

Humboldt Project: report on visit to the Isla Lobos de Tierra Pilot Site

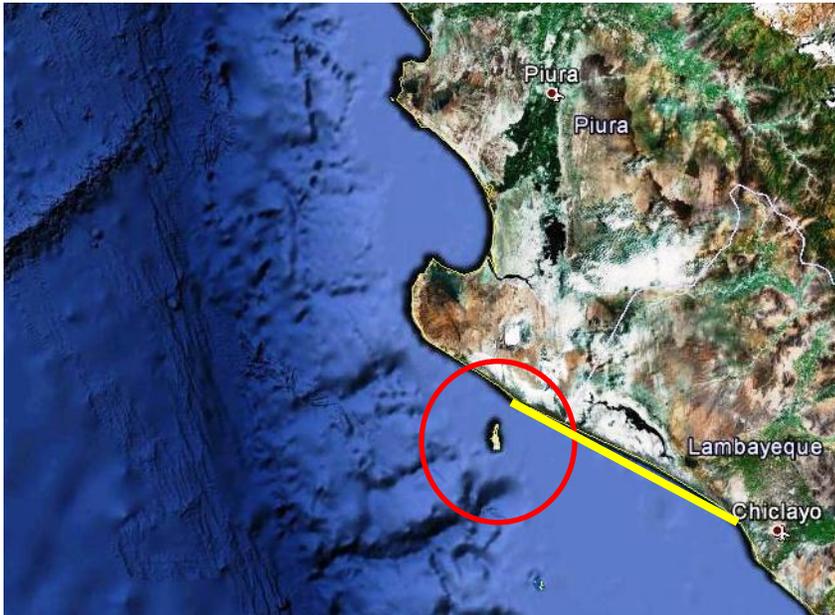
Michael Akester, Regional Project Coordinator: Back to the Office Report.

Project area:	North Peru
Visit to:	Isla Lobos de Tierra, Lambayeque
Visit dates:	6 to 10 February 2011
Purpose:	<ol style="list-style-type: none"> 1. Visit the most Northern HCLME pilot site and evaluate the conditions at the Isla Lobos de Tierra site in terms of infrastructure, resource use pressure and general environmental aspects. 2. Hold a Humboldt Project meeting with local authorities and other stakeholders regarding the project's future activities. 3. Visit the IMARPE laboratory Santa Rosa Chiclayo. 4. Visit the port and area around Sechura 5. Meet with the head of IMARPE Piura.
Travel Team	Michael Akester, MichaelA@unops.org (MJA); Mariano Gutierrez (MGT; Lenka Lazo (LLL); Albertina Kameya (IMARPE) akameya@imarpe.gob.pe and Yann Tremblay (IRD-France) yann.tremblay@ird.fr . Report by MJA
Persons met:	Edward Barriga, Head IMARPE Sta. Rosa Chiclayo ebarriga@imarpe.gob.pe ; Paquita Ramirez-IMARPE, Sta. Rosa, Chiclayo Jaime De La Cruz-IMARPE, Sta. Rosa, Chiclayo Regional Government staff, Lambayeque. IMARPE staff Piura. SERNANP staff Isla Lobos de Tierra. Artisanal fisherfolk leaders Wilfredo Sandoval journalist wilfredoarnaldosandovalbayona@hotmail.com
Status and Issues	<ol style="list-style-type: none"> 1. The HCLME most Northerly pilot site, Isla Lobos de Tierra (map annex 1), is only 9km from the mainland but over 100km (10 hours by boat) from the nearest landing sites with road access. Hence access via the beach with 4x4 vehicles at low tide is the quickest way to gain access without using a helicopter with sea landing capability (expensive, not available and dangerous to the bird population). 2. Whilst driving on the beach to the island transit point (Palo Alto = marker on the beach – annex 1), 164 dead dolphins of two different species were observed (photos annex 1). <ol style="list-style-type: none"> a. They were in varying stages of decomposition with death estimated as ranging from only a few hours to over a week (birds peck out the eyes within minutes – one young dolphin had its eyes intact). b. No dead sealions or birds were observed in any significant quantities (one or two dead pelicans and one dead sealion). c. The cause of dolphin death has not, as yet, been determined but could have been related to illegal / irresponsible Tuna fishing (purse sein and or dynamite use); Naval sonar activity; Oil& Gas seismic explorations, earthquake shock waves or poisoning (natural via red tide neurotoxin production in the form of Domoic Acid or use of poisoned bait designed to kill dolphins as they can damage fishing gear). d. Quantities of dead anchovies were also seen on the beach and at sea. These could have been from discarded (excess catch) or the result of low oxygen levels or ingestion of diatoms containing neurotoxins like Domoic Acid. e. Dead turtles were found – but these were obviously caught and eaten by fishermen (annex 1). f. Groups of illegal beach based fishing teams (beach sein) were seen and photographed. 3. In the area to the East of the Island (continental shelf area) around 10 illegal fishing boats were seen operating. Most were using divers (air tubes from compressors) to extract scallops of around 4cm size for transfer as 'seed' for aquaculture purposes. 4. On the island groups of fishermen fishing for octopus were seen within meters of young

