CASE STUDY

"Canarias, por una Costa Viva" (Canaries, for a Lively Coast)
An educational and research initiative to enhance the sustainable use of the Canarian coasts".

ABSTRACT:

The aim of this project was to promote awareness of the biological and socio-economic values of the Canarian coastline among coastal users. Other underlying objectives included designing best practices for management and sustainable use of the littoral resources. The working team had two complementary divisions: research and education, which incorporated a large social facet. The development of "Canarias, por una Costa Viva" has meant a new and fresh approach to littoral issues.

LOCATION:

The Canaries are a volcanic archipelago located in the Macaronesian region (Central East Atlantic). This region has nearly 1.600 km coastline, warm temperature waters and mild climate all around year and also an excellent water quality. This reasons have converted to the Archipelago in one of the most tourist destinations in Europe. With a population of nearly 2.000.000 people, these islands receive more than 11.000.000 visitors a year.
In terms of conservation the Canaries have, in one hand, unmodified areas (mostly protected by law), outstanding natural values and very rich marine biodiversity (5.300 marine species).

In the other hand, tourism development has involved a great littoral occupation for residential and tourist use and negative impacts on marine biodiversity have been caused. This situation has promoted new measures in nature and cultural conservation and also in environmental education, being "Canarias, por una Costa Viva" a case of good practice.

KEYWORDS:

Development pressures, Education and training, Nature conservation, Stakeholder and public participation.

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EXECUTIVE SUMMARY

During the last decades, littoral areas in the Canaries have experimented a spectacular change, with an important economic development through the promotion of large industrial, energy, fishing, port, servicies and urban activities. Richness generation has involved countless social and quality of life benefits.

However, from different Canarian institutions it can be seen that our coastal areas confront an important anthropogenic pressure. Different international organizations have identified this situation all around the globe. Waste management, water quality, biodiversity conservation, maritime traffic and a responsible tourism development are some of the key issues that involve a great challenge for individuals and institutions with responsabilities in uses, resources and activities management in coastal areas.

Canarias por una Costa Viva

"Canarias, por una Costa Viva" was fully supported by the Spanish Ministry of Environment and run by the University of Las Palmas de Gran Canaria in conjunction with WWF-ADENA. The project had also a close collaboration with the Canarian Institute of Marine Science, the University of La Laguna, Regional and Island Agencies and some private companies, which enriched the actions and outputs. The project started in August 2002 and ended in November 2004.

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It has been the…

- first time that the main ecosystems in the Canaries have been evaluated at a regional scale.
- unique environmental education programme with a regional scale.
- first project in the Canaries that brings together these two disciplines.

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1. GENERAL FEATURES

The main objective of this project was to promote awareness of the biological and socio-economic values of the Canarian coastline among coastal users.

In order to achieve the proposed aims, "Canarias, por una Costa Viva" was developed into two different dimensiones, combining a ***research programme*** (to assess the environmental quality of coastal areas) and an ***outreach programme*** (through environmental education and awareness raising on coastal issues in the Canarian Archipelago).

2. RESEARCH PROGRAMME

The ***objectives*** of the research division were to:

1. Analyse the characteristics and environmental quality of the marine biological communities.
2. Determine the conservation status of the Canarian coastal areas through the analysis of several abiotic and biotic characteristics.
3. Analyse the relationship between the human population and the natural environment as well as the pressures it supports in order to evaluate the impact of human activities on littoral ecosystems.
4. Study ecological processes in intertidal and shallow subtidal ecosystems.

The ***research activities*** were carried out with sampling every six months around the coastlines of the overall Canary Islands. 4 surveys at 261 selected intertidal and subtidal sites were sampled in a 6-monthly basis. It is worth highlighting the 1.700.000 scientific data collected and the 2.000 hours working under the sea to analyze more than 300 km2.

Biological studies consisted on the evaluation of marine species and communities of interest both in the intertidal and subtidal areas.

Sampled areas included: rocky intertidal areas (with 96 sampling sites), brown algae forests, sea-urchin barren grounds, rocky reefs and seagrass meadows. Sampling sites were selected both in pristine and anthropogenically stressed areas, in order to assess the effects of the different pressures (pollution, shell fishing activity, urban development, marinas, etc.).

Marine biodiversity and water and sediment quality were measured at subtidal sites following standard research protocols.

Intertidal zone

The evaluation of shellfish resources included spatial distribution, abundance and size structure.

Findings showed:

- a clear overexploitation of those species preferred either for consumption (mainly patellid limpets) or as fishing bait is occurring.
- a solid legal framework and monitoring programme is urgently needed.

Subtidal zone

Subtidal works consisted of the characterization of the organization of marine communities, the description of the structure and the relations between different species groups (eg. relationship between fishes, algae and macroinvertebrates).

6.000 sampling squares and 2.400 fish visual census in more than 2.000 scientific dives were carried out. 31 seagrass meadows were sampled and a total of 480 samples were taken for genetic analyses.

The main subtidal ambients were studied: rocky reefs and sandy seabeds.

It was found that:

- *Diadema antillarum* (sea urchin) is the main key-hervivorous species (habitat determiner) throughout the rocky bottoms of the Canarian Archipelago.
- its proliferation is clearly linked to overfishing of large size predatory organisms (fish or crustaceans).
- three species are threatened and degraded by antrophic pressure, mainly when related to sewage areas.

It is worth highlighting the relation between high density of sea-urchins and large predators which was established for the first time for the whole of the Canarian Archipelago by this project.

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Water & Sediment Quality

Monitoring of sediments and water quality for the littoral areas of the Canarian Archipelago was carried out .

