



Plan de Acción Sobre Aves Marinas de la CIAT: Distribución de las Aves Marinas e Impactos Asociados de la Pesca

The IATTC Seabird Action Plan: Seabird Distribution and Associated Fishery Impacts

Daniel Crear, Ana P. B. Carneiro, Thomas Clay, Dimas Gianuca, Igor Debski, David Anderson, Kath Walker, Todd Landers, Tyler Clavelle and Jon Lopez

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Plan de Accion sobre Aves Marinas (2024)

Seabird Action Plan (2024)

2024:

1. El personal científico de la CIAT realizará una evaluación de las aves marinas para su presentación al GTECI en 2025, incluyendo, pero no limitado a:
 - a. Comparación entre C-11-02 y medidas de mitigación en otras OROP.
 - b. Actualización de [SAR-7-05b]: distribuciones espaciales de especies de aves marinas en el Área de la Convención de la CIAT, incluyendo cualquier punto geográfico crítico para estas especies, superposición con esfuerzo de pesca LL, y estados de conservación
 - c. Visión general de las medidas de mitigación en uso por los CPC en el Área de la Convención de la CIAT conforme al párrafo 5 de C-11-02. Esto debería abarcar todas las CPC, incluyendo aquellas que puedan tener buques pescando en zonas donde no se requieren medidas de mitigación de captura incidental.
 - d. Resumen de las tasas observadas y estimadas de captura incidental de aves marinas en el Área de la Convención de la CIAT, incluyendo información 12 geográfica en caso posible, notando que los datos son limitados.

2024:

1. IATTC Scientific Staff will conduct a seabird assessment for presentation at the EBWG in 2025, including but not limited to:
 - a. Comparison between C-11-02 and mitigation measures in other tRFMOs.
 - b. Update of [SAR-7-05b]: spatial distributions of seabird species in the IATTC Convention Area, including any geographic hotspots for these species, overlap with LL fishing effort, and conservation statuses
 - c. Overview of mitigation measures in use by CPCs in the IATTC Convention Area as required in paragraph 5 of C-11-02. This should account for all CPCs, including any that may have vessels fishing in areas where bycatch mitigation measures are not required.
 - d. Summary of observed and estimated seabird bycatch rates in the IATTC Convention Area, including geographic information where possible, noting that data are limited.

Datos de distribución de aves marinas

Seabird Distribution Data

1. Se reunió con expertos clave en distribución de aves marinas
2. Identificó >80 conjuntos de datos de rastreo de la Base de Datos de Rastreo de Aves Marinas de especies de albatros y petreles que se solapaban con el área de la CIAT
3. Solicitó y recibió la aprobación de todos los conjuntos de datos por parte de los propietarios de los datos
4. Utilizar densidades de núcleo ya desarrolladas para la Evaluación del ACAP de 2024.

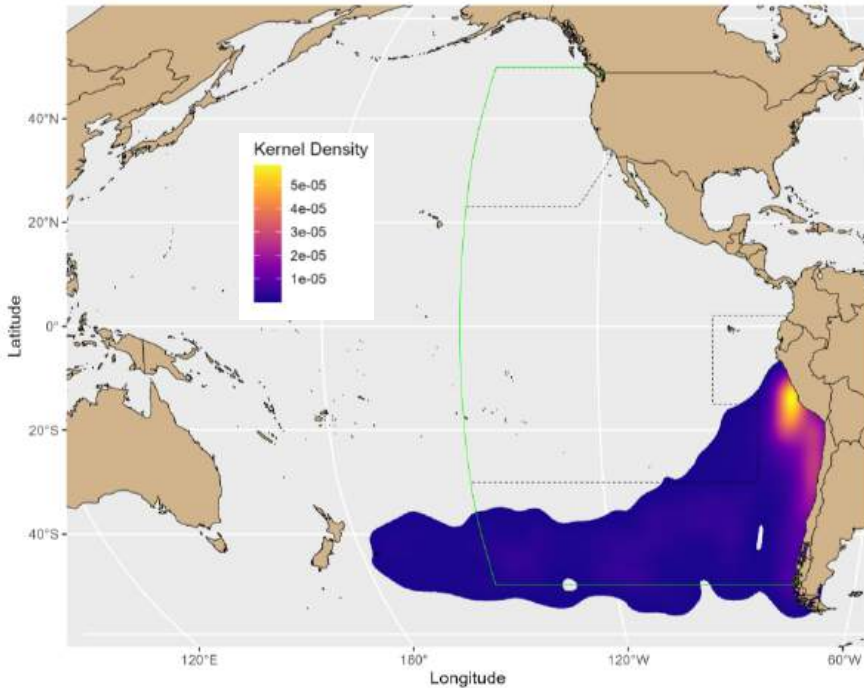
1. Met with key seabird distribution experts
2. Identified >80 tracking data sets from the Seabird Tracking Database of albatross and petrel species that overlapped with IATTC area
3. Asked and received approval for all data sets from data owners
4. Use already-developed kernel densities for 2024 ACAP Assessment

