

MARINE CONSERVATION PROGRAM FOR CENTRAL PATAGONIA, ARGENTINA



**Science,
Education
and Policy**

Project leader
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Final Report
for

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EXECUTIVE SUMMARY

Argentina has a continental shelf of 1.1 million km² and a diverse 5,000km coastline. Even if marine environments are relatively pristine, insensitive coastal marine development is putting pressure on natural resources and harming conservation goals. Fisheries, oil exploitation, marine debris, lack of coastal planning, combined with lack of awareness about the ocean fragility often results in undermining the sustainability of ecosystems and harming wildlife. Currently, less than 1% of the Argentinean marine surface is protected. Our goal is to strengthen the **Marine Conservation Program for Central Patagonia**. We intend to contribute to the planning and implementation of marine protected areas (MPAs), with particular emphasis on San Jorge Gulf MPA. We will integrate four cross-cutting strategies: research, education, policy making, and synergistic, increasing our chances of both short-term and long-term success. The project creates an umbrella for research on model species, fills important data gaps, and provides a long term conservation platform to protect the ecosystem.

REPORT OF ACHIEVEMENTS

In 2002 we won a first Rufford Small Grant and started a marine conservation programme focused in Cetaceans of Golfo San Jorge, Patagonia, Argentina. The finding of 16 marine mammal species living or transiting the area encouraged us to expand our objectives to a more integrated framework, introducing the idea of Marine Protected Areas as opportunities for local people and for conservation, as well fostering a new ethic for the conservation of the ocean. The 2nd RSG, the Booster Grant and the Continuation Award are making possible this ambitious goal.

Continuing the strategy initiated in 2002, we carried out several activities integrating four cross-cutting strategies:

- Research
- Education and awareness
- Interaction with policy makers
- Synergistic work with other projects



OBJECTIVES AND ACHIEVEMENTS

I. Increase ecological knowledge on key species in northern San Jorge Gulf

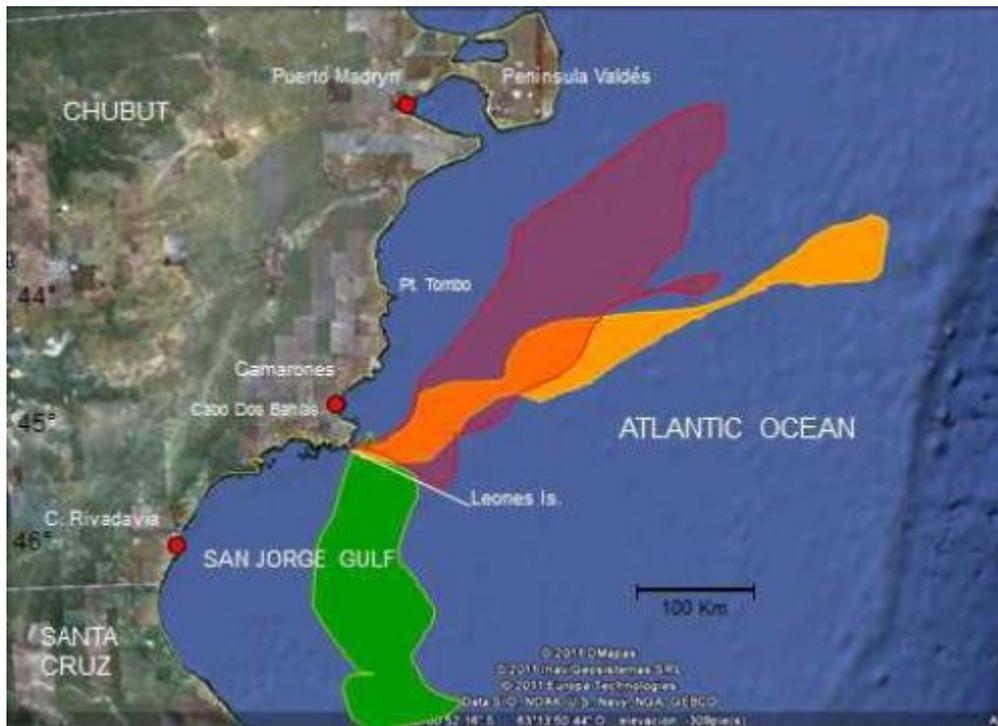
We focused our work on Magellanic penguins, white-headed steamer ducks and small cetaceans. Field work was carried out in spring and summer months, mainly between Islas Blancas (44°46'S- 65°39'W) and Isla Leones (45°S-66°42'W), using in all the cases an inflatable boat.

