



EUROPEAN SYMPOSIUM ON MPAs AS A TOOL FOR FISHERIES MANAGEMENT & ECOSYSTEM CONSERVATION

Emerging science and interdisciplinary
approaches



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ABSTRACTS



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Fishery and fishermen at the Marine Reserve of La Graciosa Island and the Islets of North Lanzarote

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The project for the establishment of industrial fisheries gave rise to the original settlement of La Graciosa, in 1880. When this company collapsed, the workers who decided to remain on the island had to undertake a struggle against a rosary of adversities; a struggle that was also going to have fishing as its mainspring. Fishery activity has been the hub and driving force of life on La Graciosa. The cycles of extraction and collection of resources wrested from the waters has marked the pace of life on the island. Everything on La Graciosa recalls and savours of fishing and boats, either lying at anchor in the bay or drawn up on the beach; they form part of the real as well as the symbolic setting of everyday life on La Graciosa.

Until the start of the building, some 10 years ago, of the first tourist apartments, the principal economic activity of the island was fishing and it still continues to be the mainstay of a good number of the families of La Graciosa. The waters of the *Marine Reserve of La Graciosa and Islets of North Lanzarote*, not only maintain the traditional craft fisheries of this area, in general extendable to the Canary Islands as a whole, but also only the most selective techniques are used as a result of the regulations and management introduced. Rod and line fishing with two or three hooks are carried on, as well as purse fishing with small-sized gear, intended for catching such small pelagic species as the sardine (*Sardina pilchardus*) and the traditional fishing of the salema (*Salpa salpa*). Practically all the catches of salemas and sardines are marketed under the traditional technique of salting and drying the fish in the sun known as "oreado".

The parrotfish (*Sparisoma cretense*) is caught all year round, as long as the conditions of the sea so permit, and it is the main local fishery. It represents 20-30% of the total catches recorded in the Reserve, which exceed 25 tons. Catches increase in the summer season, from March-April to September-October. This traditional fishery, the most emblematic of the Canary Islands, is carried on from small boats, even from barges, normally with a rod in very shallow waters and with the aid of a sight glass to observe where the fish is on the bottom and offer it the bait consisting of local crabs ("cangrejilla", "jaca", "juyón"), so it is closely connected with the catching of these crustaceans.



ISLA GRACIOSA E ISLOTES DEL NORTE DE LANZAROTE

THE FISHING LIFE AND THE MARINE RESERVE



Osprey
Pandion haliaetus



Egyptian Vulture
Neophron percnopterus

SECRETARÍA GENERAL DEL MAR ~ SGM

FISHING LIFE: TRADITIONS AND TASTES OF THE SEA



According to studies carried out for the Macaronesia 2000 Project at a palaeontological site (2,500 to 3,000 years old), the island of La Graciosa - the last of the Canary Islands to be colonised - could, in prehistoric times, have been the first to support human life.

In order to ease periodic states of famine, and prior to the establishment of permanent settlements on La Graciosa, the island's lands were given to poor farmers from Lanzarote for communal use.

However, the origin of the current settlement on La Graciosa is to be found in the establishment of industrial fisheries in 1880, during an European economic crisis, which devastated Lanzarote. Pesquerías Canario-Africanas Ltd. were founded there with a total of 82 employees. Later, when this company went bankrupt (due largely to an iron and steel crisis, and because of the founder's death) the then president of the company donated the premises of the fishery and materials to the employees living on the island. During this crisis and because of the uncertainty of returning to their impoverished home towns, yet in spite of the harsh local



conditions, most workers decided to remain in the settlement and continue fishing. The current inhabitants of La Graciosa are heirs to that perseverance.

Fishing activity has been both the focus and the raison d'être of La Graciosa's inhabitants. The harvesting of the sea's resources has marked the rhythm of life across the island. Everything in La Graciosa reminds one of fishing. Ships anchored in the bay or left stranded along the coast - as if part of a film set - have become symbolic of daily life on La Graciosa.

The economy used to be one of subsistence: fishing, and to a lesser extent, shepherding.