Datos de distribución de aves marinas: En todo el mundo UD

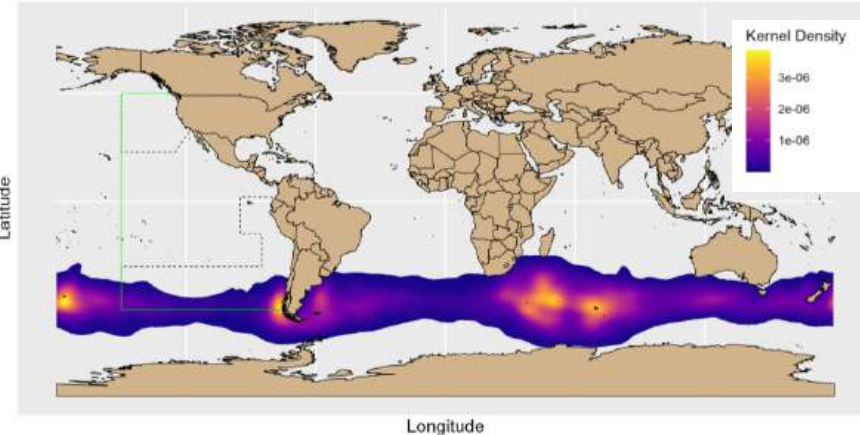
Seabird Distribution Data: Worldwide UD



Non-breeding adult
Chatham Albatross
Thalassarche eremita



Non-breeding adult
Wandering Albatross
Diomedea exulans



57 Utilization Distributions (UD) shared by ACAP

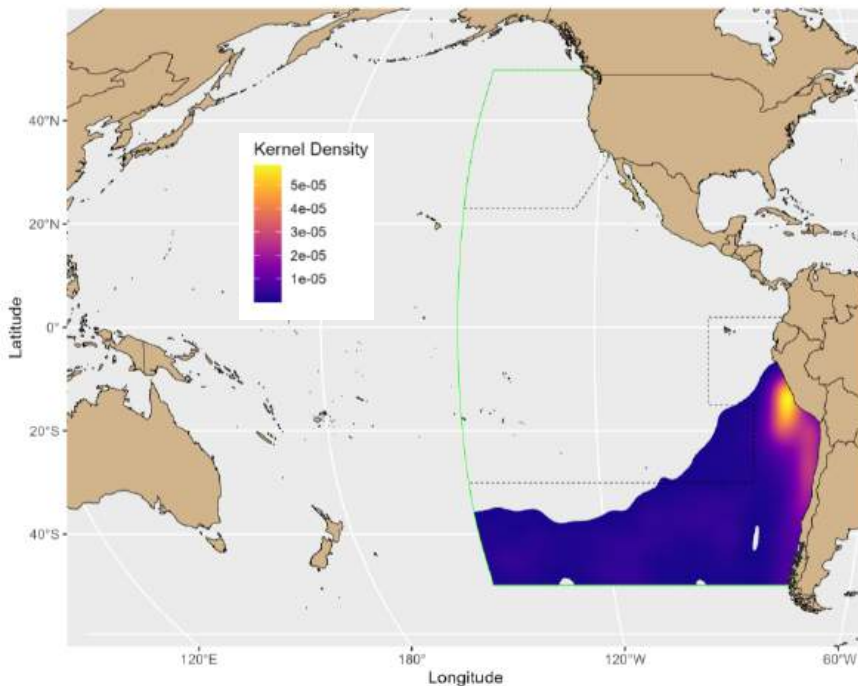
- 20 species
- breeding vs non-breeding
- Adult vs immature
- Tag type
- Worldwide UD's