Magellanic penguin

Determining its distribution at sea is crucial in this place where fishing and petroleum activities are intensifying. This is particularly important for the Leones Is. colony, which declined more than 50% in the last 15 years. We deployed satellite transmitters determining from 4 of them how penguins are using the marine areas. Birds should perform very long trips to feed, travelling at 400Km from the colony. This fact might explain the dramatic decline reported for the Leones Is. colony.



A Magellanic penguin at Leones Is. equipped with a Satellite transmitter



The area used by three penguins during their feeding trips

White-headed steamer duck

Distribution and habitat knowledge of this endemic flightless bird is key to help tackle the negative effects of the current coastal development trend. We integrated and updated information on abundance, distribution and habitat use.

The distribution of Chubut Steamer ducks is restricted to approximately 700 km of coastline. We counted 1,703 adult steamer ducks at a subset of shorelines within their range and estimated 1,841 adults after correcting for visibility for shore-based surveys. To estimate adult densities in un-surveyed areas, we used two different methods of extrapolation, resulting in estimates of 1,623 and 1,832 adults. Combined with numbers from surveyed shorelines, the total breeding population size is estimated to be between 3,463 to 3,673 adults. In addition, we counted 1,899 juvenile steamer ducks, which occur in irregular aggregations. The Interjurisdictional Marine Park in Golfo San Jorge contains about 46% of the entire population, which may provide some protection from disturbance and habitat destruction.

Oil pollution risk, other anthropogenic activities, and invasive species pose potential threats to the population.



Distribution of Chubut Steamer ducks and coastal areas surveyed

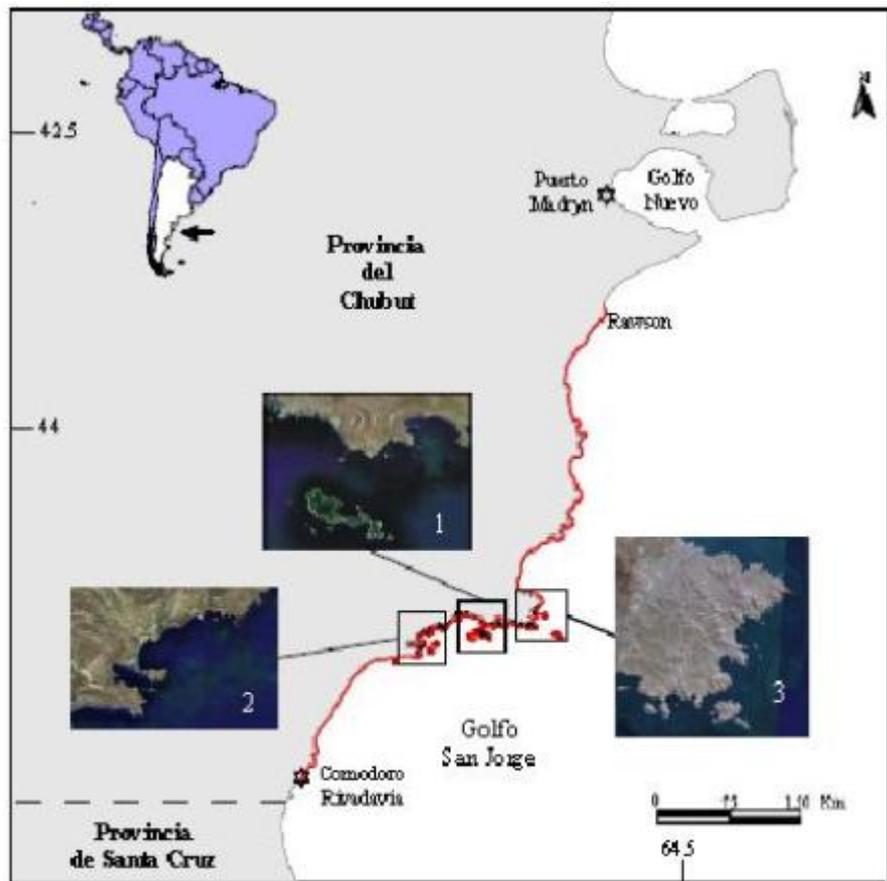


Figura 2: Rango de distribución del Pato Vápor Cabeza Blanca dentro de la Provincia del Chubut y tres áreas con alta concentración de individuos: 1-Bahía Melo; 2-Bahía Bustamante/Cabeza Mala plus; 3- Bahía Carrizos/Cabo Des Bahía.

