

PROJECT SEABIRDS ARGENTINA CONSERVATION THROUGH COMMUNITY INVOLVEMENT

BRITISH PETROLEUM CONSERVATION PROGRAMME 2007



FINAL REPORT



 **Conservation Leadership Programme**

FINANCING, SUPPORTING AND/OR SPONSORING INSTITUTIONS

CONSERVATION LEADERSHIP PROGRAMME

BirdLife International

British Petroleum

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EXECUTIVE SUMMARY

From May 2007 to December 2009 we developed two main activities: 1) monitored with onboard observers 17 vessels of Puerto Quequén and 73 fishing hauls and 2) developed a strong and coordinated net of volunteer for walk the beaches recorded sea turtles, seabirds and marine mammals dead. All the trips monitored were of bottom trawl nets and a total of 15 seabirds were observed captured including Magellanic Penguin and Sooty Shearwater. Seabird interactions came in the forms of bycatch particularly by entanglement with the net but we can record some impacts with cables also.

On the other hand, a net of volunteers (calling Coastal Team of Marine Fauna and Environmental Observers, ECOFAM by the Spanish abbreviation) had an incredible successful at regional level. More than 30 volunteers covered 230 km of coast recording 679 carcasses of 3 sea turtles species, 16 of seabirds and 7 of marine mammals.

Throughout the course of the project we also (1) coordinate and participate in publications and international and national meetings to discuss marine conservation, (2) produced numerous marine conservation spreading materials, (3) coordinate conservation efforts with others institutions and (4) develop a public awareness campaign consisting in various activities related to this conservation problem in villages affected by fishery. This research makes clear the need to give continuity to the educational work at the region and generate a local consciousness about the importance of these populations on marine communities and ecosystems.

1. INTRODUCTION

Since the BPCP Grant in 2003-2004 an onboard observers programme was established in three ports of Buenos Aires province, Argentina (Mar del Plata, Puerto Quequén and Claromecó), to confirm the information given by fishermen in twenty-one sites visited; 71 interviews were done from three types of coastal fleets: coastal vessels, small vessels and boats. During that project, Mar del Plata harbor and Claromecó were discarded as our objectives. The first one due obtain the license for on boarding is extremely difficult. The second one because, given the low activity of the fishermen, our trips weren't fruitful.

Some results of the onboard observers programme in Puerto Quequén from 2003 to 2005 were seventeen species of seabirds recorded attending the coastal vessels. Black-browed Albatross, Yellow-nosed Albatross and White-chinned Petrel are amongst these species (Coconier *et al.* 2004). Likewise we have confirmed the incidental capture of the Magellanic Penguin (*Spheniscus magellanicus*) and Great Shearwater (*Puffinus gravis*) in bottom trawls nets (Tamini *et al.* 2006) but the quantification of individuals captured and the presence of other species captured needs a long term onboard observers programme due the high variation on capture rates throughout all seasons.

Seabirds typically diving into the larger mesh sizes and becoming entangled during setting and hauling (González Zevallos & Yorio, 2006 and others). Moreover, significant levels of mortality caused by trawlers have also been documented associated with netsonde cable collisions (Weimerskirch *et al.* 2000) and colliding with warp cables while scavenging factory discharge at the stern of the vessel (Sullivan & Reid, 2004). This kind of interaction was recently recorded by us (Tamini *et al.* 2006). The implementation of onboard methods for record this type of interaction not recorded on the first grant was necessary.

Furthermore, more than thirty species of seabirds beached can be finding (including albatrosses, petrels and shearwaters) in this zone of the Buenos Aires Province (Narosky & Fiameni, 1986, and personal observations) as a result of the orientation of the coast and the marine currents. Our experience determined the necessity of implement workshops and conferences for local community about conservation of seabirds and other marine organisms. During 2005-2007 we organized one workshop per year for teachers, teaching students and local inhabitants of Puerto Quequén. As a result a net of teachers and local leaders was established. Over the several contacts for make an activities that including field work and conservation, during November 2006 we organized two courses involved volunteers in the collection of high quality data on the status and trends of coastal resources, mainly seabirds.

In this project we included two parts strongly linked between them and with our past work: to keep and improve the onboard observer programme for record data of the seabirds on the sea and create a strong network of volunteers (named ECOFAM) in several points on the coast of the Buenos Aires Province, Argentina for record seabirds beached data. This last point had two objectives: the participation of the local communities and to make these communities and the fishermen awareness. More even, the data recorded by volunteers could represent, like a mirror, some aspects of the interaction (include incidental capture) between seabirds and fisheries on the sea.

2. PROJECT OBJECTIVES

AIMS

1. To create a strong and coordinated network of volunteers for record high quality data on the status and trends of seabirds.
2. To enhance the effort of surveys onboard for increment the biological knowledge mainly on threatened seabirds, record incidental captures and find mitigation measures.
3. To build official authorities and local/regional communities awareness for increase the attention, knowledge and validation of seabirds.

OBJECTIVES

- 1.a. To develop a network of volunteers of the local communities for identify carcasses of seabirds beached along the coast of Buenos Aires Province, Argentina.

- 1.b. To create a 2-years baseline information about the pattern of beached seabirds mortality for identify natural or human-mediated unusual events.
- 2.a. To improve the capture events data of seabirds through onboard observers work in the main fisheries enhancing the current survey effort.
- 2.b. To record several aspects of the regional fishing activities (specially changes of fishing gear and increases of the fishing effort).
- 3.a. To carry out a graphic material for diffusion at national level about the coastal fishing activities and its relationship with the seabirds.
- 3.b. To promote the local and regional awareness of seabirds and marine ecosystems conservation through workshops and courses.
- 3.c. To create and keep a web site for inform, explain and argue about interactions fisheries-seabirds. Furthermore, this space will be used for the volunteers for have access to several tools like form or identification keys of seabirds.
- 3.d. To contribute with Aves Argentinas-AOP (BirdLife Partner) for provide the conformation of the onboard observers programme of the GO's in Buenos Aires province coastal fisheries.

3. METHODS

3.1. *Education and spreading*

During the project we develop a public awareness campaign consisting in various activities related to this conservation problem in villages affected by fishery activity through a site, notes in magazines, radial and TV broadcastings and periodical newsletters.

3.2. *ECOFAM Project*

The citizen science is the association between local communities (people who live near and knows about the natural resources) and scientific. But why local communities and scientific should work together? Scientifics cant spent all their time taken data in the field. Simply is too much places, species and interactions for making an efficient sample. Luckily this is not necessary the people are scientific for knows and care the environment. Anybody working or walking outdoors can know a lot about the environmental. The citizen science recognizes this source of information and enthusiasm training people for collect data in an appropriate way and high useful. At same time, local communities it benefits learning about the patterns of the local natural resources. Learning about the natural world around them has a power for protected this resources, pressing for change the things or simply teaching.

Follow the concept of the citizen science and as part of this programme, volunteers lead surveys of a particular stretch of beach. Each carcass of seabird were identified, photographed, measured, tagged, and left in place. The volunteers were recruiting through newspapers, TV and flyers and after the courses each volunteer takes part in an intermittent way (depending on her/his activities) but during 2 years of the project. With the work of voluntaries we made 2-years baseline information about the pattern of beached seabird, sea turtles and marine mammals mortality for identify natural or human-mediated unusual events.

The first attempt to develop ECOFAM (because of Equipo Costero de Observadores de Fauna y Ambiente Marinos in spanish) in southern coast of Buenos Aires province was set in November 2006. Starting that year with courses conducted in Necochea and Balneario Los Ángeles, the project got popularity and shape. In 2007, ECOFAM was officially constituted through the designation of field coordinators. Their main task was to organize the volunteers to survey a 230 km coastal zone from Miramar to Balneario Reta (Figure 1).

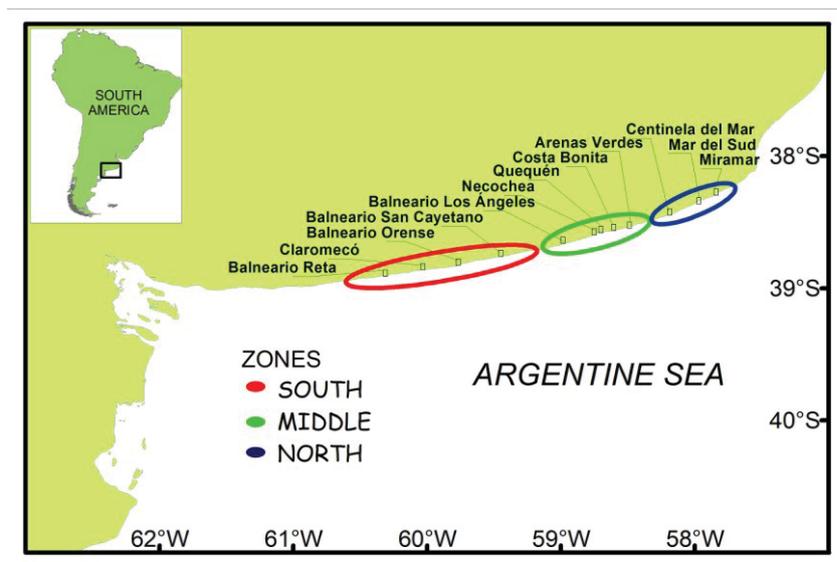


Figure 1: ECOFAM Zone

3.3. Onboard observer program

The methodology followed by the observers for size estimation of mixed flocks of seabirds eating during the boat fishing activity periods was the counting methodology of bird's flocks (modified from Howes 1987). This method is based on the total counting of the individuals divided in mental blocks of variable size (10, 20, 50, 100, etc) depending of the number of seabirds present during the sampling. The position of the observer was below the sun making easier the counting and identification. Repetitions were made as long as possible. The countings were expressed in terms of the species that form the flock (that could be mixed), the total number of birds and an estimation of the number of several species if the flock is mixed or a proportion of each species. We established four strata for calculating the distance of the flocks to the fishing vessels. Each observer spent between 48-60 hours onboard and had the suitable gear (seabirds field guide, pencil, rubber, GPS, tape recorder, photo camera, raincoat, binoculars and thermometer) to do the observations and record all these data. We used worksheets specially achieved to record the haul and flocks characteristics. The data recorded during onboard were: initial and final position of each haul, depth, hour, and haul duration, climatic data (environmental temperature, and wind speed) and average speed. Specifically, during the incidental capture events the following data will be recorded: species, number and age class (immature or adult) identifiable by plumage characteristics (Olmos 1997), sex, measures and photos, these three last data within the possibilities and sample design circumstances. For the size estimation of mixed flocks of seabirds eating during the discard activities, we used a counting methodology of birds on flocks (modified of Howes 1987) based on the total counting of the individuals divided in mental blocks of variable size depending on the number of seabirds present during the sampling. Due to the difficulty of the counting and identify method of some species, previous meetings shall take place among the team members with photographic materials of the species at hand.

As lessons learned on the first project we tried record the contacts of the seabirds with the cables of the net. Furthermore, number of vessels in Puerto Quequén, number of trip per month, other fleets in the zone, changes of fishing gear and all details in relation with the fishing operation in the zone were recorded.

Once on board, we watched the birds that were close to the vessel with the help of binoculars. We identified the species and the number of individuals of each species during the haul. In this moment more than five hundred birds of approximately ten different species of albatrosses, petrels, penguins, shearwaters and gulls may gather around the vessel. Once we made the counting we took notes of the observations in a filling form. We also took note of some variables like time, temperature, speed of the vessel, time of the haul and position. We stayed in the vessel for 60 hours and during the trip fishermen made us questions

related to seabirds, gave us accurate information about the incidental captures and brought us some captured seabirds for identification.

3.4. *The RINGS PAGE*

Scientific bird ringing is a technique that allows tracking of individuals in time and space. Biologists and technicians of each ringing project put rings and/or flags with particular characteristics (material, color, etc.) on some specially selected specimens of birds. Every ring has alphabetic and/or numeric code for to identify at individual level. Then, beginning from marked bird's tracking, if possible carry out surveys about geographic distribution, behavior, populations and cohorts pursuit, birth and mortality, migrations and stopover sites. Although large number of birds has been ringed every season, only a few is relighting and reported. Therefore each one of these records are very important for scientific ringing schemes.

Some birds watched for ECOFAM volunteers in the project's study area had rings corresponding to several scientific researches. Based on this fact we think in give to ECOFAM members and birdwatchers a tool for channel adequately these records. With the support of Aves Argentinas (BirdLife International partner) have been possible develop an exclusive section into de ECOFAM website for offer information about several seabirds and shorebirds ringing projects, and facilitate direct report to their responsible.

The report system start search for data about scientific ringing programs works in Argentina and Uruguay, who they invite to participate in this initiative. The leaders programs that accept our proposal, bring complete information requested, photographs of ringed individuals and e-mail address for to receive the reports.

The data was organized with data card format, with details about rings type used (plastic, metal, flags), color, metal band or ring inscription, type of code for plastic rings and flags, position of each mark on the bird, date and place of ringed, program's name and institutions involved. In a second step, we was developed an on-line form report for the birdwatchers can complete their observation details and send it direct to the ringing program through e-mail.

4. RESULTS

4.1. *Education and spreading*

4.1.1. Talks for ECOFAM volunteers

ECOFAM was a Project created for identify carcasses of marine turtles, seabirds and marine mammals founded beached along the coast. Several volunteers specially trained of ECOFAM make surveys over a particular extension of coast. Every carcass is measured, identified, photographed, marked and mostly keep on the sand.

We have given five courses on the first year (2006-2007) of the project and four in the second year (2007-2008). These courses had two objectives: explain to new volunteers on methods; and discuss with the expert volunteers the way to improve the methodology used. During the organization of the courses we were assisted by biologists and veterinarians of Buenos Aires and Necochea, students of Universidad de Buenos Aires and Universidad Nacional del Centro de la Provincia de Buenos Aires became a big help. Plus, Tres Arroyos and Necochea counties have pronounced ECOFAM as 'Interest' program becoming supported by several non-governmental organizations and institutions.