Datos de distribución de aves marinas: CIAT Área UD

Seabird Distribution Data: IATTC Area UD

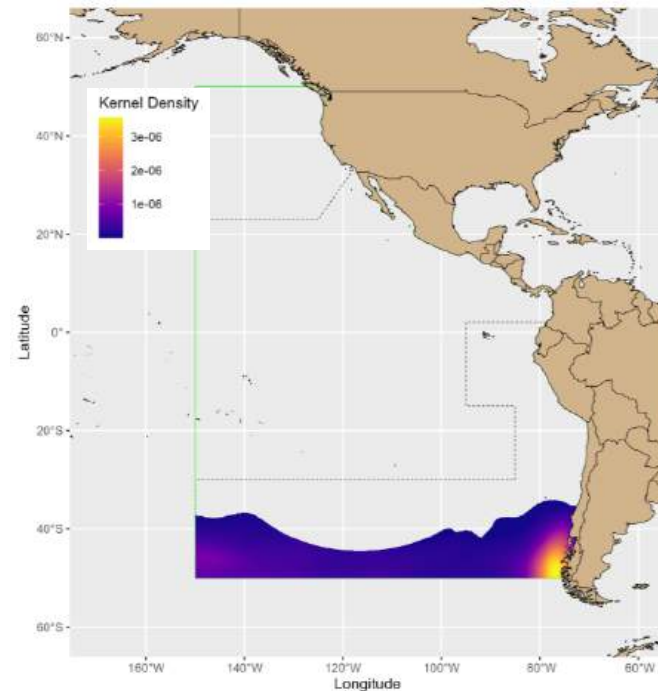


Non-breeding adult
Chatham Albatross
Thalassarche eremita



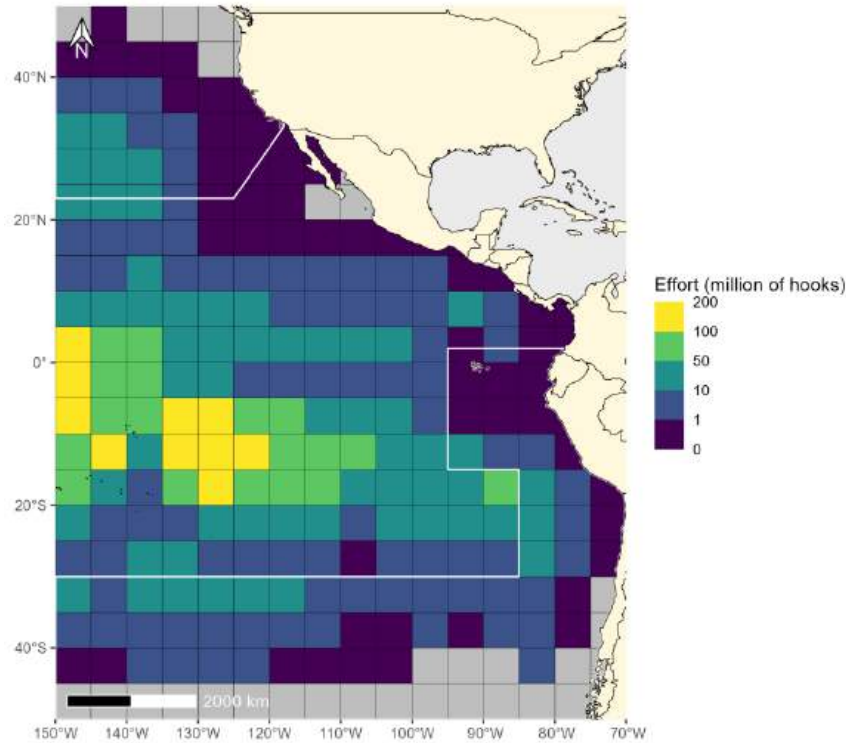
Non-breeding adult
Wandering Albatross
Diomedea exulans

- 17 UD's inside Convention Area
- 12 species
 - 8 Albatrosses
 - 4 Petrels
- 82% of UD's non-breeding period
- 2 UD's from immature, rest from adults



Datos pesqueros: Bitácoras

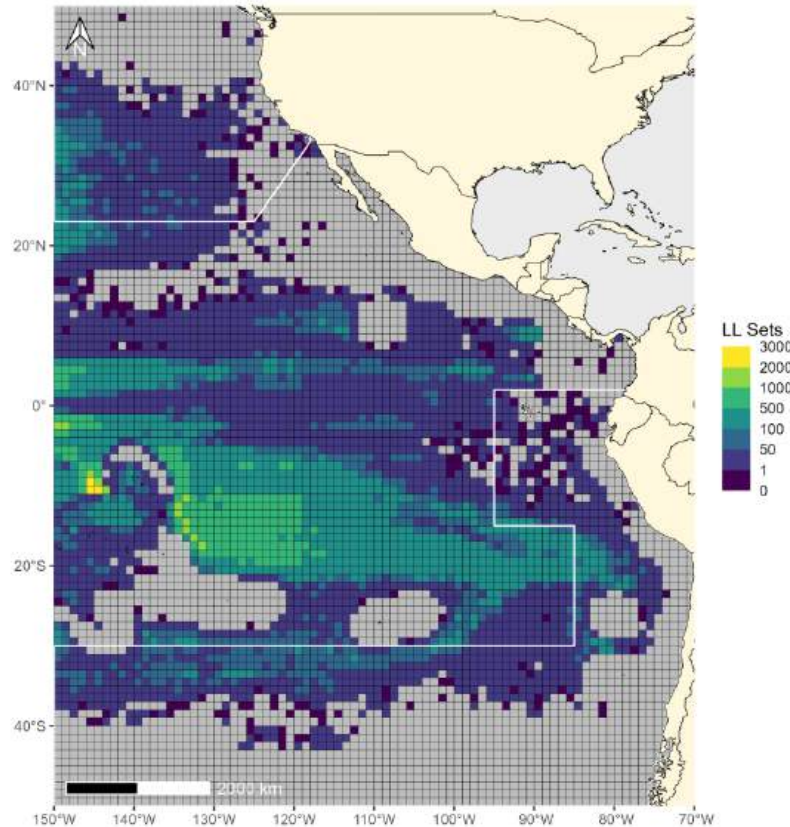
Fisheries Data: Logbook



- Datos de bitácoras de pesca de palangre
 - 2000-2023
 - Número total de anzuelos
 - Resolución espacial 5°x5
-
- Longline logbook data
 - 2000-2023
 - Total # of hooks
 - 5°x5° resolution