Tourism began in the eighties and it has had a decisive and powerful transforming effect. It has broken the proverbial isolation of the island without much transition and with insufficient assimilation. The landscape has changed, and with it have come different ways of thinking and seeing life.

Tourism management is a factor of great importance in



territorial planning. The island's environmental characteristics, supported by innumerable and worthy protection measures, demand the correct fusion and balance of environmental, social, cultural and economic measures on the island.

The marketing and sale of fish are done at three fishmongers: El Roque in La Graciosa, San Ginés of the Guild de San Ginés in Arrecife, and the Haría fishmongers. The Spanish Oceanographic Institute (IEO - Instituto Español de Oceanografía) carries out a statistical follow-up of these commercial fisheries. Other direct sales are made in restaurants of both La Graciosa and of Lanzarote. Non-regulated sales inhibit statistical control, especially of high-demand species such as: grouper (*Epinephelus marginatus*), black limpet (*Patella candei crenata*), and rough limpet (*Patella aspera*). A significant problem in the control of the fishing industry is the lack of, and urgent need to establish a point of first sale, where species, origin and size can be rigorously controlled.



Cory's Shearwater
Calonectris diomedea

FISHING GEARS AND METHODS

In the waters of the Marine Reserve of La Graciosa e Islotes del Norte de Lanzarote traditional fishing crafts are maintained - thanks to the regulations and management measures still, only certain methods are allowed.

PESCA DE ANJILLO
Greater amberjack (*Seriola lalandi*)
Common two-banded seabream (*Diplodus spp.*)
Dually grouper (*Epinephelus marginatus*)

ZARCA DE LA VIEJA
Parrotfish bat (*Xantho spp.*)
Parrotfish (*Sparisoma crenense*)
Parrotfish (*Sparisoma crenense*)

PORESA DE CALAMAR
European squid (*Loligo vulgaris*)

CAJETE ELÉCTRICO
Wreckfish (*Polyprion americanus*)
Red seabream (*Pagrus pagrus*)

CAJA Y CAJETE ELÉCTRICO
European hake (*Merluccius merluccius*)
European conger (*Conger conger*)
Red scorpionfish (*Scorpaena scrofa*)

TÉCNICA DEL AJO
Bullet tuna (*Axiada mitchellii*)
European anchovy (*Engraulis encrasicolus*)
European pilchard (*Sardinia spp.*)

ARIES DE CINCO
Mackeron sardinella (*Sardinella maderensis*)
Sardina maderensis
Salama (*Sarpa salpa*)

Hook, rod, and line fishing with 2 or 3 hooks, are permitted. The main species caught by rod is parrot fish (*Sparisoma crenense*). By "liña" or line fishing, species include: the parrot fish (*Sparisoma crenense*), common dentex (*Dentex dentex*), common pandora (*Pagellus erythrinus*), annular seabream (*Diplodus anularis*), white bream (*Diplodus sp.*), two-banded bream (*Diplodus vulgaris*), black bream (*Spondyliosoma cantharus*), yellowmouth barracuda (*Sphyraena viridensis*), grouper (*Epinephelus marginatus*), Atlantic bonito (*Sarda sarda*), comb grouper (*Mycteroperca fusca*), gelly jack (*Pseudocaranx dentex*), amberjack (*Seriola sp.*), blacktail comber (*Serranus atricauda*), triggerfish (*Balistes carolinensis*) and Morocco dentex (*Dentex maroccanus*).

Parrot fish (*Sparisoma crenense*) is captured throughout the whole year. It is the main species fished in the area, representing 20 to 30% of total catches registered, surpassing 25 tonnes in total. The volume increases in summer, from March/April to September/October. This traditional fishery is the most emblematic of the Canary Islands. It is carried out from small boats ("chalanas") and barges with a fishing rod or line, with the help of an under-water observation instrument ("mira fondos") to aid in the location of the fish which are then baited with cangrejilla, jaca or juyón (*Xantho spp.*). Therefore, the fishing of cangrejilla and parrot fish are directly related.

