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## Migratory Shorebird Project Annual Progress Report 2021-2022



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Photos: Surveyor at Robert's Bank, British Colombia (D. Bradley; top-left); Red de Observadores de Chile in Mantagua (top-right); Dog on the shore in Lambayeque, Peru (Fernando Angulo; bottom-left); American Oystercatcher in Tumaco, Colombia (Marcela Cabanzo; bottom-right).

## ***Migratory Shorebird Project: Annual Progress Report 2021-2022***

The Migratory Shorebird Project is a collaborative partnership-driven international research and monitoring program with the objectives to identify shorebird population status and trends, assess threats potentially impacting populations, apply data to inform conservation actions, and build capacity for long-lasting conservation of shorebird and their habitat. After nearly 10 years of collaborative effort the Migratory Shorebird Project is now active in all 13 countries with shorelines on the Pacific Coast of the Americas. The project is growing every year, involving more partners and partnerships, sites, and research projects. For this reason, during this year we evaluated the progress of the objectives, and we are strategically planning the next 10 years.

### **General Developments**

- Completed 12th year of surveys at most sites (November 2021 – February 2022) in North America, 8th year in Central America, and the 9th year in South America.
- Data collected by >510 volunteers, researchers, and local communities at >100 sites (>2000 survey units).
- Three new papers were published with data collected by different partners, see Canada, Mexico and South America reports for details.
- Contributed MSP to the [Story Map](#) of the Pacific Americas Shorebird Conservation Initiative.
- MSP data used to support the designation of a new Western Hemisphere Shorebird Reserve Network site in Chile - Las Salinas de Huentelaquén
- Developed models to understand (1) changes in shorebirds habitats during the last 20 years, (2) trends in trend analyses for 6 species across 23 sites between Mexico and Peru, (3) distribution and habitat use of shorebirds in Guatemala, (4) temporal trends in shorebirds in Ecuasal salt works in Ecuador, and (5) influence of weather variation on the distribution and abundance of shorebirds in Northwest Mexico.
- Supported students and fellows: 5 master degree students, 1 undergraduate student and 5 Coastal Solution Fellows are using MSP data to complete their research or support decision-making.
- 11 presentations of the science of MSP will be presented as part of a symposium focused on the MSP at the upcoming Western Hemisphere Shorebird Group Meeting.



## **Canada**

### **Personnel involved (organization/institution)**

- David Bradley, Director, British Columbia
- Rémi Torrenta, Projects Coordinator, British Columbia
- Catherine Jardine, Data Analyst, National Data Center

### **Field Surveys**

- The 2021-2022 season marked 22 years of the BC Coastal Waterbird Survey.
- This season involved 162 surveyors (and their assistants), who collectively did more than 1,500 surveys at 210 sites.
- General survey results are available on our website [here](#).
- Survey protocols were reviewed and updated versions were posted to the [program webpage](#).
- A trend analysis was updated for all birds between 1999-2019 and was published in [Avian Ecology and Conservation](#).
- Contributed data to Environment and Climate Change Canada (ECCC) to update “The birds of the Fraser River delta: populations, ecology and international significance report.”
- The annual newsletter was distributed to volunteers and is available online [here](#).
- Shared all data with ECCC. Also shared data with environmental consultants and NGOs.
- Incorporated data entry portal into [NatureCounts](#) to enhance data sharing and management. Data were requested and approved for use by students, environmental consultants, ECCC and NGOs.

### **Workshops & Presentations**

- Due to the Covid pandemic, we were unable to deliver workshops, public presentations or training sessions this year.

### **Science**

- We are collaborating with the Canadian Wildlife Service (CWS) to conduct an analysis to determine whether habitat-based conservation actions implemented along the BC coast have affected site occupancy of over-wintering bird species. Preliminary analysis shows that in response to habitat conservation actions, 13 species exhibited improved site colonization rates and an additional 10 species had reduced site extinction rates. Shorebird species exhibiting greater colonization rates included Sanderling and Greater Yellowlegs. Declining extinction rates were largely observed in non-target shorebird species, such as Black Turnstone and Dunlin. These results suggest that conservation sites with ECCC investment are potentially acting as a refuge and/or a buffer against declining occupancy rates within the larger meta-population.
- In 2020, Birds Canada started a project tracking the movements of Dunlin in the Fraser River Delta to better understand how they use different parts of the Delta and understand the connections among those sites. See article on the study [here](#).

