

Location



Introduction

The Republic of Peru, located in western South America near the equator, is bordered on the north by Ecuador and Columbia, on the east by Brazil and Bolivia, on the south by Chile, and on the west by the Pacific Ocean.

The country is divided into three regions, the highlands of the Andes mountains which cover approximately 40% of the country, the Amazon Basin, which is relatively flat and heavily forested, and the approximately 2400 km of coast which is narrow and rugged. Most of the country's major cities are found near the coast.

The Humboldt Current moderates equatorial temperatures along the coast. The area from Tacna to Piura experiences high humidity and thick fogs in winter (June to September), but little mist and warm temperatures in summer (December to March). In the jungle region there is a rainy season from November to March and a dry season from April to October, however humidity remains high throughout the year.

Chile and Ecuador dispute Peru's unilateral decision to alter their joint treaty-defined maritime boundaries. Peru disputes Bolivia's claim to restore maritime access through a sovereign corridor through Chile along the Peruvian border. Illegal narcotics operations in Columbia have penetrated Peru's shared border.

Regional Seas and Biogeography

Pacific Ocean

LMEs

- Humboldt Current.

Habitats

The majority of Peru's approximately 2400 km coastline is dry, sandy desert with steep, sometimes rocky cliffs.

- ➔ Kelp beds: There are three areas along the south coast which host significant kelp beds.
- ➔ Cold water corals: Only in a few areas are corals found, and these are in isolated spots, largely offshore.
- ➔ Saltmarshes: Along the southern coast there are some saltmarshes, but they are not widely distributed.
- ➔ Seagrass beds: Seagrasses are found mainly in the north and south, with limited areas along the central coast.
- ➔ Mangroves: The southernmost mangroves on the Pacific coast of South America are found in Peru's very north, along the border with Ecuador.

Biodiversity Hotspots

➔ Ramsar sites

Reserva Nacional de Paracas is located in the department of Ica and includes an extensive coastal area of shallow marine waters, bays, rocky shores, sandy beaches and islands. The site supports twenty species of cetacean including Sperm Whales (VU), more than 200,000 migratory birds, Hawksbill (CR) and Leatherback Turtles (VU) and Marine Otters (EN).

Zona Reserva Los Pantanos de Villa, within the municipal limits of the city of Lima, is a coastal lagoon with brackish water and abundant vegetation which provides habitat for coastal waterfowl and migratory shorebirds.

Estuario de Virrila is a unique ecosystem composed of mangroves, intertidal marshes, extensive sandy beaches and shallow marine waters, hosting approximately 130 avian species including approximately 30 species of migratory shorebird, a significant concentration of godwit, Andean Condors (VU) and Peruvian Tern (EN). Green Turtles (EN) are also found here.

Manglares de San Pedro de Vice in northern Peru is a mangrove wetland which is part of the coastal wetland

migratory corridor for at least 98 species of resident and migratory waterbirds. The site, the southernmost mangrove area on the Pacific Coast, is part of the Northwest-Amotapes Mangalares Biosphere Reserve which also includes the Tumbes National Reserve, the Coto de Caza el Angolo and El Parque Nacional Cerros de Amotape (PNCA).

→ National Parks

El Parque Nacional Cerros de Amotape (PNCA) (also a World Heritage Site and part of the Northwest-Amotapes Mangalares Biosphere Reserve) is a combination of coastal and foothill habitat which hosts multiple species of coastal and migratory birds.

→ Marine Reserves

Grau Tropical Marine Reserve includes Cabo Blanco-El Nuro which hosts marine turtles, multiple species of cetacean and Humboldt Penguin (VU).

Nazca Ridge National Reserve (Dorsal de Nasca Reserva Nacional) is the first protected marine reserve and covers the Nazca Ridge and Salas y Gomez Ridge seamounts. Multiple species of cetacean, including Blue Whale (EN), as well as Leatherback Turtle (VU) have been recorded in this reserve. It is also along the migration route of a number cetacean species such as the Humpback Whale (*Megaptera novaeangliae*).

→ IBAs

Reserva Nacional de Paracas in Pisco province includes offshore islands, inlets, rocky coasts with cliffs and muddy and sandy beaches. The site hosts approximately 216 species of bird, many of them migratory, and some breeding colonies on the islands of La Vieja and San Gallan. The site also hosts Leatherback (VU), Green (EN) and Olive Ridley Turtle (VU), and Marine Otters (EN).