Other tackle is used for the capture of different species, such as European squid (*Logilo vulgaris*). This is comprised of a shiny cylindrical part which, at its top, has a ring to tie the baited line to the 'mother' line and, at its bottom, has as many as three hook rings. This line is placed at the end of the mother line. This type of fishing is usually carried out above sea beds of sand in the so called area of El Rio, a Strait between the Island of La Graciosa and Lanzarote. August and September is the period of greatest catches.

Wreckfish (*Polyprion americanus*) is one of the most fished species, using electronic reels, at depths around 400m, at a fishery developed north and outside the Marine Reserve's limits. The common seabream (*Pagrus pagrus*), also fished with electronic reels, represents an important volume of catches.

Hake fishing (*Merluccius merluccius*) is undertaken during winter by the people of La Graciosa south of the Marine Reserve, using rod or electric reel, at a depth of 300 - 400m, and represents 10.5% of all captures. The use of the "palangre" method has fallen, evidencing a change in local attitudes toward fishing. The area is extended every year, towards the southeast and the Lanzarote coast. Fishing begins in September, making the most of the Hake spawning season, and can be extended into May.

Other species also captured with hake are: tope shark (*Galeorhinus galeus*), conger (*Conger conger*), and red scorpionfish (*Scorpaena scrofa*).

The 'tuna technique' is used in summer on the immense tuna schools ("mantadas" or "balamos") which cross the more oceanic waters of Lanzarote and La Graciosa, and which are outside the Marine Reserve. This intensive extraction process, undertaken during long shifts, uses special rods.

Net fishing, of a reduced size, is used in spring and summer to capture small migratory pelagic species such as: the sardine (*Sardina spp.*), Madeiran sardinella (*Sardinella maderensis*), and the European anchovy (*Engraulis encrasicolus*). The salem (Sarpa salpa) has been and still is traditionally fished. Virtually all sardine captures have value added through the use of a traditional salting and sun-drying technique, oreado. It is then sold as Pejines. Schools of salem are caught by net in bays or other sheltered areas, by fishermen from Orzola, a town located north of Lanzarote, on the edge of the Reserve. Practically all salem has value added through a process called "jareada", where the fish is cut open along its base, salted, then sun-dried while hanging from ropes. Jarea is appreciated and in demand across the entire Canary Archipelago. Other net-fished species are: sand smelt (*Atherina presbyter*), however, only as live bait as its commercialisation is prohibited; and bogue (*Boops boops*).

CURRENT PROJECTS

Spanish Oceanographic Institute Research

It follows the evolution of the catches through information net and experimental fisheries campaign with net gears in order to know the evolution of the

Information Project on Fishing and on the Marine Reserve

Information material: leaflets, posters, and guides to the Marine Reserve and its inhabitants
Attendance at conferences, seminars and exhibitions
An In-school Information Programme on 'Fishing and Marine Reserves in the Canary Islands' - lectures at Secondary and Primary Schools aimed at bringing the fishing and Marine Reserve closer to students.

A visual list of biodiversity of the Marine Reserve of La Graciosa e Islotes del Norte de Lanzarote

To increase knowledge of the sea bed's condition, and the area's current biodiversity, geomorphological and biological data are recorded and photographed at certain diving points in the Reserve through underwater camera and R.O.V.

SAGITAL Project: Adaptation Services for the Management of Fishing-tourism Initiatives in Coastal Areas

One of SAGITAL's aims is to promote the creation of viable alternatives and diversification of employment possibilities, stimulating and supporting the incorporation of fishermen in the nature-tourism sector. Also supported by this project is the creation of an Interpreting Centre for the Marine Reserve, and a Fishermen's Museum. SAGITAL Project is framed within Equal II of the European Social Fund.

Environmental Education Seminars on Eco-diving are held to increase divers' awareness for the need to protect the environment.

Awareness projects professional marine teaching schools and scholars

Through the Unit "La pesca en Canarias. Reservas marinas de interés pesquero: garantía de futuro" run for 1st Grade General Certificate or Bachillerato.