### **Outreach / Education / Awareness**

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- We continue to advocate for the protection of Robert's Bank from development, a key stop-over site for Western Sandpipers and *Pacifica* Dunlin.

## **United States**

Also see [www.pointblue.org/pfss](http://www.pointblue.org/pfss) for more detail on the US portion of the project; the Pacific Flyway Shorebird Survey.

## **Personnel involved (organization/institution)**

- Matt Reiter (Point Blue Conservation Science); MSP Steering Committee Chair
- Catherine Hickey (Point Blue Conservation Science); Conservation Director
- Blake Barbaree (Point Blue Conservation Science); Pacific Flyway Shorebird Survey Project Manager
- Mark Dettling (Point Blue Conservation Science); Pacific Flyway Shorebird Survey Coordinator
- More key leaders and partners:  
<http://data.prbo.org/apps/pfss/index.php?page=volunteer>  
<http://data.prbo.org/apps/pfss/index.php?page=partners>

## **Field Surveys**

- Led overall coordination of project and surveys across 13 countries.
- Surveys of 27 coastal estuaries and 11 areas of interior shorebird habitats covered the major wintering sites throughout California, Oregon and Washington, 15 Nov 2021 – 15 Dec 2021.
- Data collected by >200 partner biologists and volunteers including >35 federal and state agencies, universities, and NGOs.
- Counted approximately 250,000 shorebirds which was similar to last year.
- No new survey areas were added in 2021. We were able to establish a new partnership with Sean McAllister to coordinate and the survey at Humboldt Bay.
- MSP survey framework (protocols, routes, database) used to efficiently monitor the effects of an ongoing extreme drought on wetland-dependent wildlife in the Central Valley of California, as part of a new study emergency study supported by California Department of Fish and Wildlife.
- The new Intermountain Shorebird Surveys begin in August 2022. The interior survey network includes one key site in the MSP network – the Salton Sea.
- Data management and support using the California Avian Data Center for entire MSP network.

## **Workshops & Presentations**

- Coordinated three meetings of the Project steering committee.
- Project outreach presentation to Fresno Audubon Society in October 2021.

## **Science**

- Co-authored paper on impacts of human disturbance with partners in Mexico (<https://onlinelibrary.wiley.com/doi/full/10.1111/btp.13139>).
- Completed analysis of distribution and habitat use of shorebirds in Guatemala.
- Drafted manuscript assessing changes in the distribution and abundance of migratory shorebirds from Mexico to Chile between the 1980s and 2000s.

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- Completed trend analyses for 6 species across 23 sites between Mexico and Peru.

### **Outreach / Education / Awareness**

- Integrated new data into online data summary applications ([www.migratoryshorebirdproject.org/datamap](http://www.migratoryshorebirdproject.org/datamap); [www.migratoryshorebirdproject.org/exploredata](http://www.migratoryshorebirdproject.org/exploredata)).

## **México**

### **Personnel involved (organization/institution)**

- Eduardo Palacios (CICESE, and GANO); Project Coordinator
- Guillermo Fernández (UNAM, GANO); Sonora and Sinaloa Partner
- Cesar Guerrero Ávila (Terra Peninsular, A.C.); Executive Director
- Lucía Alfaro Rodríguez (Terra Peninsular, A.C.); Data entry technician
- Abril Copalli Heredia Morales (Terra Peninsular, A.C.); Research assistant

### **Field Surveys**

- Nonbreeding Shorebirds Monitoring: During January-February of 2022 we completed the annual non-breeding midwinter shorebird surveys at 21 sites across northwest Mexico. These sites included 250 sampling units that are surveyed by about 50 volunteers in northwest Mexico.
- Nonbreeding American Oystercatcher Monitoring: We completed winter surveys of roosting aggregations of American Oystercatchers during high tides at five wetlands of southern Sonora, and two wetlands of Sinaloa.
- Banding and Monitoring of American Oystercatcher in Sonora: The Tóbari Bay is one of the most important breeding sites for the American Oystercatcher in Northwest Mexico, reaching up to 94 breeding pairs. The species uses artificial dredging islands (tarquinas). On June 14, 2022, the American Oystercatcher was tagged for the first time in Tóbari Bay, with a total of 10 chicks. This will give us valuable information on the movements of individuals, survival, habitat use, etc.
- Snowy Plover Nonbreeding Surveys: During January 2022 we coordinated with the Snowy Plover midwinter window survey along the Pacific coast of United States to conduct Nonbreeding Snowy Plovers surveys in five sites in northwest Mexico (Estero de Punta Banda, Bahía San Quintin, Laguna Atotonilco, Marismas Nacionales and Bahía Ceuta).

