classified as serious offences in the GNPS Fishing Register. According to Article 36 of the Special Regulations for Artisanal Fishing in the GMR⁴, fishing licenses will not be granted or renewed for any fishers who have three registered offenses classified as serious or very serious.

Steps towards strengthening control

The most alarming fishing practice in the GMR is shark finning. Sharks are protected in GMR waters and are symbols of the marine biodiversity of Galapagos. On a national level, shark finning and the sale and export of shark fins were banned in 2005. However, this law is being questioned in continental Ecuador not only by fishers, but primarily by merchants who continue to finance and encourage this illegal activity.

Finally, it is worth reflecting on measures needed to improve fishery control efficiency in the GMR. Firstly, the GNPS must continue to strengthen its legal department, and must place legal experts at its technical offices on Isabela and San Cristóbal, where over two-thirds of the fishers are based. At the same time, inter-departmental coordination must be strengthened so that legal

experts are fully aware of the most fragile ecosystems and the species that are protected, overexploited, and illegally harvested. This will allow them to demand stronger sanctions against violators and ensure that administrative processes are carried out with greater justice and equity according to the infractions committed.

On the other hand, it is worth mentioning that inter-institutional coordination for the control of the GMR has improved greatly with the arrival of Navy personnel from continental Ecuador to work directly with the Marine Control and Surveillance Unit of the GNPS. It is hoped that this efficient and effective relationship will continue for the good of Galapagos. However, the Ecuadorian Government must be urged to hire more park wardens for the GMR. Additional personnel are desperately needed due to the increase in control and monitoring activities and in the GNPS fleet size over the last five years, during which time crew numbers have been insufficient.

In 2007, the GNPS is slowly putting into operation some of the vessels that were damaged and out of commission in 2006. These added vessels will increase the number of days of patrolling effort and improve the overall efficiency of the GMR control system. It is also important to improve the control and surveillance databases so that marine control efficiency can be properly evaluated. For example, on-going evaluation of indicators, such as the number of infractions detected per distance covered or amount of fuel consumed and park ranger efficiency, are needed. These indicators should be included in the new reports that are being designed as part of the restructuring of the database systems of the Marine Control and Fisheries Monitoring Units in the second half of 2007.

Annex. Sharks and shark products seized in the Galapagos Marine Reserve since 1989.

| Date | Place | Vessel | Fishing Gear | Fins/Sharks |
|------|---------------------------|-------------------|------------------------------|---|
| 1989 | Santa Cruz | S/A | Hooks | Galapagos sharks & fins |
| 1989 | Darwin Bay | S/A | Net | 9 sharks |
| 1989 | Fernandina | Shoki Maru | Longline | Fins |
| 1989 | Darwin Bay | Sta. Fé | Net 100 yard | 4 hammerheads |
| 1989 | S/A | Tenju Maru | S/A | Galapagos sharks & hammerheads |
| 1989 | S/A | Aleta Amarilla II | Hooks | Sharks |
| 1997 | Tortuga Bay | S/A | S/A | 5 white tipped reef sharks |
| 1997 | Baltra Airport | S/A | S/A | 57 fins |
| 1997 | Baltra Airport | S/A | S/A | 85 fins |
| 1997 | Baltra Airport | S/A | S/A | 83 fins (15 kg) |
| 1998 | S/A | Niño Dios | S/A | 8000 fins |
| 1999 | Isabela & Fernandina | Cash Flow | S/A | Many sharks |
| 1999 | Southwest Isabela | Don Alvaro | Purse seine | 2 whale sharks |
| 1999 | Isabela, Darwin & Wolf | Mary Cody | Longline | Many sharks |
| 1999 | S/A | S/A | S/A | 249 fins, 213 lb meat, & 4 blue sharks |
| 1999 | S/A | S/A | S/A | 15 sharks |
| 1999 | S/A | S/A | S/A | 80-100 fins |
| 2000 | Bartolomé | S/A | Longline 200 m with 18 hooks | Sharks |
| 2000 | S/A | S/A | S/A | 38 fins |
| 2000 | S/A | S/A | S/A | 208 fins |
| 2000 | S/A | S/A | S/A | 24 fins |
| 2000 | San Cristobal | S/A | Longline | 7 sharks |
| 2000 | S/A | S/A | S/A | 440 fins |
| 2000 | S/A | S/A | S/A | 2 sacks of meat and fins |
| 2000 | S/A | S/A | S/A | 278 fins |
| 2000 | Genovesa | S/A | S/A | 7 Galapagos sharks |
| 2001 | 15 miles south of Isabela | B/P Dilsun | Longline | 350 carcasses, 16 sacks of fins (1200 units) & 3 sacks of fillets |
| 2001 | 18 miles east of Wolf | B/P Ma Canela II | Longline | 78 carcasses, 2 sacks with livers & 1044 fins |
| 2001 | Baltra Airport | S/A | S/A | 226 fins |
| 2001 | Villamil Airport | S/A | S/A | 192 fins |
| 2001 | Guayaquil Airport | S/A | S/A | 67 fins |
| 2001 | San Cristóbal Airport | S/A | S/A | 161 fins |
| 2001 | Cargo Ship | Paola | S/A | 300 fins |
| 2001 | Cargo Ship Marina 91 | S/A | S/A | 30 sacks (fillets) |
| 2001 | Darwin Arch | Indio I | Longline | 119 carcasses & 856 fins |
| 2001 | Darwin Arch | Calima | Longline | 1 carcass of thresher shark |
| 2001 | West of Floreana | Cruz Araceli | Longline | 10 sharks |
| 2002 | S/A | Sarita | S/A | 1 shark |