	<p>pelican chicks.</p> <ol style="list-style-type: none"> 5. Fishermen also land and use island high points so as to use cell phones (no coverage at sea level). 6. The Island's facilities (pier and some of the accommodation) are in poor state of repair. Guano is collected from the island on a 5 to 7 year cycle administered by AGRORURAL (housing and a truck plus loading winch are visible). 7. As part of the Guano Islands National Park SERNANP has a role in protecting the park. 8. The 16,000ha Island falls within both Lambayeque and Piura Provinces but is managed at a national level. 9. A USD2.2 million project to upgrade facilities and protect the natural resources was contemplated at the end of 2011 but it is uncertain whether the Lambayeque Regional Government authorities have approved and will implement this. 10. Cruise ships visit the island occasionally to take tourists to view the bird and sealion colonies. 11. Lizards, <i>Microlophus peruvianus</i>, have been introduced to the Island as a means of biological control of bird tick populations. 12. Feral cats are a problem on the Island as they eat young birds. Cats are taken to the island by fishermen. Island Conservation could be contacted to help with an irradiation programme http://www.islandconservation.org/about/?id=15 There is also a GEF co-funded project starting in the Juan Fernandez Islands (HCLME pilot site) in Chile http://gefonline.org/projectDetailsSQL.cfm?projID=4330 and http://www.thegef.org/gef/gef_country_prg/CL and http://www.thegef.org/gef/sites/thegef.org/files/documents/Council%20Comments%20on%20WP%202010%20_0.pdf 13. The Chiclayo IMARPE laboratory has recently completed a biodiversity study on the Island Lobos de Tierra as part of the HCLME project in-kind contribution. 14. The relatively nearby (54km distant) Isla Lobos de Afuera has a naval station with climatological data recorded and improved resource protection.
<p>Recommendations provided</p>	<p>No specific recommendations were provided, however there is clear evidence of a need to reduce illegal fishing pressure in the areas around the Island. There is also a need to coordinate other economic activities such as scallop seed collection for aquaculture, guano extraction (infrastructure maintenance) and tourist visits with the need to preserve and re-establish biodiversity on and around the Island. A meteorological station and ocean current flow measuring system would help provide valuable information about factors that have an impact on the Island's biodiversity. Publications by Carlos Zavalaga show bird feeding patterns many km distant from the island demonstrating the need for a possible 'buffer' zone in which certain fishing activities are banned (annex 2).</p>
<p>Follow-up action:</p>	<ol style="list-style-type: none"> 1. Dolphin deaths to be investigated (full autopsy of recently beached dolphin). Water analysis to determine diatom composition and presence of possible Harmful Algae like <i>pseudonitzia</i>. Dead anchovies to be sampled for Domoic Acid presence. Action Edward Barriga and IMARPE Central 2. Status of the Lambayeque Regional Government Isla Lobos project funding to be determined and possibly revived under HCLME counterpart funding possibilities. Action MGT 3. Plan meetings with local interest groups (artisanal fishers, tourist agents, park managers, guano extraction coordinators, aquaculture entities and conservationists) to determine HCLME actions 2012 and onwards. Action Regional coordination unit 4. IMARPE to send biodiversity report and counterpart fund cost information to the HCLME Coordination Office Action Paqita Ramirez 5. Contact Carlos Zavalaga cbz3724@alum.uncw.edu re his PhD work on the Island Isla Lobos de Tierra Action MJA
<p>Copied to</p>	<p>IMARPE, MINAM, SERNANP, PRODUCE, IRD, IFOP, UNDP (Panamá, Lima & Santiago), UNOPS (Copenhagen) & HCLME team Lima.</p>