During November and December 2007 training courses were organised in Claromec , Balneario Orense, Necochea, Puerto Quequ n and Miramar. Ninety persons aged between 8 and 70 attended the courses. Outreach activities were conducted, encouraging the participation of community members such as teachers of all educational areas, as well as museum guides, tourists, lifeguards, park rangers and scouts. Throughout these activities, the Project's mission and goals, along with a brief identification key of sea turtles, birds and marine mammals of the area, were presented. Also, material and tools needed to carry out the project activities (identification guides, datasheets and cameras) were given to the volunteers. After the lecture, a field training took place where the beach was surveyed searching for standings. The ones found were identified, tagged and measured. During the training courses we carried out interviews to the volunteers so we could know how to improve the spreading of the project. One of the most interesting outcomes of that interviews was that 67,5 % of the people expressed that ECOFAM was the first conservation project they

have ever participated in. When we asked how they had become aware of the courses, 52,5 % declared by personal communications, whereas the rest of the people expressed newspapers (17,5 %), radios (15 %) and brochures (15 %).

During 2008, by the end of August a course for volunteers was organized at the Library called 'A World of Books' from Reta, being this the southern point of the project. A large number of people attended the course including many kids that paid as much attention as the adults to the presence of ECOFAM coordinators. The course was divided into two sections: the first one took place at the beach, making the most of the last hours of the afternoon. The objective was to have a little practice with the equipment and charts -necessary for the field work- by showing the way to identify and measure the species found, as well as the necessary safe way to make the job. Back in the classroom, we gave specific information about the project itself and the seabirds, marine mammals and sea turtles that could be found along these beaches. After that, some sets of ECOFAM equipment were given to the four volunteer teams that organized themselves to survey the coasts. We would like to emphasize the help offered by Rodrigo Miranda from his website www.el-reta.com.ar and the quick and organized way in which this group of volunteers began the survey (Appendix 1, Table 1 and Figures 1 to 6).

4.1.2. Science and Technology National Week

Between August 19 and 26th, 2008, the VI Science and Technology National Week took place along the whole country, promoted by Science, Technology and Productive Innovation National Ministry (Ministerio de Ciencia, Tecnología e Innovación Productiva), and ECOFAM was present during the conferences that took place in Necochea and Tandil. The objective of these activities was the diffusion and approaching of the scientific work to the whole community in general and the school one in particular with the purpose of promoting the relationship among investigation, education and community. ECOFAM team cooperated actively with different proposals such as conferences, workshops, diffusion of scientific works and others suitable for the aim pursuit.

Also, during September 8 and 9th, 2008, the XV Science and Technology District Fair took place at Necochea. ECOFAM participated in this conference – known to be one of the most important at a regional level- as well as more than 180 students aged between 9 and 17 years.

4.1.3. Collaborations with Universities

During two times in 1st-2nd of November 2008 and 6th-7th of November 2009, the Mastozoology Chair of Technical in Support, Management and Conservation of Biodiversity dependant of the Department of Biological Science of the CAECE University, went on their annual study journey to Necochea. One of the activities developed by the students was to internalize with ECOFAM project. They were trained on the information to collect when finding a carcass of a beached animal, and they were supplied with all the material needed to cover the whole length of the coast. Transect starting point was located at Costa Bonita, 5km. far from Necochea. The students were impressed, not only by the quantity of carcasses found in such a short tour and the quality of the data collected, but also by the fact of having participated in a conservation project that focuses on the active participation of the local inhabitants who, along with a scientific group, are capable of carrying it out in a successful way. Those days were the starting point for future activities shared between the universities and ECOFAM.

4.1.4. Spreading campaign and materials produced during the project

The diffusion campaign carried out as a part of the project had two stages. One implied the use of the press (newspapers, radios, etc) with the aim of encouraging the community to become involved in the courses (Appendix 1, Figures 7 to 9). The other stage was based on permanent resources that can spread the information of the project nationally and regionally. For this purpose, a poster 60 x 40 cm was designed and distributed in all localities in which ECOFAM has impact on. At the same time, a web site of the project was created where information of the project, calendar of activities, news of volunteers and many other things can be found.

Appendix 2 Figures 1 through 5 show some materials produced for the project. These include a flyer, ECOFAM logo (for which we made a contest), web site, newsletters and others.

4.1.5. Participation in articles and meetings

During the project we have been actively involved in a number of articles and national and international meetings, conferences regarding conservation biology. These activities are summarized below.

Tamini L. L., Dellacasa, R. F., Perez Comesaña, J. E. & T. Chalde. *Seabirds beached counts as a conservation tool.* XXI Annual Meeting of the Society for Conservation Biology: One World, One Conservation, One Partnership. Nelson Mandela Metropolitan University, 1-5 July, 2007. Port Elizabeth, South Africa.

González Carman, V.; **Dellacasa, R.**; Bruno, I.; Inchaurreaga, M. C.; Gavensky, M.; Mohamed, M.; Fazio, A.; Uhart, M. & D. Albareda. *Nuevos aportes a la distribución de tortugas marinas en la provincia de Buenos Aires y norte de la patagonia argentina.* III Jornadas de Conservación e Investigación de Tortugas Marinas en el Atlántico Sur Occidental. 26-28 October, 2007. Piriápolis, Uruguay.

Tamini, L. L.; Dellacasa, R. F.; Chiaramonte, G. E & **J. E. Perez Comesaña.** *Lobos marinos y pescadores. ¿Sólo enemigos?* XIII Reunión de Trabajo de Especialistas en Mamíferos Acuáticos de América del Sur y 7º Congreso SOLAMAC. 13-17 October, 2008. Montevideo, Uruguay.

Tamini L. L. & R. F. Dellacasa. *Bird assemblage composition in a rocky beach in Argentina.* XXII Annual Meeting of the Society for Conservation Biology: From the mountains to the sea. 13-17 July, 2008. Chattanooga, Tennessee, USA.

Albareda, D.; Prosdocimi, L.; Álvarez, K.; Di Paola, J. L.; Massola, V.; González Carman, V.; **Dellacasa, R.**; González, R.; Bordino, P. & M. Uhart. *Sea turtle conservation problems in Argentina: by-catch and marine debris ingestion.* XXVIII Simposio Internacional de Especialistas en Tortugas Marinas. 18-26 January, 2008. Loreto, Baja California Sur, México.

González Carman, V.; Álvarez K.; Prosdocimi, L.; Inchaurreaga, M. C.; **Dellacasa, R.**; Faiella, A.n; Echenique, C.; González, R., Andrejuk, J.; Mianzán, H.; Campagna, C. & D. Albareda. *Las aguas costeras de argentina como hábitat templado de alimentación y desarrollo para las tortugas marinas.* IV Jornadas de Investigación y Conservación de Tortugas Marinas del Atlántico Sud Occidental – ASO – 30 September - 1º October, 2009. Mar del Plata. Argentina.

Albareda, D.; Prosdocimi, L.; Di Paola, J. L.; Echenique, C.; Álvarez, K.; Rodríguez Heredia, S.; Bordino, P.; Bruno, I.; González Carman, V.; Saubidet, A.; Faiella, A.; **Tamini, L.; Dellacasa, R.**; Massola, V.; Sotelo, M.; Díaz, L.; Inchaurreaga, M. C.; González, R.; Caille, G. & A. Julián. *Programa Regional de Investigación y Conservación de Tortugas Marinas de Argentina (PRICTMA) 2003-2008: Desarrollo e integración regional.* IV Jornadas de Investigación y Conservación de Tortugas Marinas del Atlántico Sud Occidental – ASO – 30 September - 1º October, 2009. Mar del Plata. Argentina.

Pintos, J. S.; Tamini, L. L.; Dellacasa, R. F. & J. E. Perez Comesaña. *Relevamientos de tortugas, aves y mamíferos marinos muertos realizados por voluntarios de ECOFAM en la costa de la provincia de Buenos Aires.* VII Jornadas Nacionales de Ciencia del Mar. 30 November - 4 December, 2009. Bahía Blanca, Argentina.

Tamini, L. L.; Dellacasa, R. F.; Pintos, J. S. & J. E. Perez Comesaña. *ECOFAM: Conservación marina a través de la participación de las comunidades locales.* VII Jornadas Nacionales de Ciencia del Mar. 30 November - 4 December, 2009. Bahía Blanca, Argentina.

Dellacasa, R. F., Tamini, L. L. & F. L. Rabuffetti. *Una herramienta para incrementar el reporte de aves costeras y marinas anilladas.* I Congreso de Áreas Naturales Protegidas de la Provincia de Buenos Aires. 7-9 September, 2010. Chapadmalal. Mar del Plata. Argentina.

González Carman, V.; Álvarez, K.; Prosdocimi, L.; Inchaurreaga, M. C.; **Dellacasa, R. F.**; Faiella, A.; Echenique, C.; González, R.; Andrejuk, J.; Mianzan, H. W.; Campagna, C. & D. A. Albareda. 2011. *Argentinian coastal waters: A temperate habitat for three species of threatened sea turtles*. Marine Biology Research, 7: 500-508.

4.1.6. Seabirds room in a Regional Museum

ECOFAM collaborated with the regional museum of the *Estación Hidrobiológica de Puerto Quequén* belonging to the *Museo Argentino de Ciencias Naturales "Bernardino Rivadavia"* in the remodeling of the new room of seabirds. The innovations of this room include a poster with the details of the head of more than 20 species of pelagic and coastal birds. But the most showy thing they are the models of a South Royal Albatross (*Diomedea epomophora*), a Black-browed Albatross (*Thalassarche melanophrys*) and a South Giant Petrel (*Macronectes giganteus*) in position of flight (Appendix 3, Figure 1).

4.1.7. Collaborate with others institutions

4.1.7.1. PRICTMA

By the end of 2002, the Regional Program for Sea Turtle Research and Conservation in Argentina (PRICTMA) was founded. This Program is made up by many local and regional organizations and institutions that work together with the goal of improving the research and conservation efforts of sea turtles conducted in our country. Since ECOFAM began in 2006, we have been working along with PRICTMA and we joined the Program in 2007. The Program is conducting studies regarding fishermen interaction, population genetics, feeding ecology, incidental capture and health assessment. The sea turtle stranding recorded by ECOFAM volunteers in southern Buenos Aires province is added to a national sea turtle database so we can increase the knowledge of these animals in the Argentinian Sea. Within this framework we organized two workshop on the *V Meeting and IV Symposium of Research and Conservation of Sea Turtles in the Southwestern Atlantic Ocean* www.tortugasaso.org/aso5.htm

4.1.7.2 Clean Beaches Program

Localities like Claromecó-Reta and Orense arises from the concern of different groups for keeping Tres Arroyos' beaches clean. It is created from the understanding between CELTA (Cooperativa Eléctrica Limitada of Tres Arroyos), the Local State of Tres Arroyos through their departments of Environment and Tourism, resorts delegations and a group of businessmen from the district. Clean Beaches Program seeks to collaborate in an organized way with the spreading of the coastal pollution dilemma by means of concrete and educative actions aiming to create awareness and form habits around tourists and local inhabitants of the coastal places. During the summer of 2007-08, three continuous cleaning days at the beaches of Claromecó, Reta and Orense were carried out with a considerable number of participants. A large number of waste materials –principally plastic- were found along a 10 km. coast as well as wheels, glass, clothes, fish nets, etc. These activities were completed throughout the season giving out material that can ensure the diffusion and promotion of the program such as T-shirts, caps, stickers and rubbish bags for cars. ECOFAM and its participants have been invited to these events and, apart from collaborating in the diffusion of this kind of events; they also participate actively as volunteers during the cleaning process (Appendix 3, Figure 2). For more information visit <http://www.playaslimpias.com.ar>

4.1.7.3 Fundación Patagonia Natural

Within the collaboration with FPN, on Sunday 2nd of September 2007 we collaborated with the Fundación Patagonia Natural on the Second Census of Coastal Contamination (2do Censo de Contaminación Costera) coordinating the zone of Claromecó and outskirts. The research was made with the objective of evaluate the state of more than 4000 km of coasts. Thousands of volunteers were walk by the shore during the tide from Punta Rasa at the south of Bahía Samborombón to Ushuaia. The objectives of the activity were rise the population awareness brings over of the pollution of the coastal zone, stimulate bows of community

solidarity and social responsibility, put at the disposal of the whole community the integral results of the experience and realize this type of national report of coastal pollution with a bi-annual frequency.

4.1.7.4. Unión Argentina de Pescadores Artesanales

With the support of Fundación Vida Silvestre Argentina (FVSA), the Argentine Union of Artisanal Fishermen (Unión Argentina de Pescadores Artesanales) has its own web site www.uapapesca.org on-line since July 2007. This site was developed as a tool that gathers information about fisheries, legislation, suppliers, photographs and links of interest, mainly for associated artisanal fishermen. One of the activities of this union is the spreading of conservation information of the species. In 21th of July 2007 we were in an encounter of fishermen in Claromecó, Buenos Aires Province talking about the conservation of sea turtles (Appendix 3, Figure 3).

4.2. ECOFAM *Project*

4.2.1. Materials for volunteers

Basing on the excellent work realized by the coast team (www.coasst.org) we prepared several data sheets and identification keys for sea turtles, seabirds and marine mammals for the volunteers. These materials were developed to aid with the field identification of the commonest species observed in the beached walks but the material is not intended to be a comprehensive treatment of all species they may encounter in the field. The emphasis of this material is on differences in bill and foot structure among the various seabird species, carapace in sea turtles and different characteristics in marine mammals. Some of these keys were taken from bibliography (Appendix 3, Figure 4a and 4b).

Plus a tool box was prepared for each volunteers or group of them. This included: datasheets, identification keys, camera, roll, caliper, pencil, rubber, blackboard, marker, gloves and measure tape between others (Appendix 3, Figure 5).