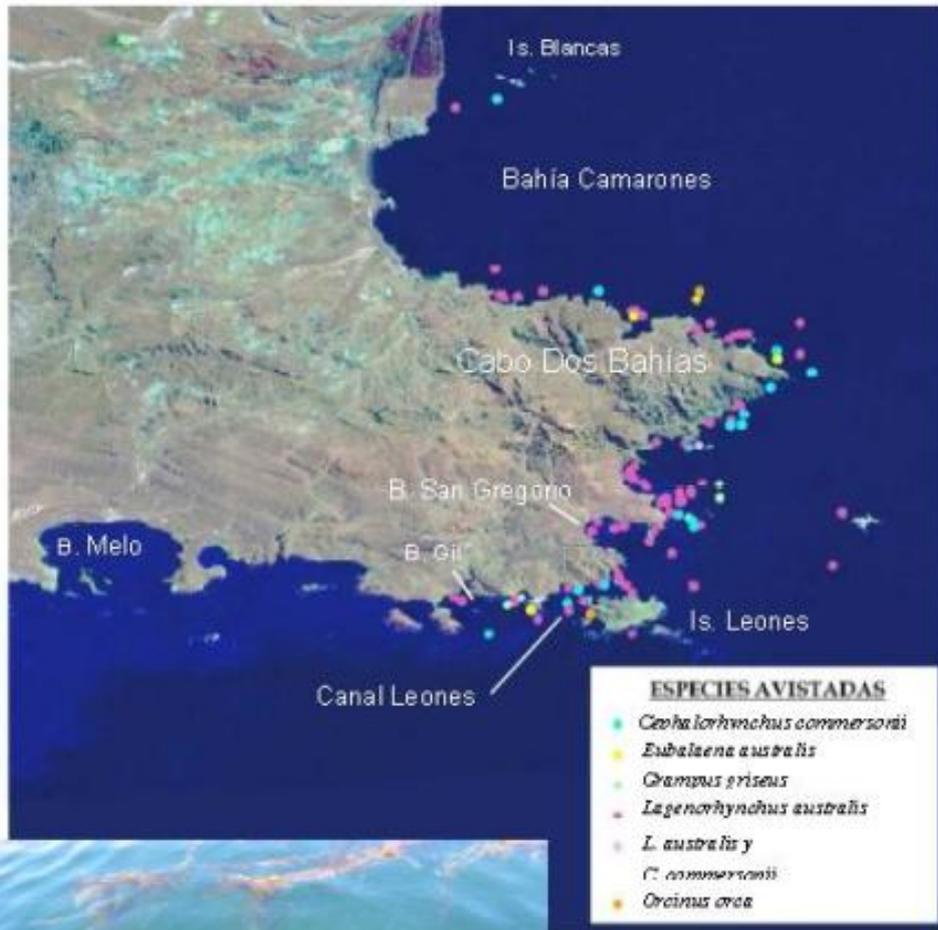
Small cetaceans

We completed the information on small cetacean distribution in San Jorge Gulf, which is crucial for the planning process of the MPA.



Our main conclusions are:

- The sector between Cabo Dos Bahías and Isla Leones was the most important area in terms of occurrence of cetaceans, with a sighting rate significantly higher than in the southernmost area (0.54 sightings/hour in the north vs. 0.14 sightings/hour in the south).
- The highest rate of sightings occur in summer (December-February), being February the month with more encounters (near one by hour, 0.85 s/h).
- The most frequent species in the area was the Peale's dolphin (*Lagenorhynchus australis*) (54% of the total sightings). Other species were the Commerson's dolphin (*Cephalorhynchus commersonii*) (36% of sightings), Risso's dolphin (*Grampus griseus*) (5%), Killer whale (*Orcinus orca*) (4%) and the southern right whale (1%).
- The Peale's dolphin was the most coastal and shallower swimmer cetacean, being most sightings located among 10- 20m in depth, no more than 200m to the nearest shore. Some occasional groups at more than 1Km from land.
- 70% of the Peale's dolphin sightings occurred around dense kelp forest of the algae *Macrocystis pirifera*. These algae are currently threatened by the new invasive one, *Undaria pinnatifida*. No clear solutions are found yet to control the expansion of the species.
- The most critical area to be protected is Bahía San Gregorio, where lactating mothers of Peale's dolphins were seen in January-February with their calves.