Annex One

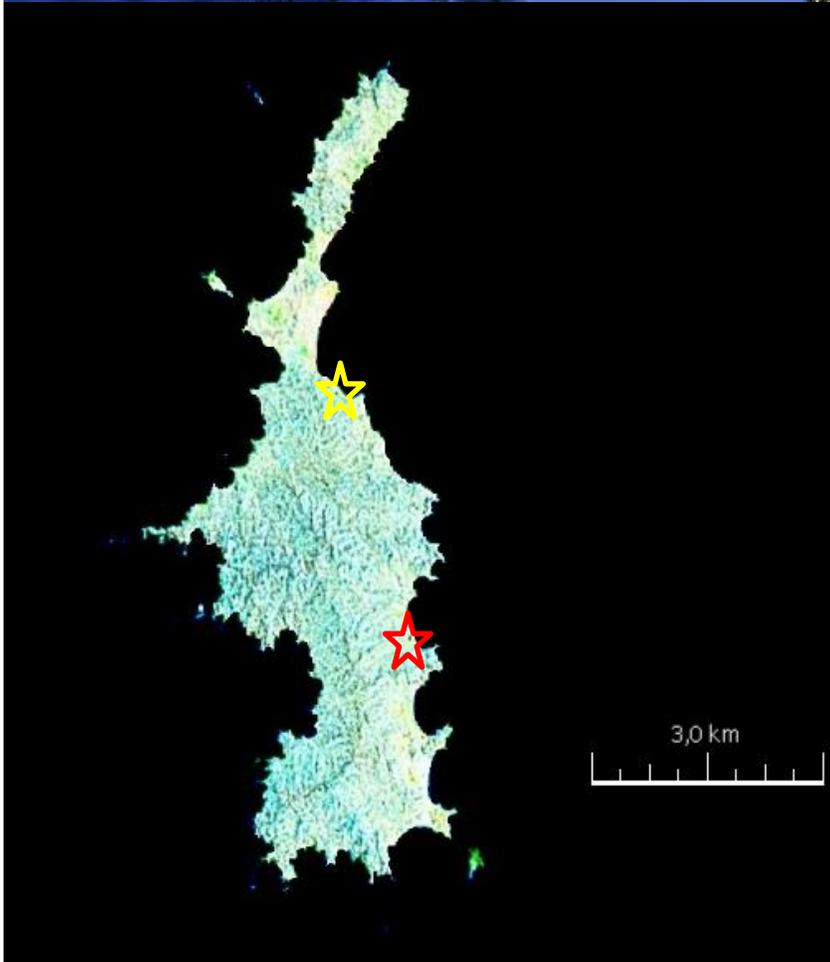
Maps, photos and information collected during the visit to the island and the Sechura port area in Piura Isla Lobos de Tierra



**Isla Lobos de Tierra
6° 26' 0" South and 80° 51'
30" West**

Yellow line = distance travelled on the beach at low tide (114km) and area where 164 dead dolphins were seen. Yellow star marks the main landing site and SERNANP office.

Red star marks Guano collection point and sealion colony at El Ñopo.



Photos at annex 1.

Isla Lobos de Tierra (red circle) Northern Peru in Lambayeque Province, close to Ecuador. The satellite image shows the coastal platform (smooth blue area) then the marine cliff edge (with ridges and valleys) dropping off to 5,000m depths.



Illegal beach sein team with equipment loaded on a truck – beach North of Chiclayo.