4.2.2. Data recorded by the volunteers

4.2.2.1 In ECOFAM zone

During 2006-2007 period, six volunteers surveyed several beaches of Necochea, Quequén, Balneario Orense and Claromecó recording turtles, seabirds and marine mammal's carcasses. This was the first attempt to understand the deposition dynamic of these carcasses at southern Buenos Aires province. As an example we can mention Eduardo Catalisano (who has later become a member of the project) that, together with Micaela Lasansky and Dario Villareal, walked the beaches of Quequén carrying out the activities proposed by ECOFAM. Such as Denia Rodríguez and her students who explored Balneario Los Ángeles beaches. Besides, Ricardo Doumecq also surveyed Necochea, Balneario Orense, Claromecó and many other beaches being the first one who found tagged penguins with metallic bands on the wings, which are used to get information of their movement patterns. Later on, these discoveries were notified to the researchers that had the birds tagged. It took seventy-seven hours for ECOFAM volunteers to survey 387 km of beaches recording 397 carcasses (Table 1) that included 2 sea turtle species, 11 seabird species and 4 marine mammal species. Only 7 seabirds and 1 marine mammal individuals could not be identified to the species level.

IDENTIFIED BEACHED CARCASSES	NOV06-OCT07	%
Green Turtle	2	66,67
Leatherback Turtle	1	33,33
Marine Turtles	3	100
Magellanic Penguin	331	88,74
Great Shearwater	11	2,95
Black Browed Albatross	6	1,61
Albatross (<i>Thalassarche</i> sp.)	5	1,34
Keep Gull	5	1,34

White-chinned Petrel	4	1,07
Great Grebe	3	0,8
Neotropic Cormorant	2	0,54
Terns (<i>Sterna</i> sp.)	1	0,27
Brown-hooded Gull	1	0,27
Gulls (<i>Larus</i> sp.)	1	0,27
American Oystercatcher	1	0,27
Cape Petrel	1	0,27
King Penguin	1	0,27
Seabirds	373	100
South American Sea Lion	9	42,86
South American Fur Seal	7	33,33
La Plata River Dolphin	3	14,29
Commerson's Dolphin	1	4,76
Unidentified Baleen Whales	1	4,76
Marine Mammals	21	100

Table 1: Carcasses recorded by the ECOFAM volunteers from November 2006 to October 2007

During 2007-2008 period, 23 volunteers covered the length of the coasts from Reta to the South and Miramar to the North. It took one hundred and twenty three hours for ECOFAM volunteers to survey the beaches recording 282 carcasses (Table 2) that included 3 sea turtle, 17 seabird and 6 marine mammal species. Even though every record has equal importance when it comes to species conservation, some of them are peculiar due to their rareness, size or threatening level of the specie. At the South Zone of ECOFAM, which covers the coast between Balneario San Cayetano and Quequén Grande River, certain outstanding records were analyzed as they may expand the number of species compared to the first year, or because they respond to some of the characteristics mentioned before. Rubén La Canale, from Orense, reported a *Southern Elephant Seal* which appeared at the central beach during holiday season. Quiroga family, volunteers of Balneario San Cayetano found a Loggerhead sea turtle in May 2008 which, until now, turned to be the only one recorded for ECOFAM. Marisa Díaz and her husband Miguel Albanese recorded a Leatherback turtle's carcass in September of the same year at the seaside of the south of Reta, place they usually survey. Also during September 08 and at other beaches near this place, Mónica Maseda and her husband Marcelino García found a dead whale calf of Southern Right Whale around Médano Blanco. Soon after, in October, they also found an enormous 12-metre-long Sperm Whale that appeared dead near the stream mouth.

IDENTIFIED BEACHED CARCASSES	NOV07-OCT08	%
Green turtle	3	50.00
Leatherback turtle	2	33.33
Loggerhead turtle	1	16.67
Marine turtles	6	100
Magellanic Penguin	213	84.86
Great Grebe	14	5.58
Great Shearwater	4	1.59
Black Browed Albatross	3	1.20
Albatrosses (<i>Thalassarche</i> sp.)	3	1.20
Stern (<i>Sterna</i> sp.)	3	1.20
White-chinned Petrel	2	0.80

Atlantic Yellow-nosed Albatross	1	0.40
Neotropic Cormorant	1	0.40
Olrog's Gull	1	0.40
Blackish Oystercatcher	1	0.40
Manx Shearwater	1	0.40
Sooty Shearwater	1	0.40
Petrel (<i>Pterodroma</i> sp.)	1	0.40
Rockhopper Penguin	1	0.40
Skua (<i>Catharacta</i> sp.)	1	0.40
Seabirds	251	100
South American Fur Seal	11	44.00
South American Sea Lion	9	36.00
Southern Right Whale	1	4.00
Sperm Whale	1	4.00
Southern Elephant Seal	1	4.00
False Killer Whale	1	4.00
La Plata River Dolphin	1	4.00
Marine mammals	25	100

Table 2: Carcasses recorded by the ECOFAM volunteers from November 2007 to October 2008

4.2.2.2 Puerto Deseado

With our support during February 29th of 2012, Chantal Torlaschi and Paula Cedrola from the governmental agency Áreas Protegidas - Consejo Agrario Provincial/Delegación Puerto Deseado realized a trip to the natural reserve Cabo Blanco, in order to check the condition of the reserve and the presence of seabirds died in the beaches of the protected area. The trip was organized with the Prefectura Naval Argentina, the Consejo Agrario and the biologist Annick Morgenthaler of the Centro de Investigaciones de Puerto Deseado - Universidad Nacional de la Patagonia Austral. They found a total of 22 Magellanic Penguins dead in the beaches, mainly juvenile animals (some in condition of shed). As the main specimens were very thin, they think that the penguins died for starvation. The autopsy of 5 individuals gathered in Cabo Blanco, realized in the Centro de Investigaciones de Puerto Deseado, allowed to corroborate the hypothesis of death for starvation, since the stomachs of the individuals were empty and were not presenting other signs of disease or wounds. The press release made by this group for the public opinion explaining: "The mortality during the first year of life of the penguins is very high, for which it is common to find juvenile dead penguins in the beaches and can increased during the epoch of shed, since now. The shed is a natural process during which the penguin renews totally his plumage. It is a process that needs a lot of energy for the formation of the new pens and during 3 weeks that the shed lasts the penguin cannot get to the water and does not feed. On the Patagonian littoral are big colonies of penguins, this is the reason see animals in these conditions in the beaches is not alarming. It is necessary to remark that penguins molting present a *discolored and disheveled* plumage. Seeing this plumage we can think that they are very sick, but it is only a natural effect. We are grateful to the Prefectura Naval Argentina and Annick Morgenthaler of the Centro de Investigaciones de Puerto Deseado - UNPA" (Appendix 3, Figures 6 and 7)

4. 3. *Onboard observer program*

4.3.1. Observations onboard

Seabirds species composition and the relative abundance of seabirds associated to fishing operations were recorded for 24 fishing days. The checklist of birds for this area indicates a total of 44 species recorded in the region. We recorded 13 species: 10 species of Procellariiformes order, 2 Charadriiformes and 1 species of Sphenisciformes. Two of the 13 species recorded breed exclusively at Tristan da Cunha Archipelago. A total

of 7 species (6 Procellariiformes and 1 Sphenisciformes) breed only at Patagonia and/or Antarctic Islands. Another 2 species breed in the Northeast Atlantic Area and one reproduces at New Zealand (Table 3 and Figure 2).

Although *T. melanophrys* breeds at Falklands/Malvinas Islands and South Georgia Islands, radio-tracking studies showed that the population from S. Georgia migrates exclusively to South African Coasts and then the individuals observed in our study area came from Falkland Islands /Malvinas (BirdLife 2004). The Great Shearwater (*Puffinus gravis*) makes trans-equatorial migrations beginning in April and returning to the colonies in September (Harrison, 1983). This species was the most frequent recorded in spring. This is evidence that this species use the study area during the breeding season. The records from winter possibly are juveniles that stay in the study area while adults come back to northern hemisphere at the end of the breeding season (from Neves 2000).

Species	TCG	PAI	ANT	NZ	NH
<i>Thalassarche chlororhynchos</i>	X				
<i>Puffinus gravis</i>	X				
<i>Macronectes giganteus</i>		X	X		
<i>Oceanites oceanicus</i>		X	X		
<i>Procellaria aequinoctialis</i>			X		
<i>Puffinus griseus</i>		X	X		
<i>Spheniscus magellanicus</i>		X	X		
<i>Sterna hirundinacea</i>		X	X		
<i>Thalassarche melanophris</i>		X	X		
<i>Larus dominicanus</i>		X	X		
<i>Daption capense</i>			X		
<i>Diomedea epomophora</i>				X	
<i>Puffinus puffinus</i>					X
Total	2	7	9	1	1

Table 3: Abbreviations: TCG, Tristan da Cunha and Gough Islands, PAI, Patagonia and Antarctic Islands, ANT, Antarctica, NZ, New Zealand, NH, Northern Hemisphere.

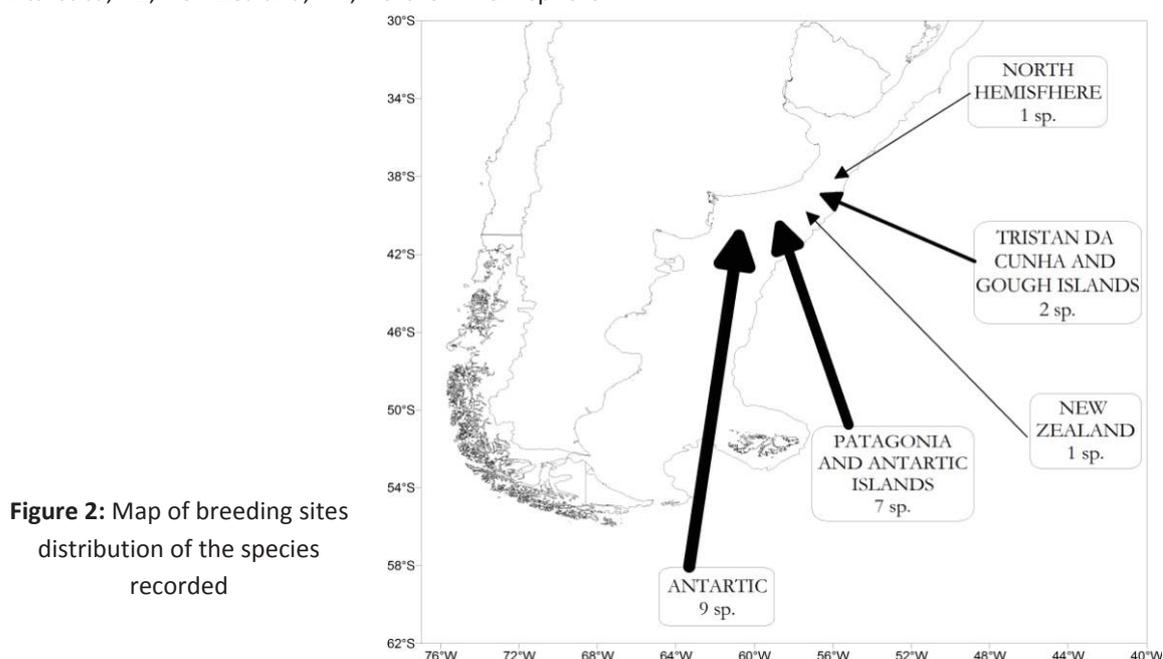


Figure 2: Map of breeding sites distribution of the species recorded

4.3.2. Incidental capture

We record the incidental capture rates of *Puffinus griseus* and *Spheniscus magellanicus* in Puerto Quequén. The rates were 0,178 and 0,027 individuals/haul respectively (Table 4)

MONTH	HAULS OBSERVED	SEABIRDS CAPTURED
August '07	9	1 <i>Spheniscus magellanicus</i>
December '07	12	-
January '08	14	-
February '08	12	-
May '08	17	14 (1 <i>Spheniscus magellanicus</i> , 13 <i>Puffinus griseus</i>)
August '09	9	-

Table4: Details of the onboard observers programme organized in Puerto Quequén, Buenos Aires Province.

As in the results of the first Seabirds Incidental Capture project, the fact of this kind of interaction was only registered in *P. griseus* and *S. magellanicus* suggest that the fishing gears used by coastal fisheries in the Buenos Aires province are a source of mortality mostly for diving species. Since they get caught by the net underwater and drown latter. *P. griseus* is a shearwater that submerges up to 10 meters to capture its preys and can also fly while the Magellanic Penguin goes deeper underwater and is incapable of flying. These characteristics make them vulnerable to incidental capture on different moments of the haul.

Both of these species migrate during the year, what can cause a local seasonality in the occurrence of incidental capture. Besides, the Magellanic Penguin is a prey specialist, since its diet is mostly composed of anchovy and hake (Gandini et al., 1999), characteristic that can make fluctuate the presence of this species in the area even more, making the incidental capture events highly unpredictable.

Incidental capture of *S. magellanicus* and *P. gravis* was registered in coastal fisheries of the Patagonia (Gandini et al., 1999, Gonzalez Zeballos and Yorio 2003). Therefore, although the extent of the mortality caused by a single fleet could be considered low, the whole situation can be much larger when we take into account the whole region fishing activities (Appendix 3, Figure 8).

No albatross was captured during our study. Albatrosses are killed by longline fisheries mainly when they hit the lines or bite the hooks. Although it is likely for them to collide with the net cables of trawlers, if it happens fishermen are unable to see it, since it occurs at the stern, and they work at the opposite side of the ship. The collision with cables would cause the fracture of the albatross wings, which would lately fall to the water and die. On the other hand, it is improbable that they get trapped on the net since they do not generally chase preys by diving.