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| Date | Place | Vessel | Fishing Gear | Fins/Sharks |
|------|---------------------------|--|----------------|---------------------------------|
| 2002 | S/A | Sarita | S/A | 1 shark |
| 2002 | S/A | Junior | S/A | Sharks |
| 2002 | S/A | Ananías | S/A | 72 fins |
| 2002 | S/A | A. León | S/A | 70 fins |
| 2002 | S/A | Podlay | S/A | 50 fins |
| 2002 | Private car in Santa Rosa | S/A | S/A | 303 fins |
| 2002 | Cartago, Isabela | Mercedes | Unattended net | 37 fins |
| 2003 | Pinta | B/P Don Daniel (Costa Rica) | Longline | 3 sharks (<i>Alopias</i> spp) |
| 2003 | Pinzón | F/M Cristel | | |
| | | F/M Hno. Gregorio II | | |
| | | F/M Soledad | | |
| | | (Galapagos artisanal vessels) | | |
| 2003 | 01° 51.623 S 090° 2.097 W | S/A | Net | 124 fins |
| 2003 | Isabela (Punta Moreno) | Isabela artisanal vessels | Longline | 8 sharks |
| 2003 | Wolf | Galapagos artisanal vessels | Net | 2 sharks |
| 2003 | Isabela | Galapagos artisanal vessels | Net | 30 sharks |
| 2003 | Bajo 90° Seamount | Galapagos artisanal vessels | S/A | 4147 fins |
| | | B/P Adionay V (F/M Siempre Carmelita, | | |
| | | F/M Mari Luna) | Longline | 3 sharks (<i>Carcharinus</i> |
| | | Pto. Manta | | <i>falcoformis</i>) |
| 2003 | Caamaño | Galapagos artisanal vessels | Net | 46 fins, abandoned at the islet |
| 2003 | Puerto Villamil | Shark fin transport "F/M Canaima XI" | S/A | 815 fins |
| 2003 | Puerto Baquerizo Moreno | Shark fin transport "M/N Virgen de Monserrate" | S/A | 211 fins |
| 2003 | Darwin Arch | S/A | Net | 1 shark |
| 2004 | Isabela (Cartago) | S/A | Net | 409 fins |
| 2004 | Puerto Villamil | F/M Valentin (Isabela) | S/A | 10 fins |
| 2004 | Puerto Villamil | Shark fin transport on the logistics flight of the Air Force by fisherman Oscar Flor | S/A | 538 fins |

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| Date | Place | Vessel | Fishing Gear | Fins/Sharks |
|------|--------------------------------------|--|--------------|---------------------------------------|
| 2004 | Puerto Villamil | Shark fin transport | S/A | 1344 fins |
| 2004 | Puerto Villamil | S/A | S/A | 15 fins |
| 2004 | Puerto Villamil | 2 crates belonging to Sr. Andrés Palacios Lucio | S/A | 52 fins |
| 2004 | Hancock Banks, northeast of Floreana | B/P Gregorio IV, with 5 launches from Pto. Manta Vivianita, César Augusto, Gigi, Gigi Yael and San Ignacio | Longline | 22 Galapagos sharks |
| 2005 | Puerto Villamil | F/M Blue Shark (Galapagos artisanal vessel) | Longline | 10 fins |
| 2005 | Onboard vessel | Expedition (Tour boat) | S/A | 4 juvenile sharks |
| 2005 | | F7M Hermano Gregorio (Isabela) | Seine | 14 sharks |
| 2005 | Puerto Villamil | Shark fin transport on the logistics flight of the Air Force by fisherman Sr. Andrés Patricio Lucio Bernaldino | S/A | 52 inferior lobules of the caudal fin |
| 2006 | Puerto Baquerizo Moreno | Transport of shark fins on cargo boat "M/N Virgen de Monserrate" | Longline | 16 sharks |