Sightings of cetaceans in the main surveyed area



A Peale's dolphin mother with her calf at Bahía San Gregorio

II. Strengthen an education program on marine conservation

We worked to foster a long lasting sense of respect to the ocean, using marine mammals as flagship species. We based our work to promote emotional connections to the ocean by using its beauty and inspiration. Emphasizing its value for life on the earth, and for our own quality of life, we create awareness about the power of individual responsibility to produce a change.

Establishing awareness baseline

We considered crucial to have a good insight of the perception and concerns on marine conservation that our people have. We performed an opinion poll, determining the local awareness on marine conservation, identifying key audiences and the most effective channels of communications. The inquiries were made in Comodoro Rivadavia, Camarones and Puerto Madryn (600 inquiries, 31 questions).

Topics considered were:

1. The city and its problems

People were asked about their opinions on the situation of the city, and a list of options that mentioned the main problems of their city.

2. Economic activities and environmental impact

People were asked about the environmental situation of the marine coast in their city, and the order of importance they assigned to the care of the environment. We asked about economic activities they perceive that produce more income and greater environmental impact, and the level of that impact.

We also asked people about who should be responsible of the environment health, how their own involvement in these issues, and what is are the main threats affecting the coastal environment.

We included a question about the agreement or disagreement with seismic surveys being conducted in San Jorge Gulf during oil exploration activities.

Finally, people chose from two sentences: “we should prioritize health environment instead of economic development”, or “we should prioritize economic development even if it harms environment”.

3. Relationship with the sea

We wondered about significance and activities at sea, on the knowledge of coastal and marine wildlife. We joined a list of words referring to the sea and its shores, on which it sought the agreement or disagreement.

4. Marine Park San Jorge Gulf

We asked about their knowledge on the Marine Park of San Jorge Gulf, and about the pros and cons or that it could bring.

5. Media

We asked interviewed people about the most widely media used to get informed and the preferred local newspaper, radio station and TV news programme.



RESULTS

We found the following remarkable results:

- Most people are worried about the conservation of the marine environment. From a 0 to 10 scale, more than 75% allocated between 7 and 10 points to this issue, establishing a high order of importance.
- Oil production is perceived as the most important economic activity in the region, and surprisingly 62% thinks that it is damaging the environment.
- 72% disagrees with the seismic survey activities in San Jorge gulf, since they consider it is harmful for wildlife.
- 56% thinks that the care of the environment is a shared responsibility among the community, state and enterprises.
- 75% considers that community participation is crucial to protect the environment and control production activities in the area. Over 70% of the population is willing to participate, although some people are somewhat reluctant, depending on who is the organizer.
- 82% of the interviewed people in CR and PM, and 53% in Camarones, prioritize marine environment, even if protection could slow down economic progress. The lowest level of environmental priority in Camarones may be related to its high unemployment rate.
- With regards to the wildlife of the San Jorge Gulf, there is little knowledge: 60% of respondents said they knew "little "or "nothing" of the wildlife, which refers mainly to whales, seals and penguins.
- Whales (36%), penguins (13.7%), sea lions (12.5%), and dolphins (11,7%) are the preferred marine species, being the group of whales, penguins and sea lions the most known by the people (45.7%).
- The sea is associated with rest, relax, peace, tranquility, beauty and nature
- More than 95% does not know anything about the Golfo San Jorge Marine Protected area, but when informed by the inquirer, more than the 70% agreed with its creation.
- Local newspapers were identified as the main source of information, followed by television and radio, the latter with a high level of audience (see next graph).

CONCLUSIONS

Our main conclusion is that people living along the Patagonian coast is worried about the conservation of the marine environment. This is evident in their good analysis of pollutants conditions of some economic activities. They also felt that there is a need to increase the controls for industries and /or activities that harm the environment. That consciousness is also manifested in the desire to maintain the coasts in good condition, controlling garbage, polluting effluents and avoiding the oil spills. Marine mammals and penguins are in fact the preferred species, and the newspaper and radios are the best media to communicate conservation messages.