4.4. The RINGs PAGE

4.4.1. Species

In the start webpage we bring basic information about ringing birds and some tips for to obtain maximum data in presence of a ringed bird. Below, the guest can see some buttons with a representative draw of main shorebirds and seabirds groups: gulls, terns, penguins, petrels, albatrosses, cormorants, skimmers, knots, sandpipers, sanderlings and more. Through buttons he access to data card of each specie and ringing program. If specie identification and marks characteristics are positive, the observer accesses to the report form. In the form he complete general data (date, place, geographical position), rings observed characteristics, plumage (pigeon, immature, reproductive, non reproductive), bird status (live, alive, damaged), presence of other individuals of the same specie and another species around. The report system allows attaching photographs, and if the observer likes it, can receive a copy of the sending data.

Eight work groups bring us information about their scientific ringing projects, which involves eight species. The information gathered has made possible to edit 20 data cards (Appendix 3, Figures 9).

- Aves Marinas – CENPAT (Centro Nacional Patagónico)
Referring: Dr. Pablo García Borboroglu
Kelp Gull (*Larus dominicanus*) and Olrog's Gull (*Larus atlanticus*)
- Laboratorio de Vertebrados – Facultad de Ciencias Exactas y Naturales – Universidad Nacional de Mar del Plata
Referring: Dr. María Paula Berón
Olrog's Gull (*Larus atlanticus*)
- Programa de Conservación de la Gaviota Cangrejera en el estuario de Bahía Blanca, Bahía Falsa y Bahía Verde – OPDS (Organismo Para el Desarrollo Sustentable) – Aves Argentinas
Referring: Msc. Pablo Petracci
Olrog's Gull (*Larus atlanticus*)
- Programa Internacional de Anillado y Conservación de Gaviotines en el Cono Sur
Referring: Alejandro Gatto
Royal Tern (*Thalasseus maximus*), South American Tern (*Sterna hirundinacea*) and Cayenne Tern (*Thalasseus sandvicensis eurygnathus*)
- Proyecto Sterna – Asociación Averaves (Uruguay) y Programa Internacional de Anillado y Conservación de Gaviotines en el Cono Sur
Referrings: Javier Lenzi, Matilde Alfaro y Sebastián Jiménez
Royal Tern (*Thalasseus maximus*) and Cayenne Tern (*Thalasseus sandvicensis eurygnathus*)
- CENPAT – Wildlife Conservation Society – Aves Argentinas
Referring: Dr. Flavio Quintana
Southern Giant Petrel (*Macronectes giganteus*)
- Proyecto Pingüino de Magallanes. Washington University and Wildlife Conservation Society
Referring: Dr. Dee Boersma
Magellanic Penguin (*Spheniscus magellanicus*)
- Ecología y Conservación de Vertebrados – Facultas de Ciencias Exactas y Naturales – Universidad Nacional de Mar del Plata
Referring: Dr. Rocío Mariano-Jelicich
Black Skimmer (*Rinchopterus nigripes*)

4.4.2. Ringed birds records

Through working period of the report system into ECOFAM website, we have been received 31 reports of ringed birds, 29 of these attached photographs. The reports comprise 2 species: Olrog's Gull and Magellanic Penguin (Appendix 3, Figure 10).

4.4.3. Institutional support

We have obtained support of some institutions and NGO's which understand the importance of our initiative: Aves Argentinas, Vogelbescherming Nederland, Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" – CONICET, Estación Hidrobiológica de Puerto Quequén and Proyecto Sterna (Uruguay).

4.4.4. Spreading

Furthermore of diffusion made between volunteers of ECOFAM Project and members and birdwatchers through Aves Argentinas, the report system was presented at the First Natural Protected Areas Congress of the Buenos Aires Province (Congreso de Áreas Naturales Protegidas de la Provincia de Buenos Aires), in September 2010. The presentation was carried on in poster format with the title "*Una herramienta para incrementar el reporte de aves costeras y marinas anilladas*" (A tool to increase the report of ringed shorebirds and seabirds).

5. DISCUSSION

5.1. *Education and spreading*

We have also focused much effort on promoting sea turtles, seabirds and marine mammals awareness by working with elementary, high-school, university students and others level of education. We made several activities with students of all that level. This work has come in various forms, such as preparing the *Science and Technology National Week* for the local elementary schools and holding regular classes on marine conservation with children at grade schools in Necochea. We were very close to put ECOFAM like regular classes in the elementary school of Claromecó, today we are in negotiations for this. ECOFAM was the incredible methods for educate, not like a formal education, quite the opposite a much participated method.

Plus, we were pleased to participate in the various national and international meetings with greater cooperation of others institution. For example, the collaborations with institution so important like PRICTMA were a great step for our young project.

5.2. ECOFAM *Project*

The survey made by de ECOFAM volunteers helps to create base information about the mortality patterns of these species. Now local people can know the minimum quantities of dead animals by year. From the records of the mortality data we follow the public awareness of the coastal communities about the care of the environment. We present some results of records of beached carcasses.

5.2.1. Sea turtles

Eight of nine (89 %, Figure 3) records of sea turtles were made between March and June. Probably the decrease of the sea temperature during these months can be one of the reasons of the beached events.

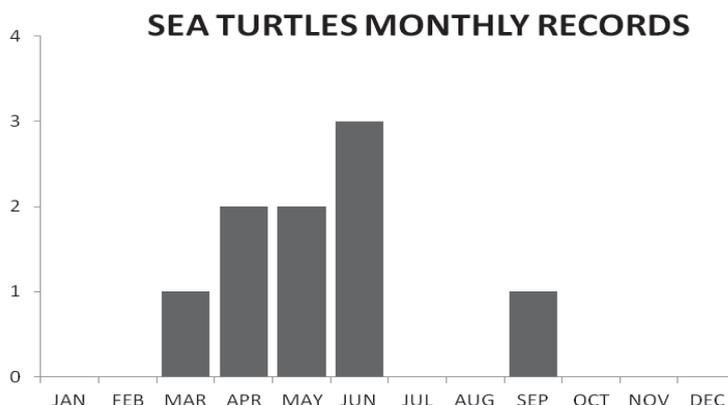


Figure 3: Sea turtles beached monthly record by the ECOFAM volunteers

5.2.2. Seabirds

The volunteers found 373 carcasses of 11 species during the first year and 251 carcasses of 12 species on the second. The main part of the seabirds found was Magellanic Penguin (*Spheniscus magellanicus*)

5.2.2.1. Penguins

The Magellanic Penguin (*Spheniscus magellanicus*) was the species most found with 331 records, 99.7 % of them being juveniles. The volunteers not only recorded and identified the carcasses, but also tagged them with seals in order to avoid double-counting at the next survey due to the fact that many marine mammals

remain at the beach for several months. The 90,2 % of the first period records were take over March and April (38 % and 42,2 % respectively, Figure 4). On the other hand, the pattern of carcasses had shown two separated maximum on the second period. These peaks coincide with the migration of this specie from Punta Tombo, Chubut Province in Argentina (the main breeding site of the specie with more than 175.000 breeding pairs) to the Southern Brazil waters.

Although ECOFAM don't investigate about the causes of disease of these specimens, we made some analysis on the Magellanic penguins founded dead. Specimens with starvation, parasites and plastics ingestion were observed.

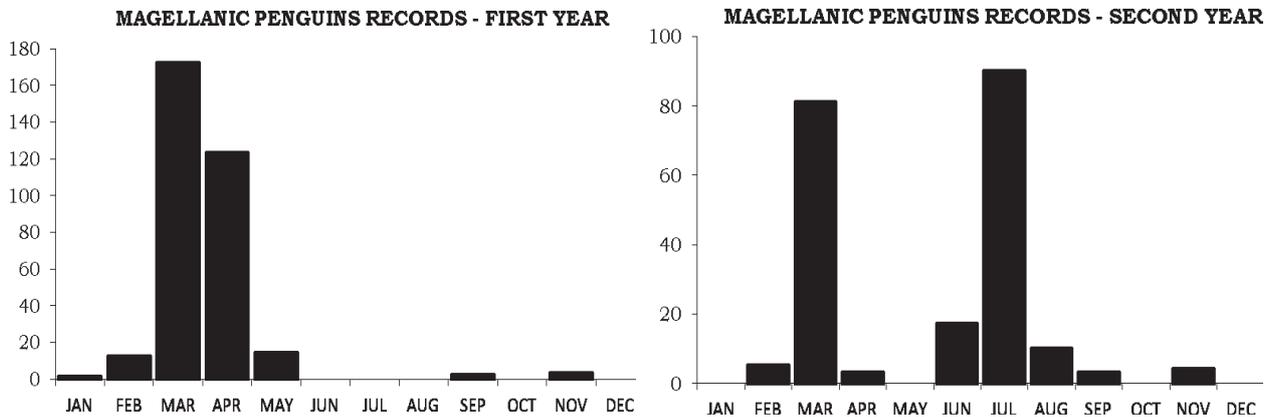


Figure 4: Magellanic Penguins beached monthly record by the ECOFAM volunteers

5.2.3. Marine mammals

The main species found on the beach were Southern Sea Lion (*Otaria flavescens*, 18 records, 9 in each period) and South American Four Seal (*Arctocephalus australis*, 18 records, 7 and 11 respectively). The records don't shown seasonality but the main amount (75 %, Figure 5) was found near Necochea and Puerto Quequén when more than 500 specimens can be seen on the port and the breakwaters.

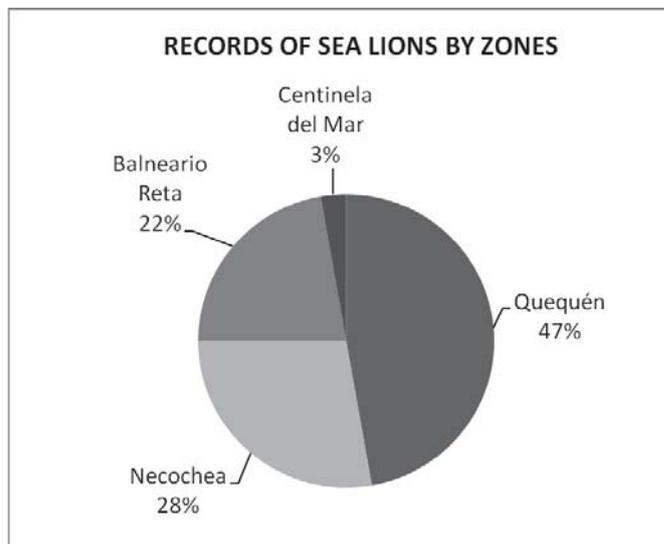


Figure 5: Proportions of sea lions of both species by localities

5.3. **Onboard observer program**

5.3.1 Problems and solutions

As in the first project of Seabirds Incidental Capture, during this project we had some problems with the onboard programme: the synchronization between the team at each trip, the climatic conditions of the region and the commercial nature of the fisheries. For example: the duration of the trip of the coastal vessels of PQ were 60 hours then few captains were disposed to support one observer during this time. Moreover several fishermen do not have means of communication (telephone, radio, etc.) then it was difficult to arrange an encounter to share some fishing trips. These problems gave as consequently a low quantity of days onboard in spite of a lot of days spent in the ports.

5.4. **The RINGs PAGE**

The initiative has been successful between ringing programs of Argentina and the area countries, and was good received for the birdwatchers.

Starting from questions and sugerences received was made to improve the index cards contents, a keystone element for the positive identification of species and rings used. We are grateful with people that send us ideas and tips for do it.

This enterprise has possible to optimize effort's volunteers (in some cases, people take part of groups, volunteers and birdwatchers) and to channel citizen participation in keys areas for conservation and monitoring marine fauna. On other hand, this activity constitute an opportunity for to increase thematic of the Escuela Argentina de Naturalistas (Aves Argentinas-AOP), students of Tecnicatura and Licenciatura en Ciencias Biológicas de la Universidad CAECE, Universidades Nacionales (Mar del Plata, Puerto Madryn y Puerto Deseado) and governmental offices as Secretaria de Ambiente y Desarrollo Sustentable de la Nación, Organismo Provincial para el Desarrollo Sustentable de Buenos Aires between the mean interested, with they who exist formal and informal vinculacions.

At present the report system of ringed birds' works into the Aves Argentinas website: www.avesargentinas.org.ar/12/03-aves_marinas_registro_de_avistajes.php.

6. CONCLUSIONS

- Throughout comparison by bibliography, the sea turtles, seabirds and marine mammals beached counts can support the hypothesis of the populations decline or, at least, the reduction of the distribution. But for make conclusions about the motility patterns of the marine megafauna species is necessary a wide temporal series.
- Due the presence or not of the seabirds on the beach can be altered by a lot of factors, this methodology can't be used as a proof of population decline *per se*. But it may be useful joining this kind of data with others (fishing data, breeding data, migration, etc). The main benefits of a programme of counts is that's cheap and easily to implement because it can be made by volunteers with a simple training.
- Like in our first project in 2003, incidental capture of two species threatened (*Spheniscus magellanicus* and *Puffinus griseus*) even though their populations are numerous (Gandini *et al.*, 1999, Marchant and Higgins, 1990), was registered like in other studies which detected incidental capture of seabirds in Puerto Quequén (*S. magellanicus* in pair surface trawl nets, Tamini, *et al.*, 2002). Incidental capture of albatrosses is not dismissed.
- The bottom trawl net emerged like a strong risk for seabirds due to the great effort in the Buenos Aires Province's fleets and the entire Argentine Sea.

7. RECOMMENDATIONS

- To give continuity to the ECOFAM project o similar like a strong way of share and produce high value information about the health of marine environment.

- To implement an observer on board program with a higher experimental effort to identify other species involved on incidental capture.
- To give continuity to the educational work at the south of Buenos Aires Province and generate a local consciousness about the importance of these populations on marine communities and ecosystems
- To study the use of the fish discard as a food resource by seabird species involved on incidental capture, and its relationship with individual characteristics, such as sex, age, and health condition

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Appendix 1:**Table 1:** Talks for ECOFAM volunteers

Date	Site	Take place at	Public
03/11/2006	Balneario Los Angeles	Escuela N° 29 "Antártida Argentina"	5
04/11/2006	Necochea	Escuela N° 3 "República de Nicaragua"	20
12/11/2007	Orense	Biblioteca "Amigos del Libro"	15
13/11/2007	Claromecó	Centro Cívico	25
15/11/2007	Necochea	Asociación 4x4	5
16/11/2007	Quequén	UNICEN Quequén	15
17/11/2007	Necochea	Municipalidad de Necochea	10
20/12/2007	Miramar	CEDIS	20
20/12/2007	Miramar	Municipalidad de General Alvarado	3
30/08/2008	Reta	Biblioteca "Un mundo de libros"	15

**Figure 1:** Course for volunteers. Theoretical talks in *Reta*



Figure 2: Course for volunteers. Theoretical talks in *Orense*.