Datos pesqueros: Global Fishing Watch (GFW)

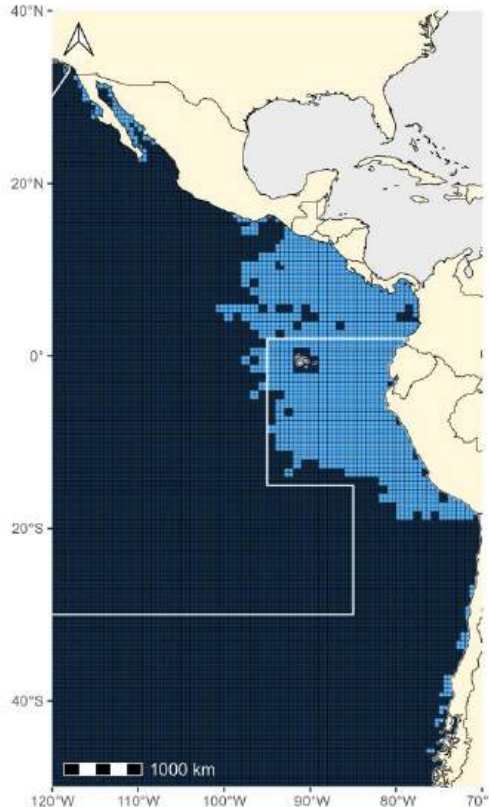
Fisheries Data: Global Fishing Watch (GFW)



- Estimación de hora y posición de lances de palangre a partir de datos del AIS
 - >350,000 lances de palangre estimados 2016-2023
 - Número total de lances de palangre
 - Resolución espacial de $1^\circ \times 1^\circ$
 - 2% ocurrieron completamente de noche
-
- Estimated longline set time and locations based on AIS data
 - >350,000 estimated sets from 2016-2023
 - Total # of longline sets
 - $1^\circ \times 1^\circ$ resolution
 - 2% completely occurred at night

Datos pesqueros: Pesca artesanal

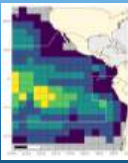
Fisheries Data: Small-scale fisheries



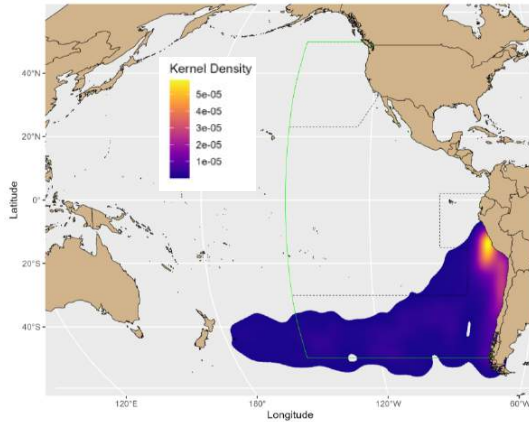
- Estimación de la huella de esfuerzo de la pesca costera artesanal
 - Cumplida y discutida en SAC-13-11
 - Presencia/Ausencia
 - Resolución espacial de 0.5°x0.5°
-
- Estimated effort footprint of small-scale coastal fishery
 - Complied and discussed in SAC-13-11
 - Presence/Absence
 - 0.5°x0.5° resolution

Datos pesqueros #1: Bitácoras y UD Isoplethas

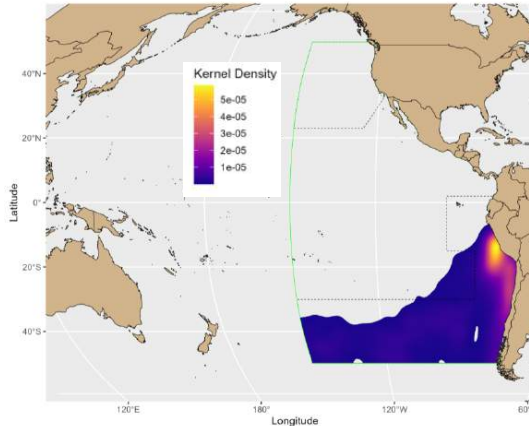
Overlap Analysis #1: Logbook & UD Isopleths



Worldwide UD



IATTC Area UD



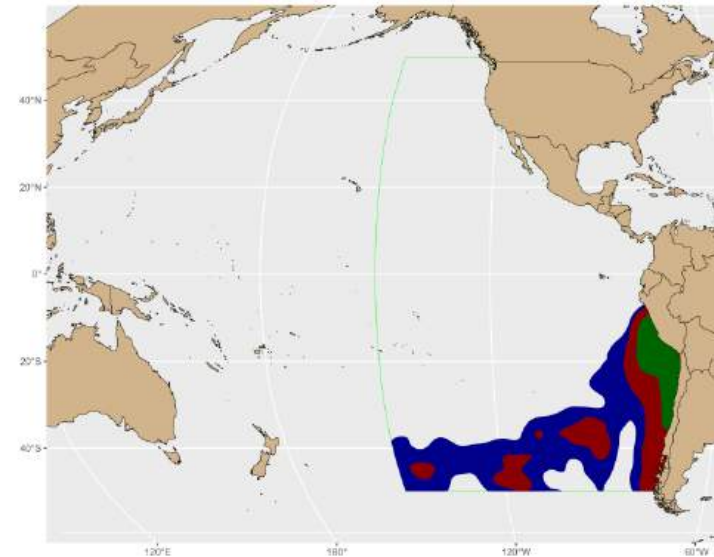
Non-breeding adult
Chatham Albatross
Thalassarche eremita