Mangalares de San Pedro-Vice are the southernmost mangroves on the Pacific coast hosting 100 avian species.

Estuario de Virrila sees the highest concentrations of both marine and aquatic birds on the Peruvian Coast.

Islan Lobos de Tierra is an offshore island which hosts Humboldt Penguins (VU) and petrels.

La Zona Reserva Pantanos de Villa is a wetland south of Lima where more than 150 species have been recorded, including large concentrations of migratory birds.

Isla Pachacamac off the coast near Lima hosts approximately 20 avian species, including more than 500 Humboldt Penguin (VU).

→ IMMAs

The Peruvian coast has not yet been evaluated for IMMAs.

At risk Wildlife

In this section, some individual wildlife species are mentioned followed by a letter in parentheses. These are species included in the IUCN Red List of Threatened Species within the top three categories of risk - Vulnerable to extinction (VU), Endangered (EN) or Critically Endangered (CR). A more complete list of IUCN listed species is found in Appendix 1.

→ At risk birds

Peru's coast and offshore islands are home to more than 240 waterbird species, some resident and some migratory. Multiple species of ducks and geese, gulls and terns, plus penguins, pelicans and boobies are found here. Offshore rocky islands provide critical breeding/nesting habitat for seabirds and coastal wetlands harbor migrating and nesting waterbirds. Andean Condors (VU) forage along the coast.

→ At risk reptiles

Five species of sea turtle are found in Peruvian waters, of these only Green Turtles (EN) and Olive Ridley (VU) are known to nest on the country's beaches. Most nesting occurs in Tumbes and Piura, the northernmost states, however, increased nesting has been noted in both species, with nests found further south on a regular basis. American Alligator (VU) also are found in the northern most coastal areas of the country.

→ At risk mammals

More than 30 species of cetacean and at least 5 species of pinniped have been recorded in Peruvian waters. Some of these sightings reflect rare vagrants, however, with changing ocean temperatures further expansion or

contraction of territories may occur.

Past experience with oil spill and potential risks

In 2022 a spill, known as the *Callao* spill, occurred at Repsol's La Pampilla refinery near Isla Pescadores while the Italian tanker *Mare Doricum* was offloading oil. Initial estimates were that at least 10,000 barrels of oil were spilled. Repsol provided a wildlife rescue center within the Parque de las Leyendas Zoo in Lima and signed an agreement to support the National Forest and Wildlife Service (Serfor)'s wildlife rescue operations. Personnel from the Brazilian NGO Aiuká were called in to train local personnel and oversee the wildlife response, aided by other local and international NGOs. Final numbers of impacted wildlife were not available as of late 2022.

A spill of 200 tonnes of crude from a submarine pipeline in 1984 severely polluted several of Lima's amenity beaches.

The vessel *Cape Knox* (2008) spilled 5500 litres of diesel fuel, near to one of the most sensitive ecological areas, the Paracas National Reserve. According to sources, many sea lions died.

The explosion of the tanker *BAP Supe* (Jan 2008) caused a marine pollution incident. Mangroves in Tumbes and Piura and fisheries were threatened but were not affected in the end.

Timachesvk (Feb 2010) off San Andreis, in the Paracas Bay Harbour, threatened the Natural Reserves of Paracas.

The Corrientes region of the Peruvian Amazon has suffered several small oil spills. Pollution from oil spills still exists in many sites, which presents health risks to local indigenous communities nearby.

In August 1992, a pipeline rupture caused a 75,000-gallon spill which polluted the Rio Napo.

The *Camisea pipeline*, which runs from the Amazon, over the Andes to the Pacific Coast, has ruptured four times, with at least three major spills since August 2004.

There are ongoing risks from oil exploration in the Amazon and significant ship traffic along Peru's coast.