Figure 3: Course for volunteers. Field work practice in *Reta*.



Figure 4: Course for volunteers. Field work practice in Reta.



Figure 5: Science and Technology National Week. Talk for children.



Figure 6: Science and Technology National Week. Final work selected by a teacher (ECOFAM's volunteer) for to develop a project with her students (Penguins on Necochea's beaches).

Table 2: Media summary

Place	Media	Details of feature	Circulation
Buenos Aires	Nuestras Aves Magazine N° 25	Article about the programme.	1.500
Necochea	Radio Maestra. FM 97.3	Interview with Rubén Dellacasa and Jorgelina Pintos.	3.000
Claromecó	Radio Cooperativa Claromecó. FM 97.9	Interview with Rubén Dellacasa about UAPA National Meeting	2.500
Tres Arroyos	La Voz del Pueblo	Article about UAPA meeting and Pollution Census with Leandro Tamini and Rubén Dellacasa	7.500
Tres Arroyos	La Voz del Pueblo	Article about Clean Beaches (Playas Limpias) Program	7.500
Buenos Aires	Book of 200 years of MACN	Mention of ECOFAM Programme activities	2.000
Buenos Aires	Carnotaurus N° 91	Mention of ECOFAM Programme activities	500
Buenos Aires	Carnotaurus N° 97	Mention of ECOFAM Programme activities	500
Reta	www.el-reta.com	Several interviews	1.000



EL CARNOTAURUS
BOLETIN DEL MUSEO ARGENTINO DE CIENCIAS NATURALES
BERNARDINO RIVADAVIA - AÑO IX - NÚMERO 97 - OCTUBRE 2008



EL CARNOTAURUS
BOLETIN DEL MUSEO ARGENTINO DE CIENCIAS NATURALES
BERNARDINO RIVADAVIA
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Conferencia en el MACN por el doctor Matt Yoder: Large scale taxonomic efforts (ver página 4)



Algunas imágenes de avispas proyectadas durante la conferencia

15 de noviembre: La Noche de los Museos en el MACN (ver página 12)



Conferencia en el MACN por el doctor Matt Yoder: Large scale taxonomic efforts (ver página 4)

Colaboraron en este número

H. Aguilar, V. Barreda, A. Bosso, L. Chornogubsky, E. Coluccio, R. Gutiérrez, C. Kopluchian, D. Olivera, M. Ramirez, L. Tamini, M. L. Tombesi.

Equipo costero de observadores de fauna y ambiente marinos, ECOFAM (ver página 5)

Asistentes al curso de capacitación de voluntarios con el licenciado Leandro Tamini.



Area de trabajo del proyecto ECOFAM



El visitante más joven de la temporada en la EHPQ (ver página 7)



Lucas Iván Juárez, de 24 días de edad, junto con su hermano Nicolás y su mamá Karina Lamberto.

Lanzaron ECOFAM (ver página 6)

Un proyecto para estimar la mortalidad de tortugas, aves y mamíferos marinos mediante la participación de voluntarios



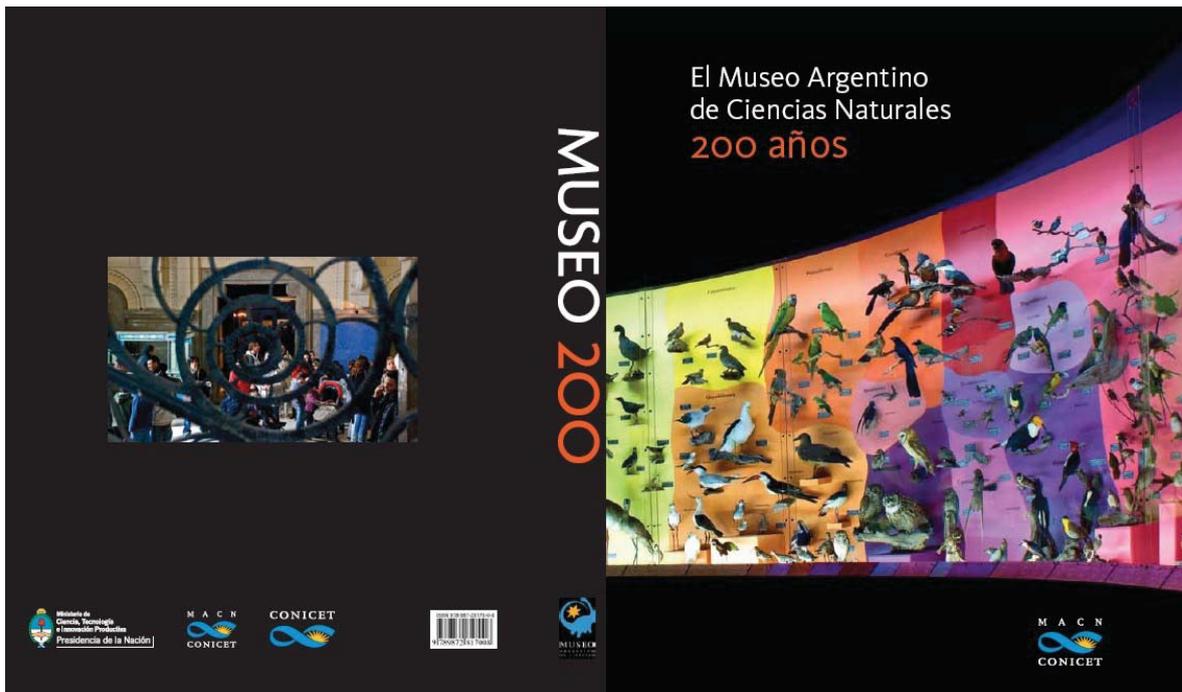
Colaboraron en este número

Ricardo Barbetti
Esteban Barrera Oro
Luis Nogueira
Leandro Tamini
Olga Vaccaro
Gabriel Zunino

Colaboraron en este número

Ricardo Barbetti
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Figure 7: Cover of El Carnotaurus Bulletin for personnel of MACN. Numbers 91 and 97 - 2008



sobre ecología de organismos bentónicos e intermareales, estudios sobre el impacto de la contaminación orgánica (cloacal) en la flora y la fauna costera, estudios de parásitos de peces, estudios de osteología de peces marinos de importancia comercial, estudios sobre la pesquería costera con base en Puerto Quequén, estudios sobre la comunidad pesquera de la zona, estudios sobre la biología de diversas especies de tiburones y rayas, estudios de mamíferos fósiles y diversidad de peces de la cuenca del río Quequén.

En zom en la EHPQ trabajan de manera cotidiana dos técnicos de la CPA, un Investigador de la CIC, y se provee apoyo a Aves Argentinas para su programa de aves marinas y al Instituto Nacional de Investigación y Desarrollo Pesquero (INIDEP) para su programa de muestreo de desembarco.

Hasta 1999 el Museo de Fauna Regional estuvo abierto casi exclusivamente los veranos para el turismo; el resto del año las visitas se restringían sólo a invitaciones o pedidos especiales. Durante ese año, y con el apoyo de empresas y particulares de Quequén y Necochea, se llevó a cabo la restauración del exterior de la EHPQ –conservando mayormente su estilo original– y de las salas de su Museo, las cuales también fueron restauradas y reformadas, agregándose a la muestra una nueva sala de fósiles de la región. Desde ese año el Museo se abrió durante el ciclo lectivo para contingentes escolares y durante el verano de martes a domingo para público en general.

Algunos de los moldes de animales marinos que se exhiben en este Museo son gemelos de los que se presentan en la sala de gigantes del mar del MACN, y buena parte del material en exhibición proviene de donaciones realizadas por pescadores locales. El resto fue obtenido por personal del MACN y de la EHPQ. En marzo de 2005, y con la colaboración de un subsidio de la Fundación Antorchas, se reforma el Museo de la EHPQ y se realiza una muestra donde se exhibe una nueva propuesta correspondiente a una historia sobre el océano y sus habitantes. Las piezas con que contaba el Museo de Fauna Regional de la EHPQ se renovaron, se incorporaron nuevas y se logró un guión autoguidado. El recorrido, que privilegia a los más chicos, es didáctico e incluye información sobre Invertebrados marinos, peces, aves marinas, tortugas marinas, lobos marinos, focas y delfines, sin olvidar a los organismos microscópicos que forman el plancton. También se pueden conocer algunos habitantes costeros de hoy y cuenta con un lugar para la exhibición de fósiles de la zona. En la sala "Prohibido no tocar" la muestra ofrece Interacciones con objetos y elementos naturales, a través de la observación de elementos interactivos *in situ* para jugar con el conocimiento. Se puede tocar piel de lobo marino, de corvina, de tiburón, de gaviota o de pingüino; conocer la receta para fabricar arena, entre otras muchas propuestas para jugar y aprender. En los últimos tres años se montaron exhibiciones sobre interacción entre mamíferos fósiles y el hombre primitivo de la zona, aves marinas y orcas varadas en Quequén.

En la relación con la comunidad de Quequén-Necochea, la EHPQ ha desarrollado en los últimos años varias líneas de interacción: anualmente coorganiza la "semana de la ciencia" junto a otros investigadores del



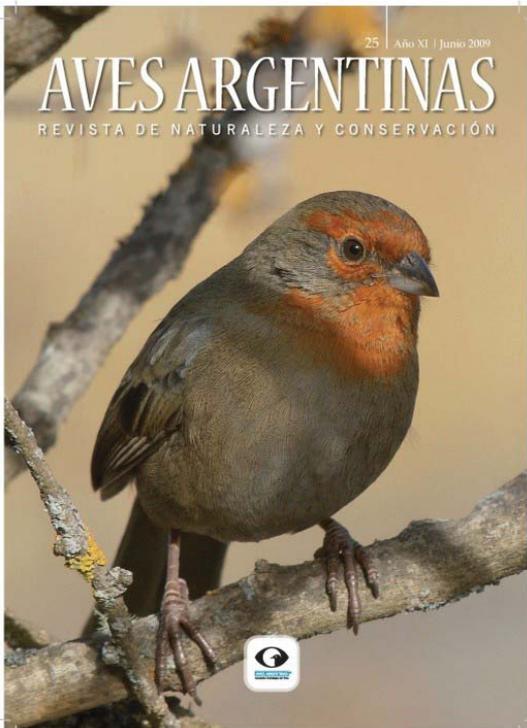
Armando el esqueleto de una orca.

Conicet afinados en la zona, participa de la feria de ciencias local, desarrolla el programa Equipo Costero de Fauna Marina (ECOFAM) junto a voluntarios, desde Miramar a Monte Hermoso, y ha participado del rescate y la puesta en exhibición del esqueleto de una orca coordinadamente con alumnos de escuelas de la zona dentro del programa Pafios Abiertos del Ministerio de Educación de la provincia de Buenos Aires.

La EHPQ puede ser utilizada como base por estudiantes e investigadores que necesitan desarrollar actividades que requieren de trabajos de campo y procesamiento de muestras en laboratorio en el área.

Gustavo E. Chiamonte

Figure 8: Cover of 200 years Book of Museo Argentino de Ciencias Naturales “Bernardino Rivadavia” and mention of ECOFAM Programme activities.



En noviembre de 2006 se crea el Equipo Costero de Observadores de Fauna y Ambiente Marino (ECOFAM) con el fin de formar una red de observadores que identifiquen los restos de animales marinos varados en las playas a lo largo de 200 km de costa entre las localidades de Miramar y Reta en el sur de la provincia de Buenos Aires. Se ven hallarse carcasses de tortugas, aves y mamíferos marinos. Como parte de este programa, varios voluntarios del grupo especialmente entrenados dirigen sondeos sobre una extensión particular de costa. Cada carcasa es medida, identificada, fotografiada, marcada individualmente, y en la mayoría de los casos dejada en el lugar.

¿Por qué estas especies? ¿Por qué no peces o algas marinas? Muchos restos yacen sobre las playas. Algunos son difíciles de identificar, como en el caso de invertebrados o peces que se encuentran deshidratados. Las tortugas, aves y mamíferos son habitualmente comunes, y en ocasiones abundantes. Sus restos son fácilmente visibles y generalmente todo el mundo sabe diferenciarlos de los demás organismos. Otra de las razones es que muchas poblaciones de estas especies se encuentran en bajo número o están en declinación debido al impacto generado por las actividades del hombre o sus desechos (por ejemplo, la contaminación). Estos hallazgos proveen información sobre el estado de conservación de los ambientes costeros. Otros factores que pueden afectar sus poblaciones son el clima, la actividad pesquera, los derrames de petróleo y cambios en el hábitat.

GENTE LOCAL EN ACCIÓN

La "ciencia ciudadana" es la asociación entre las comunidades locales (aquellas personas que conocen y viven cerca de los recursos naturales) y los científicos. Desde la Estación Hidrobiológica de Puerto Quequén y la División Ictiología del Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" estamos trabajando desde hace varios años en tratar de comprender las relaciones que existen entre la fauna, las pesquerías y el ecosistema costero.

¿Por qué deberían ciudadanos y científicos trabajar juntos? Los científicos no podrían, aunque quisieran, dedicar todo su tiempo a coleccionar datos. Existen demasiados lugares, especies, e interacciones como para realizar un monitoreo eficiente. Afortunadamente, no es necesario que una persona sea un científico para conocer o cuidar el medio ambiente. Cualquiera que trabaje o incluso camine al aire libre puede saber mucho sobre el mundo que nos rodea. La "ciencia ciudadana" reconoce este valor de la información y entusiasma entrenando personas para coleccionar datos de manera adecuada y altamente provechosa. Al mismo tiempo, los pobladores locales se benefician aprendiendo sobre los patrones de

Los plásticos que se colocan para identificar las diferentes carcasses halladas a lo largo de la costa.