With regard to the marine park in the San Jorge Gulf, despite an obvious lack of information, the people's expectations are positive to its creation. This result strengthens our idea that the authorities must inform people to generate awareness about the area, as well to involve local stakeholders in the planning as soon as possible. This is fundamental taking into account that public participation in environmental issues is perceived as highly important, and 70% of the population is willing to participate

Design and develop effective communication strategies

The opinion poll showed that newspapers and radios are the most effective channels of communication. Whales, penguins, sea lions and dolphins are the main flagships to produce effective communication strategies, while some marine wildlife (particularly invertebrates) remains unknown. People are worried about contamination by oil spills and other activities. Taking into account these results, we produced newspaper articles, posters, and gave talks on marine conservation in local radio stations.

We offered courses for biology students, teachers and tour guides, on the ecology and conservation of marine mammals and ecosystems. We emphasized the threats that these species and the ocean are facing, from chemical pollution and industrial fisheries to domestic waste in the water. Finally, we proposed how the public can help to conserve the ocean, and we promoted the idea of Marine Protected Areas as a good strategy that can conciliate sustainable uses and conservation.

To achieve a massive public, we visited several local radio stations, and we published related articles in the most popular newspaper in the area, Diario Crónica, which distributes 15.000 unities per day in at least five coastal locations (Camarones, Comodoro Rivadavia, Rada Tilly, Caleta Olivia, and Puerto Deseado).

We always try to generate enthusiasm, involvement, connection, auto criticism, emotion and finally, inspiring change.



Some newspaper articles

- Production of four posters on marine invertebrates in an alliance built with Proyecto Sub (CENPAT, Puerto Madryn), which are being distributed at schools after talks on marine conservation.



- Talk to the School of El Riacho, Península Valdés (October 2009)
- Participation in the “Clean Seabed Operation” in Rada Tilly, lecturing on marine wildlife and conservation of the San Jorge Gulf.
- Talks to university students at the Universidad Nacional de La Patagonia, promoting their interest to work in marine conservation (October-November 2010).

- Course “Introduction to marine mammals and tools for its identification”, addressed to marine observers on board of the Western Patriot, a ship working in seismic operations for Pan American Energy. Trained observers could detect marine mammals in order to avoid them, preventing damages to them during off shore seismic operations in San Jorge gulf. Course in cooperation with Fundación Patagonia.



- Talks and distribution of posters for the 4th degrees of the primary schools “Rosa de Corea” and N°42 in Puerto Madryn (August 2009 and May 2010).



- Post-graduate course “The human dimension of Conservation”, directed to young marine conservation leaders of Argentina, in coalition with Fundación Patagonia Natural (August 2010).

- Course “On the coastline of Patagonia: killer whales, sea lions and other marine inhabitants” in coalition with Asociación Animal Latitude (Spain). Addressed to students and general public. February-March.



Supply schools with books on marine wildlife

We visited 4 schools, providing them with books on marine wildlife and conservation. In addition we gave talks, leaflets and posters on marine wildlife. The schools benefited were the school of El Riacho, school of Camarones, and two schools of Puerto Madryn (Rosa de Corea, and N° 42). We also gave books on whales and dolphins for each kid of 4th degree at the school Rosa de Corea. Around 300 books were donated. This was the most special and emotive part of our work!



School Rosa de Corea, books for the library... and a book for each kid!!



Rural school of El Riacho, Península Valdés



School N° 42, Puerto Madryn. Books for the library!

Organizing school trips to natural areas

- In a novel and exciting experience, we took the children of 3rd and 4th degree of the school of Camarones to Cabo Dos Bahías Protected Area in November 2010 and November 2011. The protected area is located at 28Km from the small town, and most of the children visited the area for the first time. Following the regulations, we were accompanied by the teachers and by a professional guide specialized in children's groups. Before the trip, we gave talks to the children at school, and after the trip the teachers developed activities on marine wildlife, and produced a thematic exhibition for the families.
- In November 2009, we took 20 handicapped adolescents from the school 528 (Puerto Madryn) to the Península Valdés Protected Area, accompanied by teachers. Children could appreciate the local wildlife, as well interact with the kids of the rural school of El Riacho





Listening the talk... and visiting the penguins



Meet landowners to involve them in conservation issues

We met with land owners M. Soriano, A. La Regina and V. Von Tungen, fostering their commitment with the conservation of their own coastal lands, and working with them in conservation activities, such as the planning process of the Northern San Jorge gulf MPA, or the Punta Tombo management.