International and Regional Treaties and Agreements

→ Oil spill and HNS Response

- CLC Convention 69
- CLC Protocol 76
- CLC Protocol 92
- FUND Protocol 76
- FUND Protocol 92
- FUND Protocol 2003
- LLMC Convention 76
- LLMC Protocol 96
- OPRC Convention 90
- HNS Convention 96
- HNS PROT 2010
- OPRC_HNS 2000
- BUNKERS CONVENTION 01

→ Marine Biodiversity Protection

- Lima Convention and its Agreement on Regional Cooperation to Combat Pollution of the Southeast Pacific by Hydrocarbons and other Harmful Substances in Cases of Emergency

- Operative Network for Regional Cooperation among Authorities of South America, Mexico, Panama and Cuba (ROCRAM)

Oil Spill Response and HNS Spill Response

→ National Contingency Plan?

The National Contingency Plan, last revised in the early 2000s and accorded a Presidential Decree, cites the Direccion General de Capitancias y Guardacostas de la Marina de Guerra del Peru (General Directorate of Captaincies and Coast Guards of the Peruvian Navy/DICAPI) as the oil spill authority. The plan does not formally address wildlife response.

→ Role of Competent National Authorities

The Dirección del Medio Ambiente (Directorate of the Environment), within DICAPI, oversees evaluation, management, prevention and reduction of pollution of the sea, rivers and navigable lakes. DICAPI also supervises development of local and district response plans.

The Ministry of the Environment is the national authority for marine and coastal issues. It is assumed that the Ministry would assume responsibility for oiled wildlife response. The Servicio Nacional de Áreas Protegidas por el Estado (National Service of Natural Areas Protected by the State/SERNAP) would assume responsibility for response to oiled wildlife within nationally protected areas, with its Maritime-Coastal Unit acting as response coordinator. Serfor would likely play a role in a wildlife response.

Oiled Wildlife Preparedness and Response**→ Formal guidelines?**

There are no formal guidelines for response to oiled wildlife, however, responses are mounted as needed.

→ Response objectives and strategy

N/A

→ Euthanasia or rehabilitation?

Rehabilitation is allowed. While there do not appear to be any guidelines on euthanasia, it is likely that it would be utilised on humane grounds.

→ Impact assessment

It is likely that Sernap and Serfor would take the lead in impact assessment, possibly with oversight from the Instituto del Mar del Perú, within the Ministerio de la Producción.

In addition, the Faculty of Veterinarian Medicine and Faculty of Biological Sciences at the Universidad Nacional Mayor de San Marcos, the Universidad Peruana Cayetano Heredia's Marine Biology Laboratory and the Universidad Nacional del Callao's Zoology and Veterinary Science Faculties might be called in, depending on the situation. As could NGOs such as Prodelphinus which conducts research on various marine species, and the Organization for Research and Conservation of Aquatic Animals (ORCA) which conducts research on marine wildlife.

→ Notification and early response

There is no formal system for notification of, or response to, oiled wildlife.

→ Wildlife responders

Sernap and Serfor would likely oversee any wildlife response. ORCA's South Pacific Marine Mammal Center, located south of Lima, has experience with cetaceans, sea lions, Marine Otters (EN), penguins, and sea turtles. Prodelphinus has experience with tracking of cetaceans and turtles, and with monitoring of seabird colonies. There are also several groups rehabilitating wildlife in the Amazon. In larger events, Aiuka may be called in again.

→ Cooperation between stakeholders

Sernap and Serfor worked with the Brazilian NOG Aiuká during the Callao Oil Spill.

→ Permanent facilities

The South Pacific Marine Mammal Center has capacity to care for some marine wildlife. There are several Amazon rainforest wildlife conservation projects which may be able to take in oiled wildlife within that region.

→ Current processes

There are no current processes in place for planning or training for oiled wildlife response in Peru. It is possible that, in the aftermath of the Callao spill, efforts to develop these processes will be explored.