Una voluntaria de ECOFAM muestra una carcassa de tortuga hallada en las costas del Balneario Reta.

del Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" estamos trabajando desde hace varios años en tratar de comprender las relaciones que existen entre la fauna, las pesquerías y el ecosistema costero.

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ÁREA DE ACCIÓN DE ECOFAM

cambio en sus recursos locales. El hecho de saber que está pasando en la naturaleza local otorga a los ciudadanos las herramientas para proteger sus recursos naturales, pudiendo hacer presión para que las cosas mejoren.

Los datos coleccionados por voluntarios de ECOFAM serán empleados para estudiar el patrón espacial en la deposición de carcasses y como va-

¿POR QUÉ ENCONTRAMOS PINGÜINOS MUERTOS EN LAS PLAYAS?

Por Jorgelina S. Pintos. Coordinadora de voluntarios ECOFAM / info@ecofamargentina.org

El pingüino patagónico tiene una amplia distribución sobre la costa Atlántica de la Patagonia Argentina. Sus colonias se sitúan desde el golfo San Matías, Rio Negro, hasta la Isla de Tierra del Fuego. El ciclo reproductivo de esta especie se extiende desde septiembre hasta abril. Los aves adultas arriban al área de nidificación durante las primeras semanas de septiembre y la puesta de huevos comienza a fines de dicho mes, prolongándose la incubación hasta octubre y parte de noviembre. Las primeras nacimientos ocurren durante la primera semana de noviembre culminando hacia fines del mismo mes.

Luego de un período de alrededor de 70-100 días, los pichones cambian sus planes por el pingüino juvenil. A partir de este momento inicia su vida pelágica de alimentación independiente, efectuando una lenta y progresiva migración hacia el norte, llegando hacia las costas de Brasil. Esta migración comienza hacia fines de febrero y principios de marzo.

En relación con estos desplazamientos, en la costa sur de la provincia de Buenos Aires es frecuente el hallazgo de juveniles de la especie muertos durante el verano. De acuerdo con los datos registrados y la bibliografía, esta es la época de edad con mayor tasa de mortalidad de la especie. Por el momento, no es posible establecer la causa concreta de estos eventos, dado que ocurren durante el período migratorio, que es esencialmente pelágico. Posiblemente estos juveniles sean víctimas de alimentación, parasitismo y fatiga por las distancias recorridas ya que algunos ejemplares que fueron hallados muestran síntomas de desnutrición.

Juveniles de pingüino patagónico en la entrada del río.

ria a través de las estaciones a lo largo del año. También serán utilizados para determinar el ritmo de aparición de carcacas y el tiempo que permanecen en la playa. La información generada por estos relevamientos ayuda a crear una base, que será usada como patrón "normal" de mortalidad de estos animales marinos. Cabe resaltar que ECOFAM no indaga acerca de las causas de la muerte, siempre si toma nota en el caso de heridas exteriores que los ejemplares hallados posean. Con esta información podemos detectar eventos inusuales como incrementos en la mortalidad durante un año del fenómeno El Niño. Incluso, todo este pagado de datos puede ser utilizado para determinar el aumento en la mortalidad a partir de los niveles previos conocidos. Tal vez más importante, los datos de ECOFAM pueden ser empleados para identificar cambios a largo plazo en el estado de las poblaciones de la fauna marina.

EDUCAR PARA CONSERVAR

Entre fines de 2007 y mediados de 2008 se realizaron jornadas de capacitación en las localidades de Clacomeo, Olmos, Viechosa, Puerto Quequén, Miramar y Pata. En estas charlas abiertas a la comunidad, se alentó especialmente la participación de docentes de todas las áreas y otras personas que realizaran tareas educativas (guías de museos y de turismo, guardavidas y guardatamanas, entre otros) como una forma de multiplicar la actividad. En estos encuentros se presenta el proyecto y las maneras de reconocer las tortugas, aves y mamíferos marinos presentes en la zona. A su vez, se les brindan conocimientos y herramientas a los voluntarios para desarrollar distintas tareas como identificación, registro y fotografía. En la práctica del curso, cuando el tiempo lo permite, se recorre la playa en busca de carcacas y se realiza el procesamiento del material.

Como parte del proyecto se llevó a cabo una intensa campaña de difusión planteada en dos etapas. La primera parte consistió en una educativa

un grupo de voluntarios de ECOFAM en plena tarea, tomando los datos de la carcaca encontrada.



LOS PRIMEROS DATOS

CARCACAS IDENTIFICADAS	NOVIEMBRE 2006	OCTUBRE 2007	NOVIEMBRE 2007
Tortuga verde (<i>Chelonia mydas</i>)	2	3	
Tortuga león (<i>Demochelys coriacea</i>)	1	2	
Tortuga cabezona (<i>Caretta caretta</i>)	3	6	
Total tortugas marinas			
Pinguino patagónico (<i>Spheniscus magellanicus</i>)	331		213
Pardela cabeza negra (<i>Puffinus gravis</i>)	11		4
Albatros ceja negra (<i>Thalassarche melanophrys</i>)	6		3
Carcaca oscura (<i>Larus dominicanus</i>)	5		-
Albatros (<i>Thalassarche</i> sp.)	5		3
Petrel baya blanca (<i>Procellaria aequinoctialis</i>)	4		2
Maca grande (<i>Procellariopsis major</i>)	3		14
Biguá (<i>Phaethon rubricauda</i>)	2		1
Carcaca (<i>Chloris</i> sp.)	1		3
Carcaca capullo café (<i>Chroicocephalus maculipennis</i>)	1		-
Carcaca (<i>Larus</i> sp.)	1		-
Carcaca común (<i>Haemastur palliatus</i>)	1		-
Petrel canero (<i>Caprim capensis</i>)	1		-
Pinguino rey (<i>Spheniscus patagonicus</i>)	1		-
Albatros pico fino (<i>Thalassarche albanorhinchos</i>)	-		1
Carcaca cangrejera (<i>Larus atrovirens</i>)	-		1
Carcaca negra (<i>Haemastur ater</i>)	-		1
Pardela boreal (<i>Puffinus puffinus</i>)	-		1
Pardela oscura (<i>Puffinus gravis</i>)	-		1
Pinguino penacho amarillo (<i>Sudyptes chrysolomeus</i>)	-		1
Petrel (<i>Procellaria</i> sp.)	-		1
Falsa (<i>Cathartes</i> sp.)	-		1
Total aves marinas	373		251
Lobo marino de un pelo (<i>Urocyon flavescens</i>)	9		9
Lobo marino de dos pelos (<i>Arctophthalmus australis</i>)	7		11
Franciscana (<i>Pteronotus blainvilliei</i>)	3		1
Tomina oscura (<i>Cephalorhynchus commersoni</i>)	1		-
Balena barbada (<i>Megaptera</i>)	-		-
Balena franca austral (<i>Globicephala australis</i>)	-		-
Cachalote (<i>Physeter macrocephalus</i>)	-		1
Estreño marino del sur (<i>Stenoptera genivittata</i>)	-		1
Pata oscura (<i>Phocaena cosquini</i>)	-		1
Total mamíferos marinos	21		25

presentación en radios y periódicos locales, apuntando principalmente a la participación de la comunidad en los cursos. La siguiente etapa se basó en la utilización de recursos permanentes que sirven por objetivo difundir el proyecto e información relacionada a nivel regional y nacional. Para ello, se diseñó un afiche que fue distribuido en todas las localidades en las que se encuentra el programa. Paralelamente, se desarrolló el sitio de

de arriba hacia abajo, dos imágenes de maca grande observada por un voluntario ECOFAM. Albatros ceja negra en la playa del sur de la provincia de Buenos Aires. Una de las bandos de pingüinos encontrados. Imágenes, ejemplar de tortuga león, la más grande de las tortugas marinas.



internet del proyecto (www.ecofamargentina.org) en donde se puede encontrar información, un calendario de actividades, noticias de los voluntarios, entre otras cosas.

LOS PRIMEROS DOS AÑOS

Durante los primeros 24 meses de actividades, unos 30 voluntarios recorrieron las playas, a pie o en vehículo, de las 13 localidades que abarca el proyecto, empleando para ello alrededor de 200 horas. En el primer año se identificaron 393 carcacas de 2 especies de tortugas, 11 de aves y 4 de mamíferos marinos mientras que durante el segundo año, fueron registradas 282 carcacas de 3 especies de tortugas, 16 de aves y 7 de mamíferos marinos. Si bien todos los registros tienen la misma importancia desde el punto de vista de la conservación de las especies, en ciertos casos resultaron singulares, ya sea por su rareza, su tamaño o el nivel de amenaza de la especie en cuestión. Se produjeron hallazgos que merecen ser destacados porque cumplen con algunas de las características antes citadas. Entre las aves marinas podemos mencionar el pinguino rey,

el otruero negro o el estúta, raro para la zona. Aunque quizás el dato más interesante en cuanto a las aves marinas fue el registro de un gran porcentaje de pinguino patagónico juvenil: el 88,5% del primer año y el 81,5% del segundo año del total de los registros. Algunos individuos tenían bandos metálicas utilizadas para obtener informaciones sobre los desplazamientos de los pingüinos cuando abandonan las colonias de reproducción. Por tanto, una vez detectado el origen de los anillos, los investigadores correspondientes fueron informados. Los registros raros de tortugas y mamíferos marinos incluyen la tortuga cabezona, la falsa orca, la tomina oscura, el elefante marino del sur, la balena franca austral y el cachalote.

En suma, se trata de una iniciativa original, cuyos aportes pueden resultar de relevancia para conocer la dinámica de poblaciones de especies amenazadas y además está siendo llevada a cabo por gente joven que le imprime un impulso renovado.

Sumate a la iniciativa de ECOFAM

Podés conocer las distintas actividades de ECOFAM visitando el sitio: www.ecofamargentina.org

ECOFAM es parte del Project Seabirds Argentina: Conservation through community involvement subvencionado por el Conservation Leadership Programme

RAFAEL: UNA LUZ DE ESPERANZA

Rafael Sánchez Oliva es el integrante más joven de nuestro proyecto. Criado en su isla de origen, siempre está presente a la hora de recorrer la playa. Con apenas 2 años de edad, y junto a su hermano Alejo de cinco y su tía Agustina de ocho, acompaña el trabajo de campo que realiza Melisa Sánchez Oliva y Patricia Benayahu, mamá y abuela de Rafael, respectivamente, ambas voluntarias de ECOFAM. Todos ellos cubren a pie el tramo costero de 2 kilómetros que los los separa entre el Puerto Bala y la desembocadura del Arroyo El Guano en el Bahía de San Agustín de los Arroyos.

«Cada salida es una buena ocasión para pasar con los niños, registrar nuevos datos e incluso disfrutar de un momento merced a la playa», nos cuentan Melisa y Rafael. Entre voluntarios han encontrado una forma de colaborar con el proyecto y al mismo tiempo enseñar a los menores más pequeños de la familia. Rafael, Alejo y Agustina regularmente van observando y conociendo más de su entorno natural en cada oportunidad, así sin darse cuenta, mientras juegan con el agua y con la arena a orillas del mar.

Más allá de una historia en particular Rafael representa el futuro y parte de nuestra responsabilidad está en formar a las nuevas generaciones en temas de conservación y defensa de los recursos naturales.



Figure 9: Article published in Nuestras Aves N° 25 (June 2009) about ECOFAM Programme. This magazine is edited by Aves Argentinas.

Appendix 2: Materials produced during the project

Te estamos buscando

ECOFAM

Para que formes parte de nuestro *Equipo Costero de Observadores de Fauna y Ambiente Marinos* **ECOFAM**

Atención !
Si encuentras en nuestra costa algún animal con éstos precintos, por favor no lo retires.

ECOFAM NO RETIRAR 001480

ECOFAM NO RETIRAR 000094

Apoyos

MACN
CONICET

UNIVERSIDAD NACIONAL DE MAR DEL PLATA

AVES ARGENTINAS

PREFECTURA NAVAL ARGENTINA

Municipalidad de Necochea

Informes

Leandro Luis Tamini - Unidad de Enseñanza Universitaria Quequén: Calle 508 N° 881 (B7631XAF)
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Sitio Web: www.ecofamargentina.org

Figure 1: Poster of ECOFAM Programme

ECOFAM

¿Qué es ECOFAM?

El Equipo Costero de Observadores de Fauna y Ambientes Marinos (ECOFAM) es un programa científico-ciudadano diseñado para coleccionar datos de alta calidad sobre la salud ambiental de los ambientes costeros, utilizando especies marinas como indicadores.

¿Qué estamos buscando?

Ciudadanos de la zona costera que quieran participar como voluntarios de ECOFAM, contando e identificando tortugas, aves y mamíferos marinos muertos en la playa.

¿Por qué estas especies?

Porque son comunes, relativamente fáciles de identificar e informan acerca del estado del medio ambiente costero.

¿Es normal encontrar estas especies muertas?

Si y no.
 Si, cuando factores naturales como las tormentas provocan su muerte o los juveniles inexpertos son arrastrados y encallan.
 No, cuando las actividades relacionadas con los humanos, como los derrames de combustible y las redes pesqueras, causan el incremento de la mortalidad.

¿Por qué es necesario ECOFAM?

- ✎ para coleccionar datos de base para el manejo del recurso natural,
- ✎ para obtener datos a largo plazo y que los investigadores tengan acceso a los mismos,
- ✎ principalmente para involucrar a los ciudadanos locales en el proceso de la conservación costera marina.

¿Qué puede hacer usted?

¿Usted disfruta de caminar en la playa?

¿Usted está interesado en la conservación marina?

¡Usted puede aprender y contribuir a la ciencia y la conservación marina mientras recorre la playa!
 ¡Puede convertirse en voluntario de ECOFAM!