Dead dolphin – one of over 160 found on a 100km stretch of beach North of Chiclayo



Artisanal fishing boat comes to collect group from Palo Alto beach. Isla Lobos de Tierra in background



The boat rides the waves then anchors and swings broadside to allow loading – offloading on the beach



Team on the beach awaiting departure through the waves



At sea, the trip of around 9km takes about an hour under calm conditions



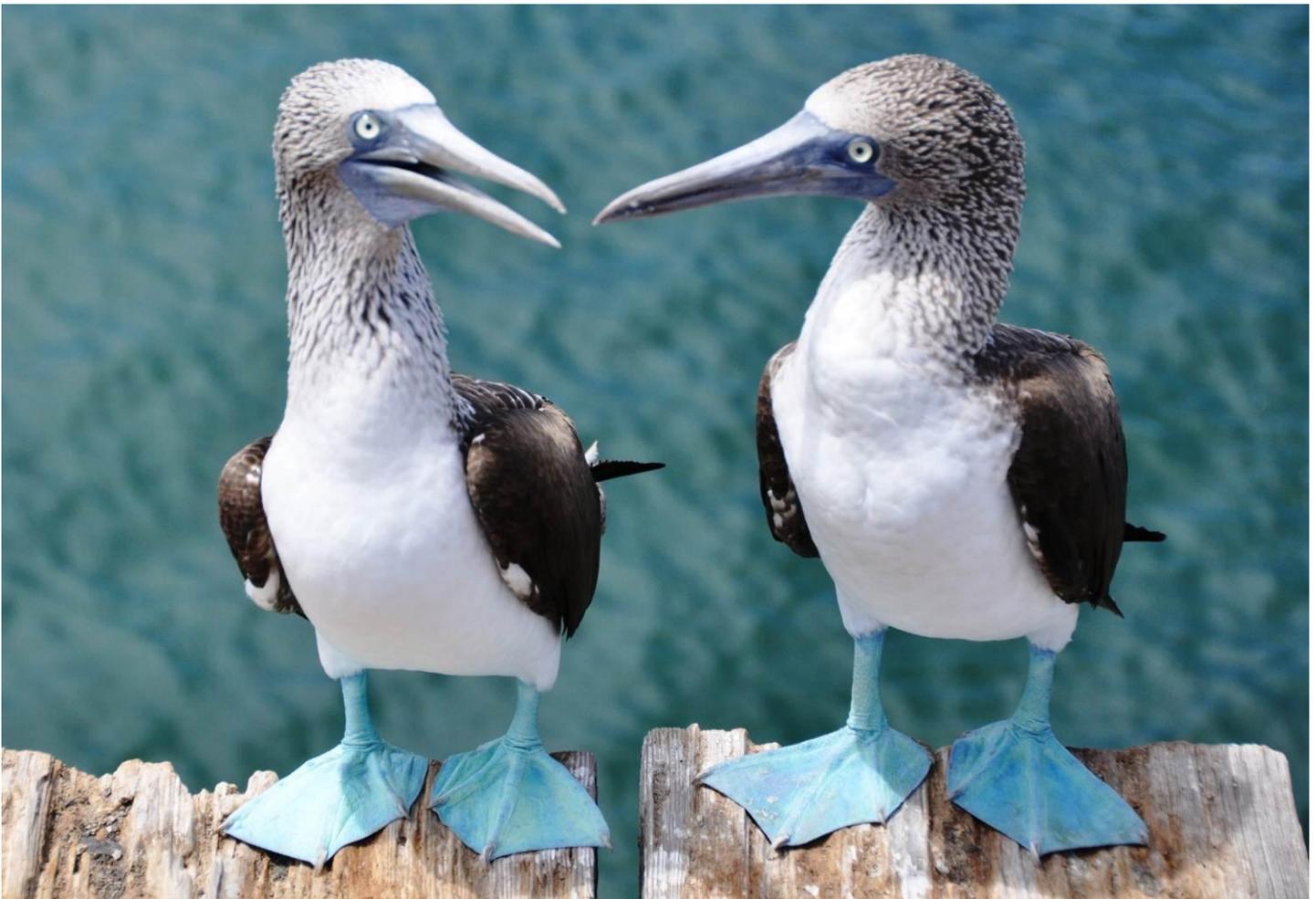
Welcome to Lobos de Tierra



The way onto the island is underneath the pier.



“Everyone arriving at this pier must register with the authorities. Bringing alcohol to the Island is forbidden”.



Blue-footed Boobies see: http://en.wikipedia.org/wiki/Blue-footed_Booby



Accommodation
for people
working on the
Island



Blue-footed Boobies nesting



Booby colony and parents with chick





Nesting birds: the colony used to suffer from ticks that damaged parents and young (plus visitors!). Lizards were introduced from the mainland to eat the ticks. Feral cats and fishermen take fledglings and eggs.