Continue university students training

Students are a crucial part of the work; they worked on the field and in different activities, including the opinion poll. In addition, we lectured two courses on marine conservation and on marine mammals to biology students. Some of our students have already finished their graduate studies, and they are working on their PhD Thesis on different conservation issues.



III. Contribute with the government to the proper planning of protected areas

The government will and its decisions and actions are crucial to assure conservation goals as well to jeopardize them. We worked contributing with the provincial and national government to promote different marine conservation actions.

Main achievements are:

- We advised decision makers with the Punta Tombo Interpretation Center exhibition. We helped designers with information on wildlife, to produce the interpretative signs, films, interactive activities and sculptures.



- We worked in the Punta Tombo Advisory Commission, fostering the implementation of its management Plan.



- We were invited by the National Parks Administration to a workshop in Buenos Aires in May 2010, to provide information and recommendations for the planning of the San Jorge Gulf MPA. We participated in that meeting with land owners, colleagues and provincial and national authorities.
- We met with the Governor M. Das Neves at Punta Tombo, and explain him the importance of implementing the MPA around Punta Tombo. Hi agreed with us and give us his support to initiate the planning.
- We submitted technical reports to the Government and offered a course for provincial wardens.
- We contributed with National Parks providing information of the opinion poll, in order to justify the need for a GEF project to plan and educate the community on the marine park San Jorge gulf.

IV. Work in synergy with other conservation initiatives, scientists and governments

- We worked in synergy with several NGOs, projects and institutions, such as Fundación Patagonia Natural, Global Penguin Society, Animal Latitude Assoc, Sea and Sky Project, Penguin Project (UW), Proyecto Sub, Secretary of Tourism and Protected Areas of Chubut, Administration of National Parks, Schools of El Riacho, Camarones and Pto. Madryn, Municipality of Camarones and



Comodoro Rivadavia, Centro Nacional Patagónico, Nautical Club of Rada Tilly. These interactions strengthened our work and allowed us to achieve several goals in a more pleasant and effective way.

- We were invited to share our information at the 2º Seminario Internacional del Golfo San Jorge y Mar Austral (2nd International Symposium on the San Jorge Gulf and the Southern Sea), carried out in December 2010 in Comodoro Rivadavia. Oral communication presented: Reyes, L. 2010. Marine mammals and seismic surveys: analyzing the risk
- We participated in international scientific congress with the following communications:
 - P. Borboroglu, D. Boersma, T. Leiden, S. Ellis, L. M. Reyes, L. Hoffmann, B. Conway, L Bennet. GLOBAL PENGUIN SOCIETY: the penguin advocacy for the oceans. VIII International Penguin Conference. Boston, U.S.A. September 2010.
 - Pablo García-Borboroglu, P. Dee Boersma, Laura Marina Reyes and Elizabeth Skewgar. Petroleum Pollution and Penguins: Marine Conservation Tools to Reduce the Problem. . VIII International Penguin Conference. Boston, U.S.A. September 2010.
 - Garcia-Borboroglu, P.1,2,3, Reyes, L. M.1,4,5 and Boersma, P.D.1,3 Magellanic penguins In Patagonia: conservation and management challenges. New Zealand Penguin Conservation Congress. Oamaru, New Zealand. June 2010.

A BALANCE

The most important constrains we faced

The bad weather conditions were the main difficulty we had to face in the field. The strong wind and waves typical of the area (known as the roaring forties) sometimes forced us to interrupt the navigation and field work. In addition, we lost two from the three satellite transmitters deployed in Magellanic penguins in Leones Is. However, we returned next season and deployed other four transmitters, obtaining data from three of them.

As regards conservation actions, the scarce commitment of the government in conservation issues, sometimes dishearten us. Economic urgencies, political struggle, instability, inability and even lack of will of some decision makers, jeopardize genuine interests and actions in conservation. However we persisted in our objectives, trying to encourage politicians to appreciate the value of conservation for the local people. The awareness baseline was an excellent instrument to show them the high conservation awareness of local people and to motivate them.