Para más información

sobre nuestro programa, comuníquese con:

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... o visite nuestro sitio web: www.ecofamargentina.org

Figure 2: Flyer of ECOFAM Programme

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The ECOFAM map

The first attempt to develop ECOFAM in southern coast of Buenos Aires province was set in November 2006. Starting that year with courses conducted in Necochea and Balneario Los Angeles, the project got popularity and shape. In 2007, ECOFAM was officially constituted through the designation of field coordinators. Their main task was to organize the volunteers to survey a 230 km coastal zone from Miramar to Balneario Reta.

November 2006 to October 2007 Data

Six volunteers surveyed several beaches of Necochea, Quequén, Balneario Orense and Claramocé recording turtles, seabirds and marine mammal's carcasses. This was the first attempt to understand the deposition dynamic of these carcasses at southern Buenos Aires province. As an example we can mention Eduardo Catalano (who has later become a member of the project) that, together with Micaela Lasansky and Dario Villareal, walked the beaches of Quequén carrying out the activities proposed by ECOFAM. Such as Deria Rodríguez and her students who explored Balneario Los Angeles beaches. Besides, Ricardo Doumeq also surveyed Necochea, Balneario Orense, Claramocé and many other beaches being the first one who found tagged penguins with metallic bands on the wings, which are used to get information of their movement patterns. Later on, these discoveries were notified to the researchers that had the birds tagged.

It took seventy-seven hours for ECOFAM volunteers to survey 387 km of

BEACHED CARCASSES IDENTIFIED	NOV 06 - OCT 07	%
Green Turtle	2	86,87
L Leatherback Turtle	1	33,33
Sea Turtles	3	100
Magellanic Penguin	331	86,74
Great Shearwater	11	2,85
Black Browed Albatross	6	1,61
Albatross (<i>Thalassarcha</i> sp.)	6	1,54
King Gull	6	1,54
White-chinned Petrel	4	1,07
Great Grebe	3	0,8
Neotropic Cormorant	2	0,54
Terns (Olivaceous sp.)	1	0,27
Brown-hooded Gull	1	0,27
Gulls (Larus sp.)	1	0,27
American Oystercatcher	1	0,27
Cape Petrel	1	0,27
King Penguin	1	0,27
Birds	373	100
South American Sea Lion	6	42,86
South American Fur Seal	7	33,33
Franciscana	3	14,29
Commoner's Dolphin	1	4,76
Balneario Whale (Mistotina)	1	4,76
Marine Mammals	21	100

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encouraging the participation of community members such as teachers of all educational areas, as well as museum guides, tourists, lifeguards, park rangers and scouts. Throughout these activities, the Project's mission and goals, along with a brief identification key of sea turtles, birds and marine mammals of the area, were presented. Also, material and tools needed to carry out the Project activities (identification guides, datasheets and cameras) were given to the volunteers. After the lecture, a field training took place where the beach was surveyed searching for strandings. The ones found were identified, tagged and measured.

We are now planning to organize high-level courses in order to improve the activity of the volunteers at the beaches and be able to get more and detailed data.

During the organization of the courses we were assisted by biologists and veterinarians of Buenos Aires and Necochea, students of Universidad de Buenos Aires and Universidad Nacional del Centro de la Provincia de Buenos Aires became a big help. Tres Arroyos and Necochea counties have pronounced ECOFAM as "Interest" program becoming supported by several non-governmental organizations and institutions.

Interviews

During the training courses we carried out interviews to the volunteers so we could know how to improve the spreading of the project. One of the

beaches recording 397 carcasses that included 2 sea turtle species, 11 seabird species and 4 marine mammal species. Only 7 seabirds and 1 marine mammal could not be identified to the species level. The Patagonic Penguin (*Spheniscus magellanicus*) was the species most found with 331 records, 99,7% of them being juveniles. The volunteers not only recorded and identified the carcasses, but also tagged them with seals in order to avoid double-counting at the next survey due to the fact that many marine mammals remain at the beach for several months.

Training of volunteers Courses

During November and December 2007 training courses were organized in Claramocé, Balneario Orense, Necochea, Quequén and Miramar. Ninety persons aged between 8 and 70 attended the courses.

Outreach activities were conducted.

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most interesting outcomes of the interviews was that 67,5% of the people expressed that ECOFAM was the first conservation project they have ever participated in. When we asked how they had become aware of the courses, 52,5% declared by personal communications, whereas the rest of the people expressed newspapers (17,5%), radios (15%) and brochures (15%).

Spreading

The diffusion campaign carried out as a part of the project had two stages. One implied the use of the press (newspapers, radios, etc) with the aim of

Green Turtle
Photo: Ricardo Doumeq - Milieu

encouraging the community to become involved in the courses. The other stage was based on permanent resources that can spread the information of the project nationally and regionally. For this purpose, a poster 60 x 40 cm was designed and distributed in all localities in which ECOFAM has impact on. At the same time, a web site of the project was created (www.ecofamargentina.org) where information of the project, calendar of activities, news of volunteers and many other things can be found!

Collaborating with PRICTMA

By the end of 2002, the Regional Program for Sea Turtle Research and Conservation in Argentina (PRICTMA) was founded. This Program is made up by many local and regional organizations and institutions that work together with the goal of improving the research and conservation efforts of sea turtles conducted in our country.

Since ECOFAM began in 2006, we have been working along with PRICTMA and

we joined the Program in 2007.

The Program is conducting studies regarding fishermen interaction, population genetics, feeding ecology, incidental capture and health assessment. The sea turtle stranding recorded by ECOFAM volunteers in southern Buenos Aires province is added to a national sea turtle database so we can increase the knowledge of these animals in the Argentinian Sea.

ECOFA is part of Project Seabirds Argentina: Conservation through community involvement supported by Conservation Leadership Programme.

ECOFA activities as well as other related information can be found visiting: www.ecofamargentina.org

Para que formes parte de nuestro Equipo Costero de Observadores de Fauna y Ambiente Marinos ECOFAM

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Translation: Victoria González Caman

Special thanks to: María Clara Tamini & Juan Pablo Pereyra

ECOFA Members: Rubén F. Dellacasa, Jorgelina Soledad Pintos, Jorge E. Pérez Comesaña, Paula Polizzi, Sylvia Grúne, Iba Coberes Saenz.

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Sponsors

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Sponsors

Figure 3: ECOFAM Newsletter N° 1 (September 2008)

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November 2007 to October 2008 Data

During this period, 23 volunteers covered the length of the coasts from Reta to the South and Miramar to the North, recording sea turtles, seabirds and marine mammal's carcasses. It took one hundred and twenty three hours for ECOFAM volunteers to survey the beaches recording 252 carcasses that included 3 sea turtles, 17 seabird and 6 marine mammal species.

Even though every record has equal importance when it comes to species conservation, some of them are peculiar due to their rarness, size or threatening level of the specie. At the South Zone of ECOFAM, which covers the coast between Balneario San Cayetano and Quequén Grande River, certain outstanding records were analysed as they may expand the number of species compared to the first year, or because they respond to some of the characteristics mentioned before.

Rubén La Canale, from Orense, reported a Southern Elephant Seal which appeared at the central beach during holiday season. Quiroga family, volunteers of Balneario San Cayetano found a Loggerhead Sea turtle in May 2008 which, until now, turned to be the only one recorded for ECOFAM. Marina Diaz and her husband Miguel Abarese recorded a leatherback turtle's carcass in September of the same year at the seaside of the south of Reta, place they usually survey.

Also during September 08 and at other beaches near this place, Mónica Maseda and her husband Marcelino García found a dead whale calf of Southern Right Whale around Médano Blanco. Soon after, in October, they also

IDENTIFIED CARCASSES	NOV 07- OCT 08	%
Green turtle	3	60.00
Leatherback turtle	2	33.33
Loggerhead turtle	1	16.67
Total sea turtles	6	100
Magellanic Penguin	210	84.00
Great Grebe	14	5.58
Great Shearwater	4	1.59
Black Browed Albatross	3	1.20
Albatrosses (Phaethon sp.)	3	1.20
Stern (Sterna sp.)	3	1.20
White-chinned Petrel	2	0.80
Atlantic Yellow-nosed Albatross	1	0.40
Neotropic Cormorant	1	0.40
Orog's Gull	1	0.40
Blackish Oystercatcher	1	0.40
Marx Shearwater	1	0.40
Sooty Shearwater	1	0.40
Petrel (Pterodroma sp.)	1	0.40
Rooking Penguin	1	0.40
Sua (Catharista sp.)	1	0.40
Total seabirds	251	100
South American Fur Seal	11	44.00
South American Sea Lion	9	36.00
Southern Right Whale	1	4.00
Spinn Whale	1	4.00
Southern Elephant Seal	1	4.00
False Killer Whale	1	4.00
La Plata River Dolphin	1	4.00
Total marine mammals	25	100

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Incooperation...CLEAN BEACHES

Clean Beaches Program Claramoc-Reta-Orense arises from the concern of different groups for keeping Tres Arroyos' beaches clean. It is created from the understanding between CELTA (Cooperativa Eléctrica Limitada de Tres Arroyos), the Local State of Tres Arroyos through their departments of Environment and Tourism, resorts delegations and a group of businessmen from the district.

Clean Beaches Program seeks to collaborate in an organized way with the spreading of the coastal pollution dilemma by means of concrete and educative actions aiming to create awareness and form habits around tourists and local inhabitants of the coastal places.

During the summer of 2007-08, three continuous cleaning days at the beaches of Claramoc, Reta and Orense were carried out with a considerable number of participants. A large number

found an enormous 12-metre-long Spinn Whale that appeared dead near the stream mouth.

of waste materials - principally plastic were found along a 10 km. coast as well as wheels, glass, clothes, fish nets, etc.

These activities were completed throughout the season giving out material that can ensure the diffusion and promotion of the program such as T-shirts, caps, stickers and rubbish bags for cars. ECOFAM and its participants have been invited to these events and, apart from collaborating in the diffusion of this kind of events; they also participate actively as volunteers during the cleaning process.

For more information visit <http://www.abyasintipias.com.ar>

Courses for volunteers

By the end of August the first course for volunteers was organized at the Library called "A World of Books" from Reta, being this the southern point of the project. A large number of people attended the course including many kids that paid as much attention as the adults to the presence of ECOFAM. The course was divided into two sections: the first one took place at the beach, making the most of the last hours of the afternoon. The objective was to have a little practice with the equipment and charts - necessary for the field work- by showing the way to identify and measure the species found, as well as the necessary safe way to make the job. Back in the classroom, we gave specific information about the project itself and the birds, mammals and turtles that could be found along these beaches. After that, some sets of ECOFAM equipment were given to the four volunteer teams that organized themselves to survey the coasts.



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We would like to emphasize the help offered by Rodrigo Miranda from his website www.leteta.com.ar and the quick and organized way in which this group of volunteers began the survey. Congratulations Reta!

Education for Conservation

Several activities have been carried out during the last months aiming to inform to different groups of the community about the conservation of marine resources. A few examples are:

- Between August 19 and 26th, 2008, the VI Science and Technology National Week took place along the whole country, promoted by Science, Technology and Productive Innovation National Ministry, and ECOFAM was present during the conferences that took place in Necochea and Tandil. The objective of these activities was the diffusion and approaching of the scientific work to the whole community in general and the school one in particular with the purpose of promoting the relationship among investigation, education and community. ECOFAM team cooperated actively with different proposals such as conferences, workshops, diffusion of scientific works and others suitable for the aim pursuit.
- Also, during September 8 and 9th, 2008, the IV Science and Technology District Fair took place at Necochea. ECOFAM participated in this conference - known to be one of the most important at a regional level- as well as more than 150 students aged between 9 and 17 years.
- During November 1st. and 2nd, 2008, the Mastozoology Chair of Technical in Support, Management and

Conservation of Biodiversity dependant of the Department of Biological Science of the CAECE University, went on their annual study journey to Necochea. One of the activities developed by the students was to internalize with ECOFAM project. They were trained on the information to collect when finding a carcass of a beached animal, and they were supplied with all the material needed to cover the whole length of the coast. The transect starting point was located at Costa Bonita, 8km. far from Necochea. The students were impressed, not only by the quantity of carcasses found in such a short tour and the quality of the data collected, but also by the fact of having participated in a conservation project that focuses on the active participation of the local inhabitants who, along with a scientific group, are capable of carrying it out in a successful way. Those days



were the starting point for future activities shared between the universities and ECOFAM.

Observer's profile

Rafael Sánchez Oliva is the youngest member of our project. Walking or in his baby stroller, he is always present when

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the coast is to be surveyed. With his 2 years, his five-year-old brother Alexis and his aunt Agustina aged 8, he helps his mother and grandmother - Melissa Sánchez Oliva and Patricia Impagnolo, volunteers for ECOFAM - with the fieldwork. They are responsible for covering by feet the coastal stretch between Parador Rako's and the stream mouth of El Gaucho from Balneario Reta, district of Tres Arroyos.

"Every trip is a good occasion to go for a walk with children, survey new information and even enjoy a good lunch or breakfast at the beach!" said Melissa and Patricia, volunteers that have found

the way to collaborate with the project and, at the same time, join the young members of the family. Rafael, Alexis and Agustina will certainly keep on watching and learning more of their natural environment while they play with sand and water at the shore of the ocean...

ECOFAm is part of Seabirds Project Argentina: Conservation through community involvement supported by Conservation Leadership Programme. ECOFAm activities as well as other related information can be read visiting: www.ecofamargentina.org



General Coordinator of the Project:
Leandro L. Tamini

Coordinators:
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Figure 4: ECOFAM Newsletter N° 2 (July 2009)



Figure 5: ECOFAM web page.