### **Science**

- Snowy Plover workshop in Baja California: Along with our partners we organized a workshop in Ensenada to train participants in deploying GPS receptors on Snowy Plover.
- Application of shorebird data: Mentored graduate students on data analysis and interpretation for use in conservation and management. Jennifer Hernandez, finished her M.Sc. thesis at UABCS by using shorebird data from Ensenada de La Paz collected by the MSP. In addition, Estefanía Muñoz finished this Winter her M.Sc. thesis at CICESE on the abundance and distribution patterns of three large shorebirds in California and northwest Mexico in relation to weather, also using the data from MSP. Abril Heredia is finishing a manuscript on human disturbance and nonbreeding shorebirds in Ensenada, B.C. Daniela Michelle Valdez Gámez is finishing a manuscript on the ecology of Wilson's Plover in the Ensenada de La Paz, by using MSP data. Jonathan Vargas, a fellow of the Coastal Solutions

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Fellows is still working on his project on reducing human disturbance on the western Snowy Plovers in Baja California.

- We also published a paper on *Impact of human disturbance on the abundance of nonbreeding shorebirds in a subtropical wetland*. *Biotropica*.  
<https://doi.org/10.1111/btp.13139>
- We entered all 2022 mid-winter shorebird survey data into the project's online data entry portal hosted by CADC (California Avian Data Center), which is a node of the Avian Knowledge Network. Data includes the number of shorebirds, waterbirds and waterfowl, measures of human disturbance and raptors, and assessment of habitat condition.
- Protection of Habitat – Estero de Punta Banda: To protect the nests of Snowy Plovers and California Least Tern in early April 2022 we installed a temporary fence on three nesting beaches of Estero de Punta Banda, northwest Baja California. This action also includes monitoring of the two species breeding season. The fence remained installed until August.
- Protection of Habitat - Guerrero Negro: To protect the nesting ground for the Snowy Plover, California Least Tern, and American Oystercatcher we installed a temporary fence in Guerrero Negro, Baja California Sur. The protected area is about 40 ha. Our partners for this activity include CONANP, Exportadora de Sal, Pro Esteros, CICESE, and Laura Ibarra, a fellow of the Coastal Solutions Program.

## **Central America: Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica y Panamá**

### **Personnel involved (organization/institution)**

- Volunteers, researchers, technical support involved in counts and other activities.
- Salvadora Morales, Manomet/WHSRN, Central America project leader
- Varinia Sagastume y Byanca Bosareyes, Guatemala Coordinator
- Vicky Galán, SalvaNatura, El Salvador Coordinator
- John van Dort, Asociación Hondureña de Ornitología-ASHO, Honduras Coordinator
- Ericka Reyes, & Michael Gutiérrez, Quetzalli, Nicaragua Coordinator
- Luis Sandoval, Unión de Ornitólogos Costa Rica Coordinator
- Rosabel Miro y Esther Carty, Sociedad Audubon Panama), Panamá Coordinator

### **Field Surveys**

- The 2021-2022 season marked 10 years of the MSP. For the majority of the countries of Central America this monitoring has been the first effort to understand shorebirds trend.
- This season involved 182 volunteers, who collectively did surveys at 184 survey unit.
- Guatemala surveyed at 17 sites and 54 sampling units. El Salvador in 23 sites and 28 sampling units. Honduras surveyed in 23 sites and 19 sampling units. Nicaragua in 20 sites and 35 sampling units. Costa Rica surveyed in 7 sites and 20 sampling units and Panamá in three sites and 23 sampling units.
- All data have been included in the CADC database.

### **Workshops & Presentations**

- The Central American Waterbird Census 2022 was carried out in Central America with the support of Manomet.

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- In each country, a series of presentations were given to team coordinators and volunteers on the methodology and protocols to be used for data collection.