Documentation and references

Sea Alarm Country Wildlife Response Profile 2010: <https://www.sea-alarm.org/publications/country-wildlife-response-profiles/>

ITOPF Country Profile 2005: <https://www.itopf.org/knowledge-resources/countries-territories-regions/peru/>

Country Coastline Length: <https://www.citypopulation.de/en/world/bymap/coastlines/>

CIA World Factbook: <https://www.cia.gov/the-world-factbook/countries/peru/>
Large Marine Ecosystem Hub: <https://www.lmehub.net/#>
Ocean Data Viewer: <https://data.unep-wcmc.org/datasets/>
The mangrove ecosystem in Peru: https://www.researchgate.net/publication/297620906_The_mangrove_ecosystem_in_Peru
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Repsol provides a wildlife rescue center at Parque de las Leyendas Zoo: <https://compromisorepsol.pe/en/repsol-provides-a-wildlife-rescue-center-at-the-parque-de-las-leyendas-zoo/>
Paciente: o pelicano peruano (Aiuka response to the Repsol spill): <http://aiuka.com.br/noticias/2022/07/29/paciente-o-pelicano-peruano/>
Instituto del Mar del Peru: <https://www.gob.pe/imarpe>

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Appendix 1

→ At risk birds

Common name / Latin name / IUCN Red List Category (CR,EN,VU) / Resident-Migratory (season) / Breeding-Nesting-Pupping (season)

Waved Albatross / *Phoebastria irrorata* / CR / Migratory (outside of breeding season / Non-breeding/breeds only on Galapagos

Galapagos Petrel / *Pterodroma phaeopygia* / CR / Migratory (outside of breeding season / Non-breeding

Black Rail / *Laterallus jamaicensis* / EN / Migratory (during breeding season / Breeding (autumn/winter)

Peruvian Tern / *Sterna lorata* / EN / Resident / Breeding (Aug-Feb/peak Oct-Jan)

Humboldt Penguin / *Spheniscus humboldti* / VU / Resident / Breeding (year round/peaks Apr-Jul&Aug-Dec

Chatham Albatross / *Thalassarche eremita* / VU / Migratory (outside of breeding season / Non-breeding (seasonality

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uncertain)

Salvin's Albatross / *Thalassarche salvini* / VU / Migratory (Mar-July) / Non-Breeding
White-winged Petrel / *Pterodroma leucoptera* / VU / Migratory (outside of breeding season) / Non-Breeding
Cook's Petrel / *Pterodroma cooki* / VU / Migratory (outside of breeding season) / Non-breeding
Chatham Petrel / *Pterodroma axillaris* / VU / Migratory (outside of breeding season) / Non-Breeding
White-chinned Petrel / *Procellaria aequinoctialis* / VU / Migratory (May-Sept) / Non-Breeding
Black Petrel / *Procellaria parkinsoni* / VU / Migratory (June-Oct) / Non-Breeding
Buller's Shearwater / *Ardenna bulleri* / VU / Resident / Breeding (autumn/winter)
Agami Heron / *Agamia agami* / VU / Migratory (outside of breeding season) / Non-Breeding
Andean Condor / *Vultur gryohus* / VU / Resident / Breeding (summer)

→ At risk reptiles

Common name / Latin name / IUCN Red List Category (CR,EN,VU) / Resident-Migratory (season) / Breeding-Nesting-Pupping (season)

Hawkshbill Turtle / *Eretmochelys imbricata* / CR / Migratory (seasonality uncertain) / Non-breeding
Green Turtle / *Chelonia mydas* / EN / Migratory (seasonality uncertain) / Breeding/Nesting (summer)
Leatherback Turtle / *Dermochelys coriacea* / VU / Migratory (seasonality uncertain) / Non-breeding
Loggerhead Turtle / *Caretta caretta* / VU / Migratory (seasonality uncertain) / Non-breeding
Olive Ridley / *Lepidochelys olivacea* / VU / Migratory (seasonality uncertain) / Breeding/Nesting (summer)
American Crocodile / *Crocodylus acutus* / VU / Resident / Breeding (possibly year round)

→ At risk mammals

Common name / Latin name / IUCN Red List Category (CR,EN,VU) / Resident-Migratory (season) / Breeding-Nesting-Pupping (season)

Blue Whale / *Balaenoptera musculus* / EN / Migratory and resident / Breeding/Calving (seasonality not well understood)
Sei Whale / *Balaenoptera borealis* / EN / Migratory (seasonality not well understood) / Calving not well documented
Marine Otter / *Lontra felina* / EN / Resident / Pupping Jan-Mar in onshore dens
Sperm Whale / *Physeter macrocephalus* / VU / Resident / Calving not well documented
Galapagos Fur Seal / *Arctocephalus galapagoensis* / EN / May be resident? / Colonies found in Northern Peru