Isopleths

95%

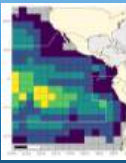
75%

50%



Datos pesqueros #1: Bitácoras y UD Isoplethas

Overlap Analysis #1: Logbook & UD Isopleths

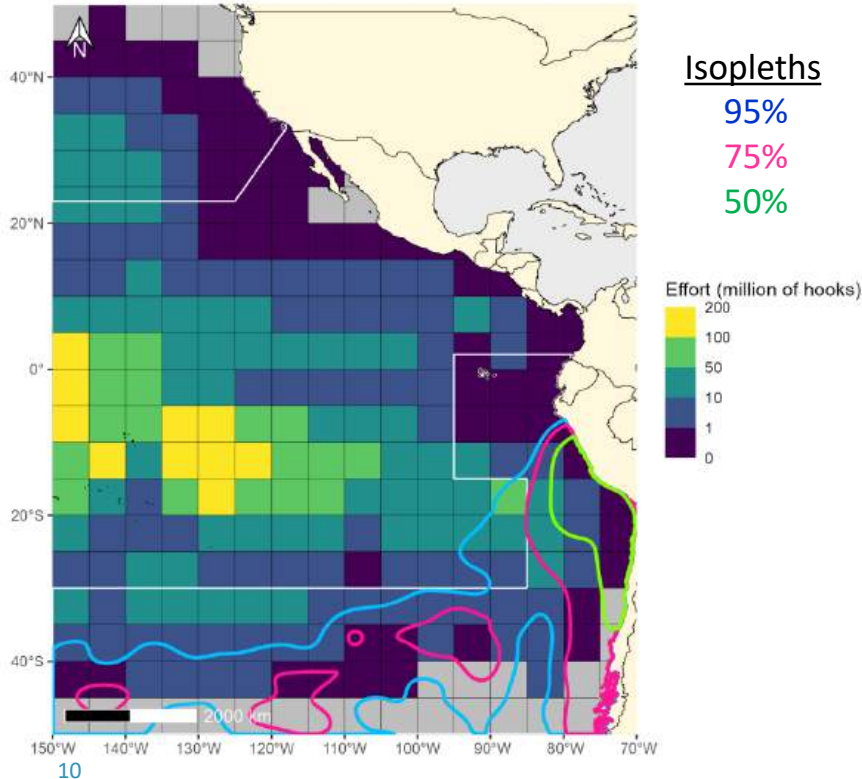


Non-breeding adult Chatham Albatross



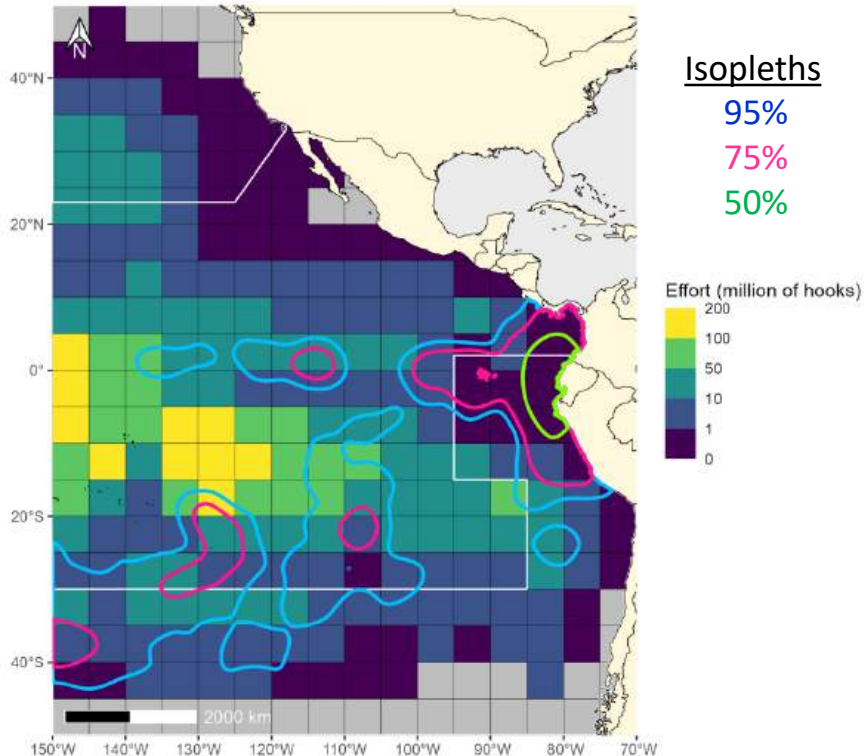
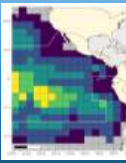
7%, 4%, 2%