### **Science**

- In Guatemala as part of the Cornell University Coastal Solutions Fellows Program Project, Varinia Sagastume is implementing the shorebird habitat composition, abundance, and habitat use study in salt marshes/shrimp farms and surrounding intertidal zones during 2020-2022. Data will be entered into the CADC platform and use some of the same MSP sampling units.
- The project "Capacity building in community ecotourism for young people in communities of the Sipacate-Naranjo National Park" was completed. This project included training in waterfowl and shorebird monitoring, including MSP. This project was supported by the UNDP Small Grants Programme with the NGO Wildlife Conservation Society (WCS)
- In Nicaragua Quetzalli in collaboration with Manomet to conduct a survey to assess the response of shorebirds to the best management practices Identified. Disturbance protocol was part of the surveys.
- MSP is supporting the Master's research project of Esther Carty, a biologist with the Panama Audubon Society, who is being advised by Dr. Richard Johnston. In addition, we are collaborating with five undergraduate students in the development of their thesis topics such as diversity and abundance, disturbance and the use of artificial habitats related to migratory and resident shorebirds.

### **Outreach / Education / Awareness**

- Virtual Training for Tourist Guides and Community Leaders in Panama: this training provided information on the Ramsar Bay of Panama site, the importance of the site during the provided information on the Panama Bay Ramsar site, the importance of the site during shorebird migration, and the conservation efforts being undertaken.
- Shorebird Festival: Shorebird Festivals were held in Panama and Nicaragua. In Panamá they celebrated the Champotón Shorebird Festival, where Team Panama was invited to give a virtual talk on the characteristics, biology, and ecology of shorebirds in general and the conservation work being done in Panama with these birds. In Nicaragua we developed the bird festival with the participation of 850 student from the Delta del Estero Real and the Isletas de Granada in Nicaragua.

## **South America: Colombia, Ecuador, Peru & Chile**

### **Personnel involved**

- Colombia: Marcela Cabanzo González- Fundación Guandal – San Andrés de Tumaco Birding; Diana Lucia Eusse and Dina Luz Estupiñan-Asociación Calidris, CC Esfuerzo Pescador, PNN Sanquianga Staff, WCS Colombia.
- Ecuador: Danixa Del Pezo y Ana Agreda (Aves y Conservación).
- Peru: Fernando Angulo, Jorge Novoa, Igor Lazo, Ruth Magali Cavero Contreras (Corbidi), Rosa García (Santuario Nacional Los Manglares de Tumbes); Gilbert Christian Riveros y Jhonson K. Vizcarra (Servicio Nacional Forestal (SERFOR), Wilmer Aznarán, Sandra Cuadros y Alessandra Gómez y Adam Castillo

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- Chile: Ivo Tejeda, Franco Villalobos, Pablo Gutiérrez, Sharon Montecino, Gabriela Contreras (Red de Observadores de Aves y Vida Silvestre de Chile (ROC)); César Piñones, Nelson Contardo, Ariel Cabrera, Daniel Imbernón, Gyorgo Capetanopulos y Patricio Ortiz

### **Field Surveys**

- Four countries completed surveys between January 15 and February 15; 24 sites including 232 samplings units were visited. Habitats included: estuaries, mud flats, salt flats, shrimp farms.
- 64,169 individuals of shorebirds recorded and 33 species of shorebirds.
- Data compiled by 4 NGOs, with the support of 1 producer, 4 protected areas staff, 3 local communities, 2 governmental agencies, 4 NGO, 1 university and 45 volunteers.
- Producer: Ecuasal C.A. Protected areas: Isla Corazón y Fragata Wildlife Refuge (REVISICOF)-ECU, Sanquianga National Natural Park-Colombia, Los Manglares de Tumbes National Sanctuary and Pantanos de Villa Wildlife Refuge-Peru. Local communities: Balao Crabbers Association, Puerto Concheros Artisanal Fishing Cooperative (Ecuador) and Effort Fisherman Community Council (Colombia). Governmental Agencies: National Service of Natural Protected Areas (SERNANP; Peru), National Forest Service (SERFOR; Honduras). NGO: ADEMA, ChileBirds, Fundación Bandada (Chile), WCS-Colombia and Fundacion Guandal-Colombia, University: Catholic University of Peru (Peru).
- Chile included two new sites and 48 polygons. Colombia included a new site (Área Protegida Isla Aji) and a new national partner, WCS-Colombia.
- All the data was uploaded to the CADC platform, the availability status was updated, and some repeated units were corrected, and data and polygons were updated.

### **Workshops & Presentations**

#### Ecuador:

- Presentation via zoom of the results of Shorebird Monitoring in Ecuador, mentioning the general results of MSP.