In 320 sampling sites, 3.000 water samples and 1.350 data on physical parameters were collected.

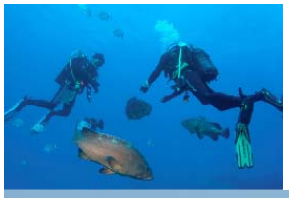
Main findings show:

- Nutrient concentrations are constant and low all around the year.
- Still deficient management at water treatment and re-use.
- Severe impact of sewage waters on marine seabeds and littoral biodiversity

Recreational activities of littoral resources

In order to complement the scientific studies and further analyse the environmental impacts, an analysis of sustainability of some socioeconomic activities was done.

Several studies were undertaken regarding the need to develop good practice methodologies in the use of coastal resources:



- *Scuba-diving* as a recreational activity and alternative tourist offer in the Canarian Archipelago. The outstanding weather, underwater landscapes and biodiversity set the elements for the development of this activity.
- *Whale-watching* needs for the sustainable development of the activity.
- Beach selection made by beach users regarding their perceptions and demands.

Results and outputs

At the end of the project an assessment of the environmental quality of coastal areas in the Canary Islands was produced. Littoral environmental quality bioindicators and inputs to the Canarian list of endangered species were only some of the results which have been contributed to the generation of tools for ICZM in the Canary Islands.

The main ***research outputs*** were the following:

- Identification of bioindicators of environmental quality for the Canarian littoral.
- Proposals for friendly environmental management actions.
- Recommendations for fishing and shellfish collecting at regional / island levels.
- A monograph on sea-urchin barren grounds.
- Database for the monitoring of about 400 species in the Canaries.

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3. OUTREACH PROGRAMME

The education division worked to:

1. Raise public awareness of the environmental and natural values of the Canarian coastline.
2. Support the education of the Canarian population and visitors towards the sustainable use of the natural resources.
3. Enhance public participation in diverse coastal activities.
4. Develop a full range of educational tools for diverse social groups (schools, handicapped collectives, silver-age groups, etc.).

These objectives were mainly achieved through three different types of actions, considering specific goals related to different population sectors.

EXHIBITION

This activity included display panels, models and an aquarium, which explained details not only about the tides, biodiversity and different coastal landscapes, but also about the traditional and modern activities developed in the coast and the conservation and management issues related to them. The exhibition was on display in the principal cities and villages within the seven islands. It was the focal point for different educational activities carried out by "Canarias, por una Costa Viva" staff. Two pets, *Menuda* (a jellyfish) and *Chinijo* (a crab), introduced the visitors to the coast. It was great fun to see children's' faces along the visit!

The exhibition received more than 120.000 visitors and was 20-30 days at each of the 19 locations.

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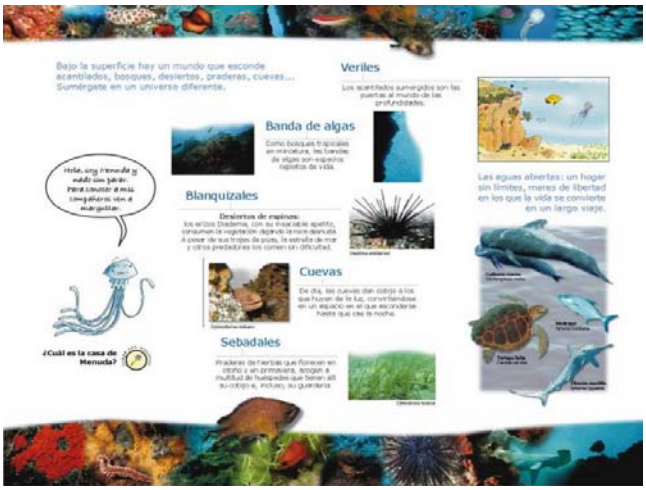
DIDACTIC MATERIALS

Educational materials were designed for students from primary school level to university, as well as accompanying materials for teachers. The contents refer to the natural values of the Canarian littoral and are complemented by visits to the exhibition and guided trips to the intertidal area.

These materials were tested with 3.700 students and have been distributed among 1.500 Canarian schools.



Challenged communities

The contents of the exhibition were adapted and sense stimulation was carried out. The integration with other collectives was conducted during the summer activities.

Volunteering adult programme

Environmental knowledge was transferred: exhibition, games, snorkelling, guided visits, littoral walks or collaborations with the research sampling activities. It is worth highlighting the great public participation at environmental conservation activities: cleaning-up of beaches and CCV's discussion forum.

ACTIVITIES WITH SOCIAL GROUPS

Activities with social groups are based on a volunteering network which will achieve joint activities like talks, cleaning of beaches, snorkelling, littoral walks or collaborations with the research sampling activities. The aim is to strengthen the relation of different social groups with the natural environment and to create a common objective: the protection of the coast.

Silver-age

Several actions brought the elderly nearer to the coastal environmen t: snorkelling, games and guided walks along the coast. They played the main characters at oral history sessions, where the new generations learnt about coastal traditional uses.

4. PROJECT' COMMUNICATION

Project mascots Menuda and Chinijo
(the local words for a small boy and girl).

The diffusion of the developed activities favoured the active collaboration of private companies and public administrations.

"Canarias, por una Costa Viva" took special care of the image and layout of every product of the project, starting with an eye-catching logo.

More than 200 radio interviews, 700 written press and TV releases and 3000 visits to the webpage were carried out, which gives an idea on repercussions of the project in the Canaries.


'Canarias, por una Costa Viva' detecta un proceso de desertización del fondo marino