Metric: % of
fishing effort
overlap



Datos pesqueros #1: Bitácoras y UD Isoplethas

Overlap Analysis #1: Logbook & UD Isopleths



Non-breeding adult Chatham Albatross



7%, 4%, 2%

Non-breeding adult Black Petrel

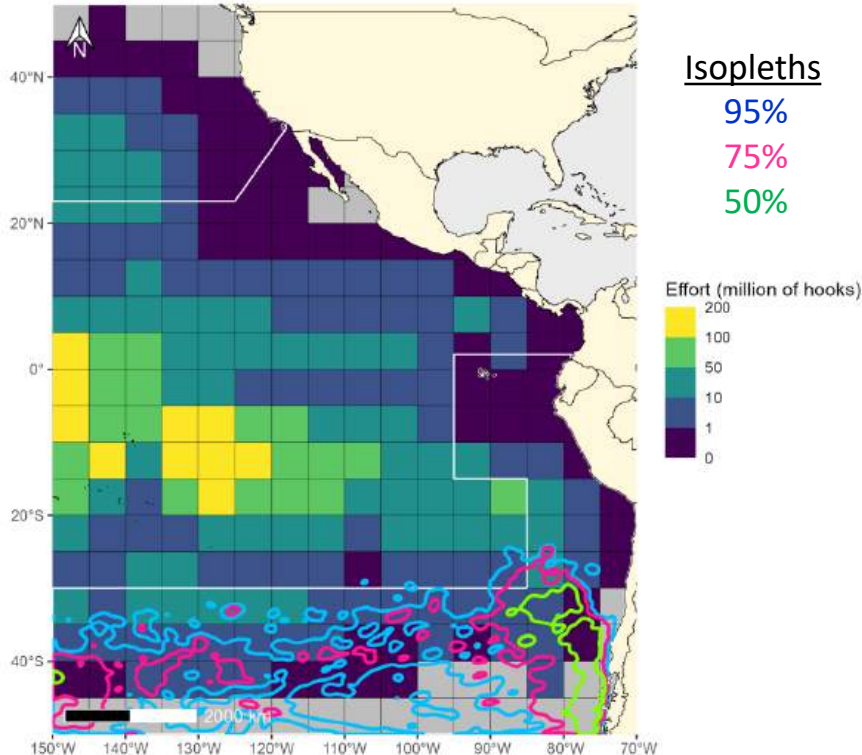
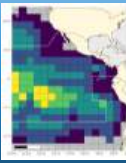