Appendix 3: Activities of the project team

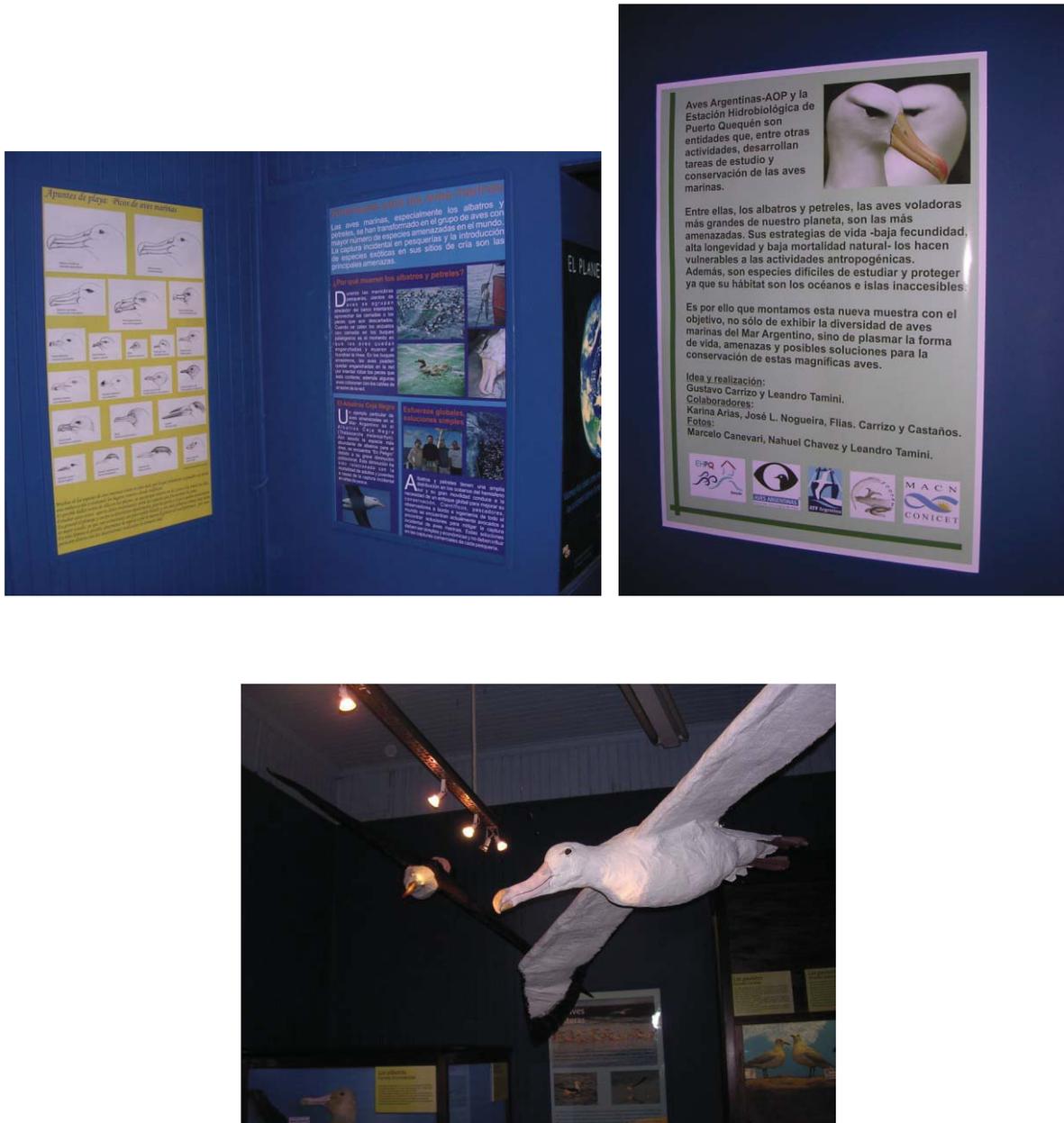


Figure 1: Changes on the Estación Hidrobiológica de Puerto Quequén seabirds room, posters and flying models.



Figure 2: Article published in La Voz del Pueblo Newspaper from Tres Arroyos City showing Clean Beaches Programme activities (Programa Playas Limpias). January 31, 2008.



Figure 3: Activities carried out during Unión Argentina de Pescadores Artesanales (UAPA) meeting. Claromecó, 2007.

		COLORES PREDOMINANTES EN MANTO Y COLA						
		BLANCO Y NEGRO	NEGRO	GRIS	BLANCO C/PUNTAS NEGRAS	JASPEADO	BLANCO	PARDO, ROJO, BLANCO Y NEGRO
LARGO DE LA CUERDA DEL ALA (EN CENTÍMETROS)	DIMINUTO LCA = 10-16							MACO
	PEQUEÑO LCA = 16-20	PIPAa PIPE		PIPAj PRPF		PLRO		MAGR
	CHICO LCA = 20-25			PEAZ			PAAN	
	MEDIANO LCA = 25-37	PACN PEDA	PAOS BIGU	PEPL	GARE GASU GAGO GACC GALA			
	GRANDE LCA = 37-46	GACAa GACOa	PEBB PEAN			GACAj GACOj	CICN	
	MUY GRANDE LCA = 46-62	ALCN ALCG ALPF	PEGO PEGC					
	ENORME LCA > 62	ALRE ALER						

Figure 4a: Key for birds' carcasses identification based in measures of wind chords and preponderance coloration of plumage of tail and mantle.

CLAVE DE CAPARAZONES DE TORTUGAS MARINAS

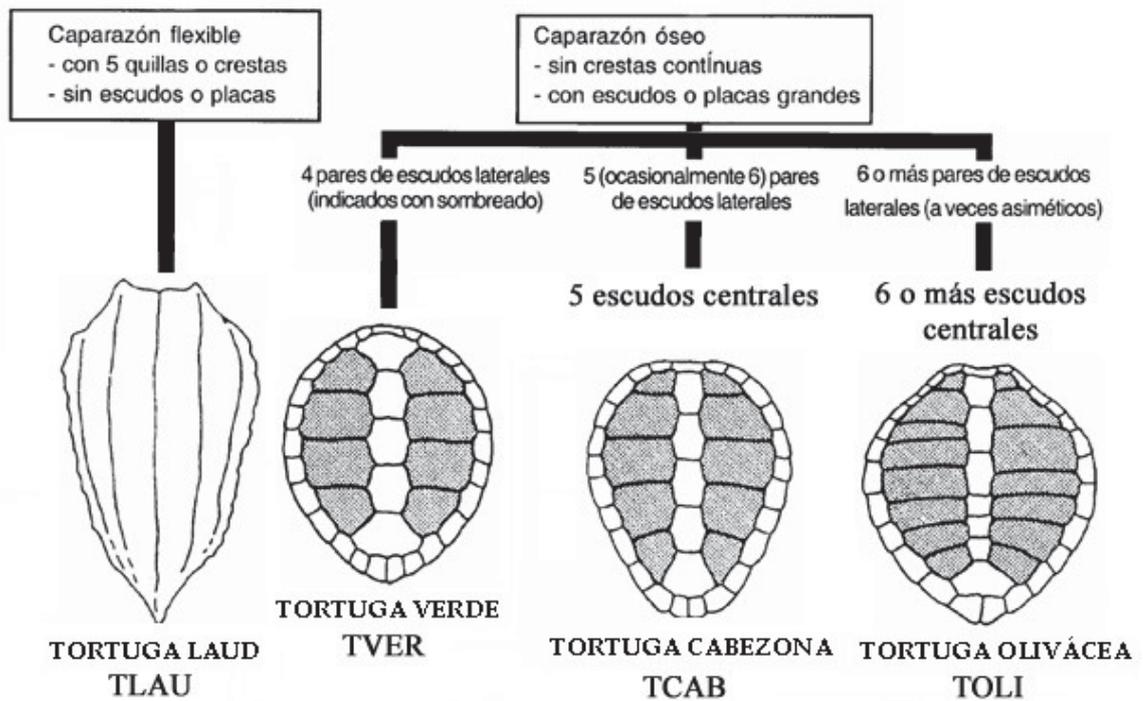


Figure 4b: Key of sea turtle identification based in carapace hardness, shape and number and arrangement of shell.



Figure 5: Toolkit for volunteers and detail of plastic tags inscription (ECOFAM not to remove)

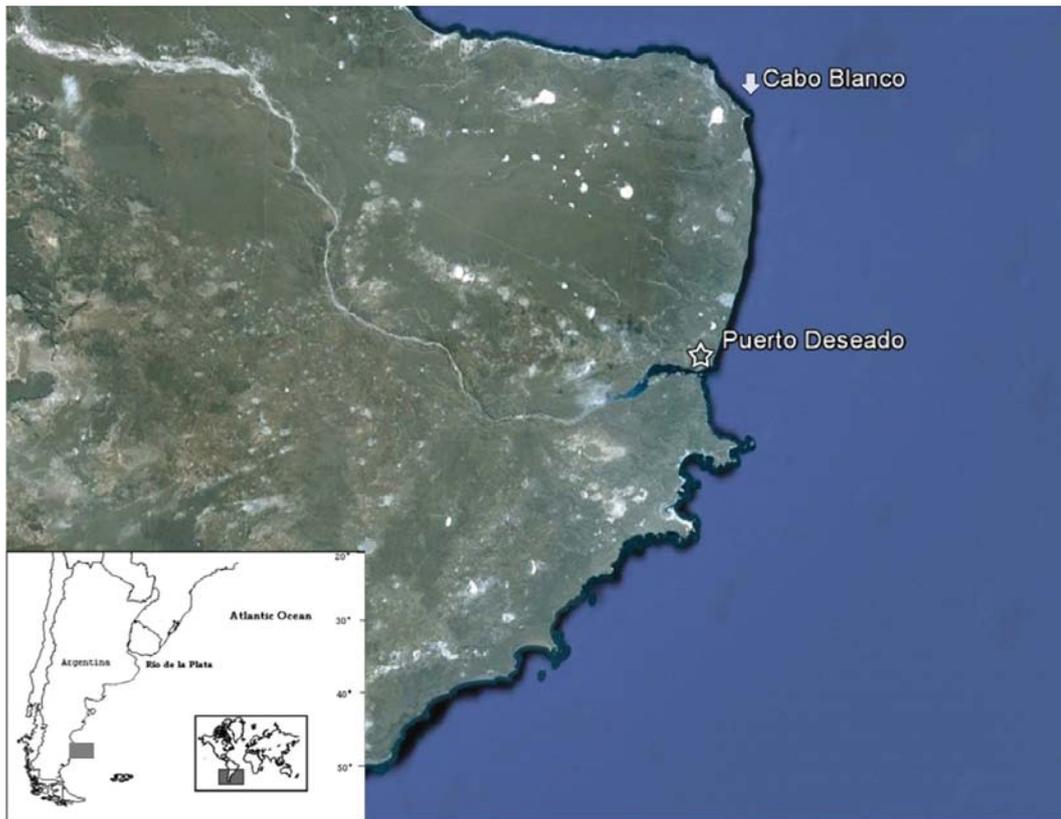


Figure 6: Map showing *Cabo Blanco* and *Puerto Deseado* locations.



Figure 7: Juvenile of Magellanic Penguins in *Cabo Blanco*, Santa Cruz Province.



Figure 8: Seabirds caught incidentally by the net. Individual of Magellanic Penguin (*Spheniscus magellanicus*) and some Sooty Shearwaters (*Puffinus griseus*).



Figure 9: Example of data card for report ringed birds. Olrog's Gull (*Larus atlanticus*)

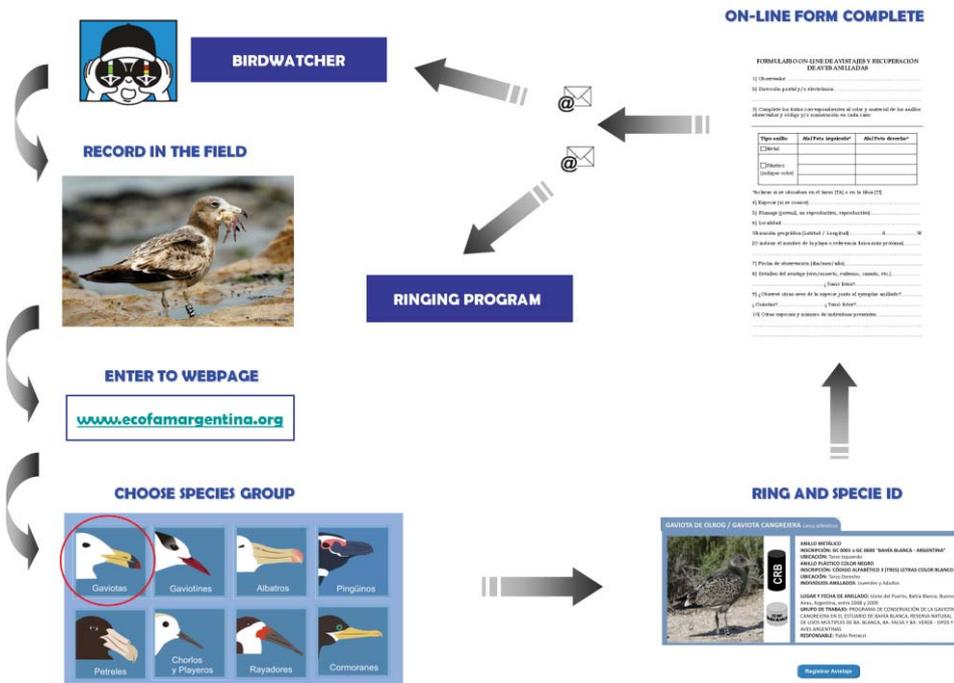


Figure 10: Diagram flux of ringed bird data, from birdwatcher observation in the field to on line form and send it.

Appendix 4: Project photos



ECOFAM talk in *Balneario Los Angeles*.



PRICTMA Workshop organized by the Project Team.



Playas Limpas day in Claromecó.



Jorgelina Pintos and Paula Polizzi with a ECOFAM volunteer.



ECOFAM talk in *Balneario Reta*.



Leatherback turtle (*Dermochelys coriacea*) in *Claromecó*.



ECOFAM volunteers.