Bio-control: tick eating lizard *Microlophus peruvianus* about 20cm from nose to tail.



Island facilities: pier, housing for guano workers and national park guards. Guano is collected once every 5 to 7 years depending on the availability.



Guano collecting truck: used once every five to seven years.



View of the island looking North-East



Accommodation in poor condition



Pelican colony all facing the same direction: towards the sea



Pelican group see data about pelican foraging: <http://www.ncbi.nlm.nih.gov/pubmed/21647444> and annex 2



Cormorants



Team arrive on island



Illegal scallop fishing. Twelve divers died in 2011 from the 'bends' after coming to the surface too quickly from depths of around 25 meters.



White Rock Island with small group of Sealions – mostly males



Male Sealion jumps into the sea to join females



Sealions at El Ñopo point



Mainly female Sealions



Boat near (too close to) sealion colony



Sealions at El Ñopo point



Sealions male resting & watching



Sealions calling



Waves break on Isla Lobos de Tierra



Dolphin juvenile, 115cm long, dead on beach: around 160 dead dolphins (including two different species and a range of sizes) were seen on a 100km stretch of beach from San Jose to Palo Alto. The cause of death is unknown but could have been from red tides with the diatom *Pseudonitzschia* which produces domoic acid a powerful neurotoxin that gets into the foodchain via bivalve molluscs and plankton eating fish like anchovies. The latter can be both vectors and victims See: <http://www.jwildlifedis.org/content/45/1/109.short> and <http://www.sciencedirect.com/science/article/pii/S0892036205000942> and <http://www.springerlink.com/content/dc2vgj3ygvnbn7c/>



Safe return: Palo Alto beach

Tallas mínimas de captura de recursos hidrobiológicos

R.M.N° 209-2001-PE, R.M.N°232-2003-PRODUCE, R.M.N°298-2006-PRODUCE, R.M.N°204-2007-PRODUCE, R.M.N° 371-2007-PRODUCE, R.M.N° 386-2007-PRODUCE, R.M.N° 486-2008-PRODUCE, R.M.N°159-2009-PRODUCE

Peces Marinos

Nombre Común	Longitud Centímetro	Tipo de Medición	% Tolerancia Máxima	Nombre Común	Longitud Centímetro	Tipo de Medición	% Tolerancia Máxima
Albacora	96	horquilla	10	Lisa	37	total	10
Anchoveta	12	total	10	Lorna	24	total	10
Atún aleta amarilla	60	horquilla	20	Machete	25	total	10
Anguila	42	total	20	Machete de hebra	26	total	-
Ayanque, cachema	27	total	20	Merlín azul	130	total	10
Barrilete	47	horquilla	10	Merluza	35	total	20
Bereche	18	total	10	Pampano	41	total	20
Bonito	52	horquilla	10	Pejerrey	14	total	10
Caballa	32	horquilla	30	Perela, Corvina dorada	35	total	20
Cabinza	21	total	10	Pez espada	150	total	10
Cabrilla	32	total	20	Robalo, grandazo	60	total	10
Coco o suco	37	total	20	Samasa	9,5	total	20
Cojinova	35	total	20	Sardina	26	total	10
Congrio negro	55	total	20	Sierra	60	horquilla	10
Corvina	55	total	10	Tiburón	150	total	15
Chiri, palometa, pampanito o cometrapo	23	total	20	Tiburón azul	160	total	15
Falso volador	20	total	20	Tiburón diamante	170	total	15
Jurel	31	total	30	Tollo	60	total	20
Lenguado	50	total	10	Tollo blanco	60	total	20
Lenguado ojón	22	total	10	Tollo pintado	60	total	20

Invertebrado

Nombre Común	Longitud Centímetro	Tipo de Medición
Almeja	7,5	
Cangrejo Peludo	11,0	
Camarón de río	7,0	
Caracol	6,0	
Chanque	8,0	
Choro	6,5	
Concha de abanico	4,5	
Concha huaquera	12,0	
Concha navaja	4,5	
Concha negra	7,5	
Concha perforada	7,0	
Erizo verde	6,0	
Lapa	7,0	
Macha	2,2	
Marucha o palabritas	1,0 kg	peso
Pulpo		