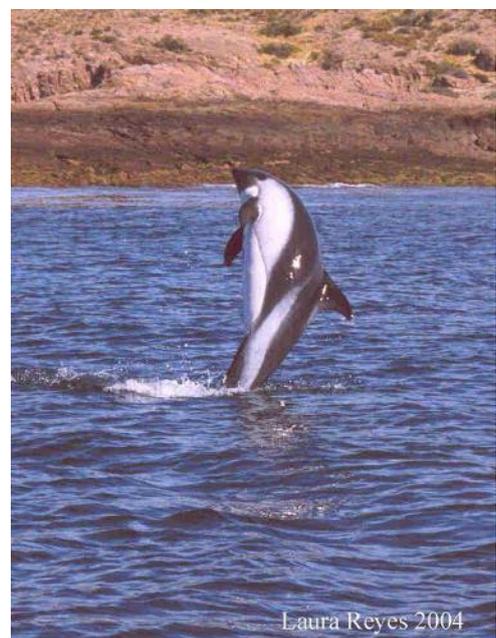
The most important outcomes we achieved

- The first awareness baseline for the Patagonian coastal zone was an outstanding outcome, showing the importance that Patagonian people give to ocean conservation. Surprisingly, we found that 82% of the people interviewed in Comodoro Rivadavia and Puerto Madryn, and 53% in Camarones, prioritize marine environment conservation, even if protection could slow economic progress. Despite their interest, more than 95% does not know anything about the recently created Marine Protected Area in San Jorge gulf, but when informed by the enquirer, more than the 70% agreed with its creation. This strengthens our idea that the authorities should inform people about the area, and involve local stakeholders in the planning as soon as possible.
- The invitation by the National Parks Administration to participate in the planning process of the San Jorge Gulf MPA was an important outcome, and a clear sign of acknowledgement to our work. We were invited to workshops in Buenos Aires together with other key stakeholders, in order to provide information and recommendations for the planning of the San Jorge Gulf Marine Protected Area. This was the first step of the government to plan the MPA in a participatory way.

- The educational trips to protected areas were the most gratifying experience of this project. Children from low income families of Camarones were taken to the Cabo Dos Bahias Protected, in an exciting experience that they will never forget. In addition, we took 20 adolescents with different physical disabilities to Península Valdés protected area. We are convinced that this outcome will be a long lasting contribution for the conservation of the area, due to the high impact that the experience had in the children.

Our plans for the future

Marine mammals are highly charismatic animals that generate great people interest, catalysing political support. Since we started our project, we acknowledge them as vehicles for integrated marine conservation, allowing the protection of environments and associated marine species. We are convinced that empowering communities by educating and creating awareness is the best way to make a long lasting difference. We are determined to continue our work mainly educating local communities at different levels: university students, decision makers, wardens, teachers, and other citizens, fostering their awareness conservation, and giving them skills to solve hard choices between natural and human interests. Particularly, the creation of the new MPA in San Jorge Gulf opens new opportunities for local people, but they need to be carefully informed about the consequences that irresponsible tourism and mismanagement can imply for the wildlife. In addition, we will continue working with the government promoting the creation and implementation of new MPAs (such as the MPA around Punta Tombo) and contributing with the planning of MPAs. So far, we conducted a **bottom-up strategy**, investing our time and main resources to empower the communities in different ways: participatory management plans, effective communication strategies, educational trips, courses, etc. Now, we should complement it with a more intense **top-down strategy**, dealing with the top authorities that make the decisions: legislative bodies, and executive power representatives. This plan will be necessary to accomplish more challenging goals, such as the creation of the Punta Tombo MPA. But we are conscious that all these ambitious goals can only be achieved working in synergy with other initiatives, sharing our experience and results, and combining efforts.





In a world harmed by global warming, where economic interests seems to be the only priority, and where conservation efforts are hampered by the lack of political will, conservationists are facing an enormous challenge: to create a new ocean conservation ethic, a new way of thinking about ourselves and nature. Education of communities, training of new professionals in conservation, and persistent work with governments are the only way. We are doing our best efforts to advance in this direction.