38%, 12%, <1%

Metric: % of
fishing effort
overlap

Datos pesqueros #1: Bitácoras y UD Isoplethas

Overlap Analysis #1: Logbook & UD Isopleths



Non-breeding adult Chatham Albatross



7%, 4%, 2%

Non-breeding adult Black Petrel



38%, 12%, <1%

Non-breeding adult Antipodean Albatross



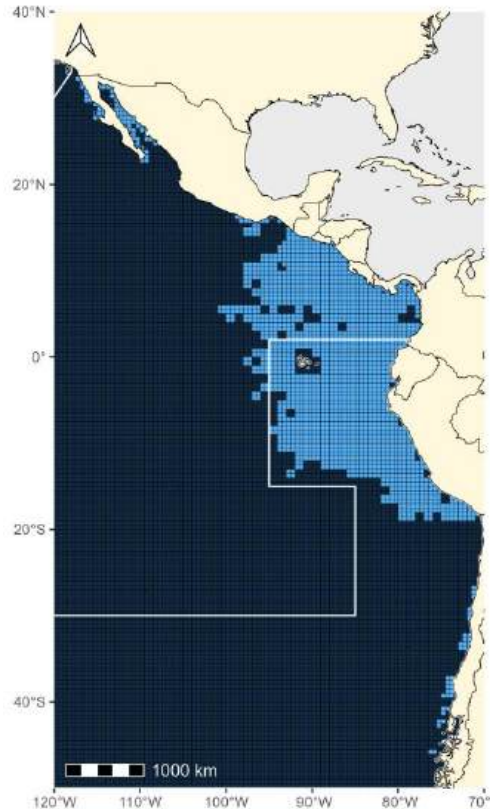
6%, 4%, 1%

Metric: % of
fishing effort
overlap

Table 1. EB-03-02

Datos pesqueros #2: Pesca artesanal y UD Isoplethas

Overlap Analysis #2: Small-scale fisheries & UD Isopleths



Isopleths

95%

75%

50%

Non-breeding adult Black Petrel



62%, 49%, 15%

Non-breeding adult White-chinned Petrel



24%, 12%, 3%

Non-breeding adult Chatham Albatross



17%, 12%, 8%

Metric: % of
fishing area
overlap

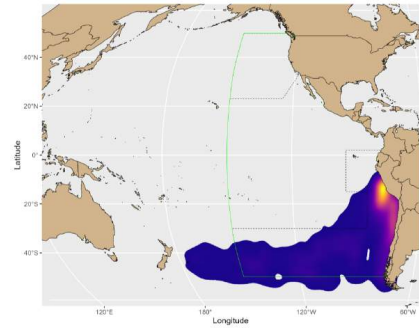
Table 1. EB-03-02

Datos pesqueros #3: GFW y 50% Núcleo Hábitat

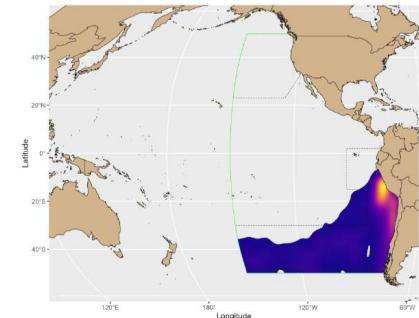
Overlap Analysis #3: GFW & 50% Core Habitat

White et al. 2019

Worldwide

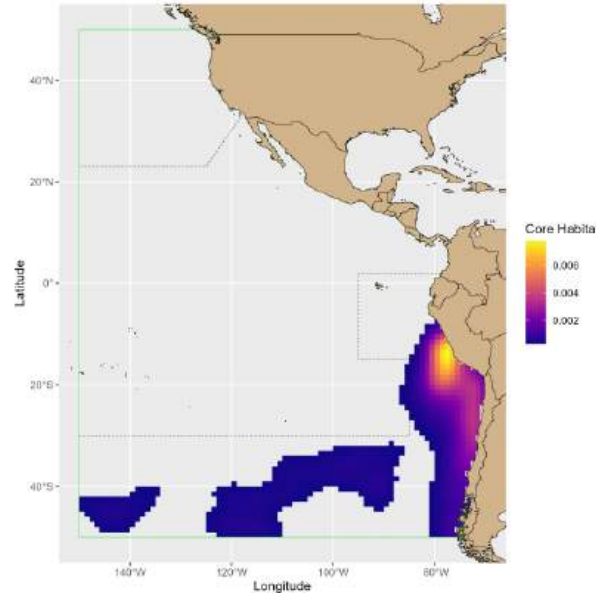


IATTC Area



Non-breeding adult
Chatham Albatross
Thalassarche eremita

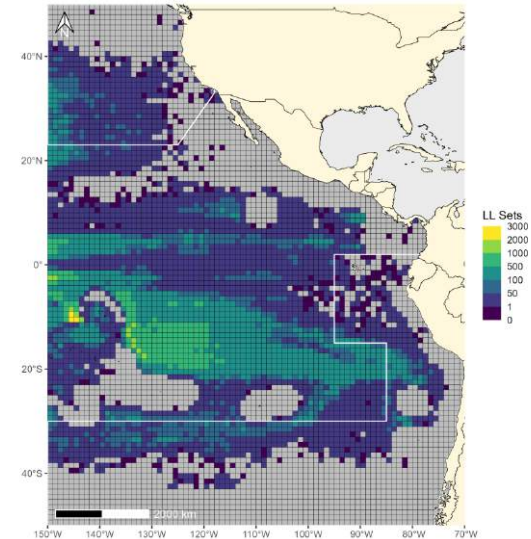
Core Habitat (top 50%)



$$P_{rel}(core\ habitat)_i = \frac{density_i}{\sum_{i=1}^n density_i}$$

$$P_{rel}(fishing)_i = \frac{effort_i}{\sum_{i=1}^n effort_i}$$

$$P_{rel}(overlap)_i = \frac{P_{rel}(core\ habitat)_i \times P_{rel}(fishing)_i}{\sum_{i=1}^n (P_{rel}(core\ habitat)_i \times P_{rel}(fishing)_i)}$$