#### Colombia:

- Virtual meetings for training and updating information with partners from other countries and nationals.
- Preparation of abstracts for the Colombia National Congress of Ornithology and for the Western Hemisphere Shorebird Group Meeting.

### **Science**

#### Colombia:

- Publication of the scientific note “REPRODUCTIVE EVIDENCE OF THE Killdeer (*Charadrius vociferus*) IN TUMACO, NARIÑO – COLOMBIA”, in the bulletin volume 30 of the Antioquia Society of Ornithology – SAO.
- Completion of the undergraduate thesis: Distribution and abundance of shorebirds in relation to environmental variables of intertidal planes of the Sanquianga National Natural Park.
- Support the PNN Sanquianga staff in the implementation of the SMART tool for the monitoring of conservation values objectives. In association with WCS-Colombia.
- Contribution to the PNN Sanquianga Management Plan, within the framework of a research endorsement between the Calidris Association, National Parks of Colombia and the PNN Sanquianga.

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- Support to WCS Colombia team in the implementation of the MSP Protocol in two new sites in Colombia.
- Support for two Coastal Solutions projects and fellowships, Richard Johnston and Jorge Parra, in carrying out their activities.
- Preparation of a data publication in the [SiB Colombia](#), the Colombian data repository, on the birds of the Bocana de Iscuandé, including migration counts, winter residence and overwintering records using the MSP protocol.

### Chile:

- During 2021 and 2022, ROC used the MSP data for a data base to build the "Action Plan for the Shorebirds Conservation in Chile", which is supported by the executive office of WHSRN/Manomet in Chile and the Ministry of the Environment, and is in the final editing process for its official launch.
- In 2021, ROC used the data that had been collected within the framework of the MSP in Huentelauquén to incorporate them as background information in the WHSRN site declaration request file for Las Salinas de Huentelauquén, which was recently officially approved.
- Since 2021, ROC has been developing a ringing program for the American Oystercatcher at the mouth of the Maipo River, within the framework of which training sessions have been held for members who also participate in the MSP and workshops aimed at other specific audiences.

## **Outreach / Education / Awareness**

### Colombia:

- Participation in MSP, ISS, and World Migratory Bird Day counts
- Support for the 2<sup>nd</sup> Community Festival of Shorebirds and Whales Tumaco 2022, in August. Activities will be carried out: theoretical and practical workshops on shorebirds with children from local communities, whale watching outings and a session of face-to-face academic conferences where we will share project results.
- Planning of an education module, with ethnic approach, for the local communities of the PNN Sanquianga, in conjunction with Park officials, about the birds, shorebirds and their conservation.

### Chile:

- Between June 14 and 23, 2021, ROC held the free virtual course "Knowing more about shorebirds", which was initially aimed at volunteers and monitors who collaborate with the Network for the Protection of Shorebirds and other initiatives of the ROC in Chile. The content was later released and made available for access and dissemination through YouTube. The course had 4 modules: "Introduction to shorebirds", "Shorebird identification", "Shorebird estimation and counting", and a seminar entitled "Research and conservation experiences of *H. palliatus* and *Ch. nivosus*".
- In 2021, ROC designed and executed, as in 2020, theoretical and practical sessions of the "Training Program to strengthen the inspection of vehicular traffic in coastal wetlands, beaches and dunes". The Program was coordinated in collaboration with the Ministry of the Environment and was aimed at personnel from the Chilean Navy (Maritime Governments, DIRINMAR and Port Captaincies). The new training days were developed in 1 of the sites that is monitored through the MSP: Rocuant-Andalién; since it presents important problems associated with vehicular traffic in non-authorized areas, which causes disturbances to shorebirds.

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- In February 2022, days prior to the MSP censuses in Lluta, ROC conducted training for municipal officials and the team of park rangers of the wetland at the mouth of the Lluta River, with the aim of supporting the strengthening of their capacities and sharing knowledge about local birds and their habitats. Content on the importance of the site, possible management measures to address threats, and tools to support monitoring of bird populations were also incorporated. The activities were developed through virtual theoretical modules and practical sessions in the field, in which 17 people participated.

### OTHER PARTNERS



See <https://data.pointblue.org/apps/pfss/index.php?page=partners> and <http://migratoryshorebirdproject.org/partners/> for a full list of project partners.