Tipos de medición

- Almeja: Alura valvar
- Concha: Longitud perisostial
- Caracol: Longitud valvar
- Chanque: Longitud valvar
- Erizo: Diámetro del caparazón
- Cangrejo: Ancho cefalotorax
- Camarón: Longitud total

Recuerda, amigo pescador y comerciante:
 Extraer, procesar o comercializar recursos por debajo de la talla mínima atenta contra la pesca de la mañana.
 Apoyamos la preservación de nuestros recursos hidrobiológicos.
 No cumplir con las tallas mínimas, se sanciona con decomiso y multa. Evita ser sancionado.
 Programa de Extensión Pesquera Artesanal - PEPA
www.produce.gob.pe / dgpa@produce.gob.pe

PERÚ Ministerio de la Producción Despacho Viceministerial de Pesquería Dirección General de Pesca Artesanal CUANDO EL PERU PRODUCE EL PELO AVANZA

Minimum sizes and tolerance levels for fish caught by artisanal boats.



Small fish landed at Sechura "Las Delicias" landing pier.



Artisanal fishing boat numbers Piura



Fishing boats Parachique, Piura



Turtle eaten by persons unknown at Palo Alto beach in front of Isla Lobos de Tierra



IMARPE, Santa Rosa, Chiclayo

Annex two

Foraging tracks for the Peruvian pelican from Isla Lobos de Tierra see: full article at <http://www.ncbi.nlm.nih.gov/pubmed/21647444>

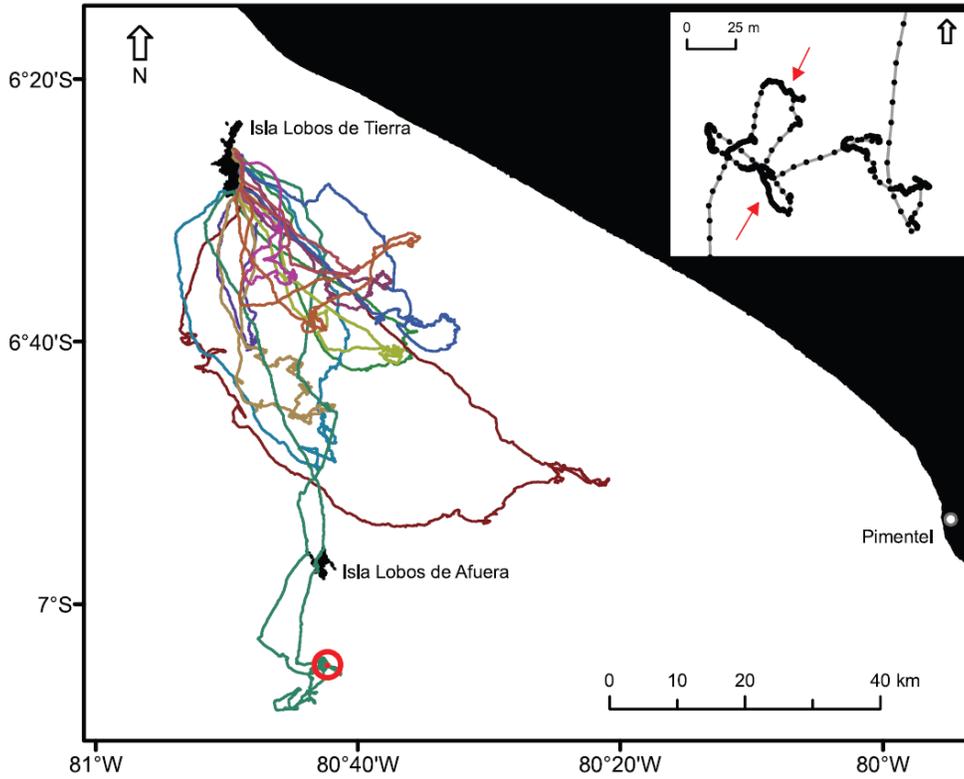


Figure 2. Foraging GPS-tracks of five incubating Peruvian pelicans from Isla Lobos de Tierra. Individual trips are represented by different colors. The inset map shows a zoomed-in portion of one track (indicated by the red circle). Floating bouts are shown by darker paths (two bouts indicated by red arrows) and flying bouts by more interspersed position fixes joined by lines.
doi:10.1371/journal.pone.0019966.g002