Datos pesqueros #3: GFW y 50% Núcleo Hábitat

Overlap Analysis #3: GFW & 50% Core Habitat

White et al. 2019

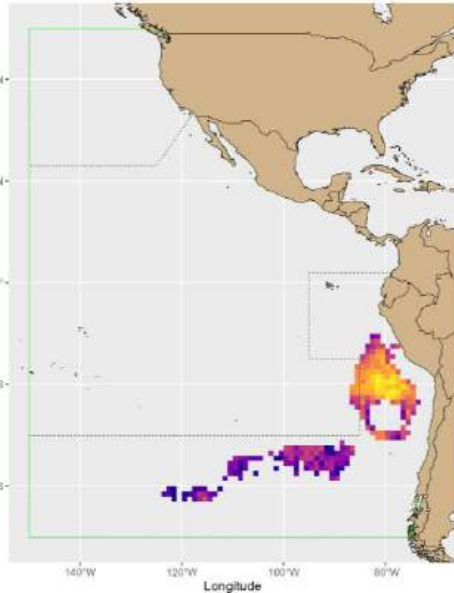


Non-breeding adult
Chatham Albatross
Thalassarche eremita

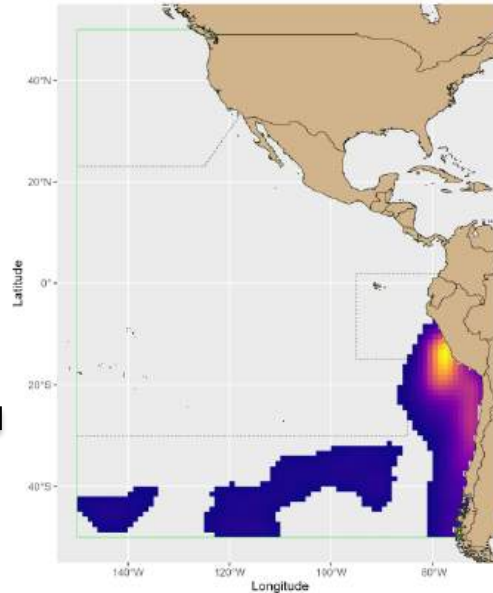
$$P_{rel}(core\ habitat)_i = \frac{density_i}{\sum_{i=1}^n density_i}$$

$$P_{rel}(fishing)_i = \frac{effort_i}{\sum_{i=1}^n effort_i}$$

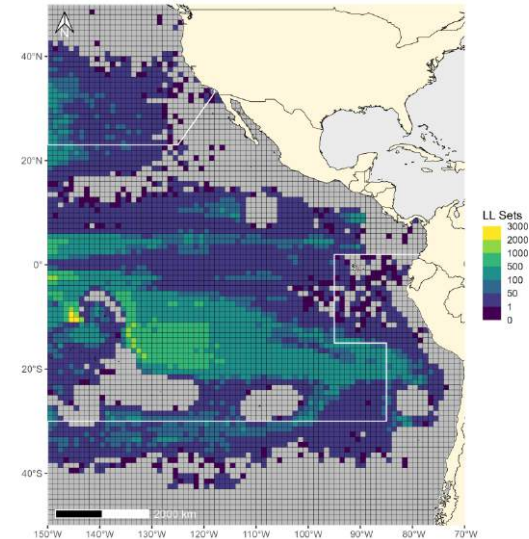
Relative Overlap



Core Habitat (top 50%)



$$p_{rel}(overlap)_i = \frac{P_{rel}(core\ habitat)_i \times P_{rel}(fishing)_i}{\sum_{i=1}^n (P_{rel}(core\ habitat)_i \times P_{rel}(fishing)_i)}$$



Datos pesqueros #3: GFW y 50% Núcleo Hábitat

Overlap Analysis #3: GFW & 50% Core Habitat

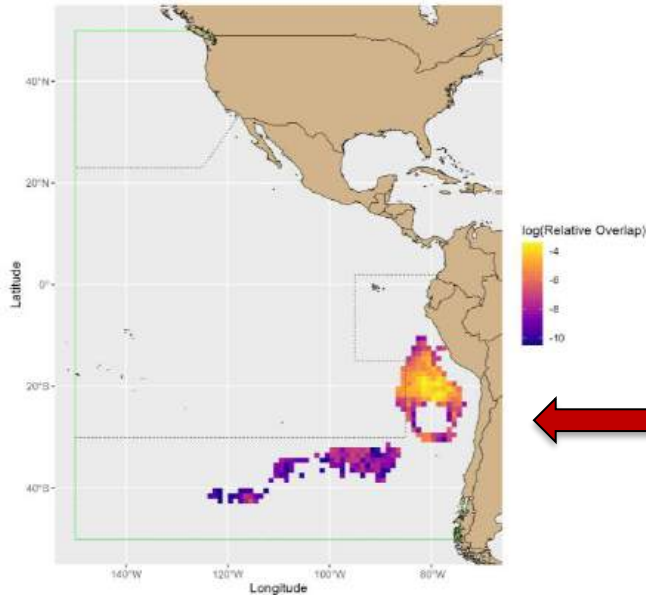
Non-breeding adult Chatham Albatross



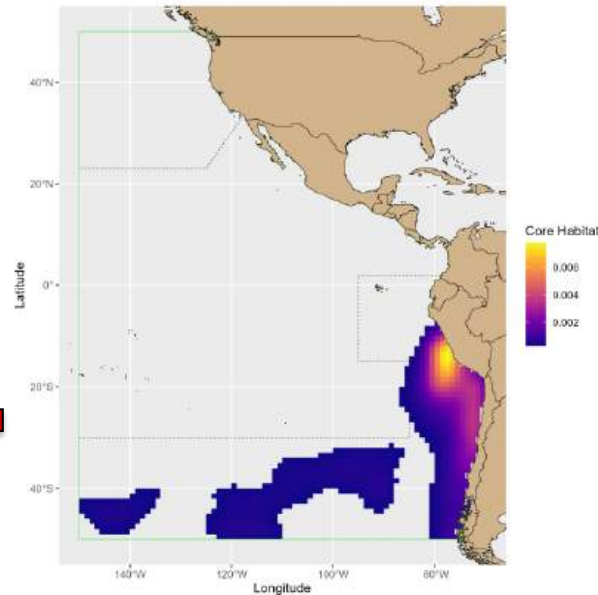
33%

Metric: % of
core habitat
overlapped

Relative Overlap



Core Habitat (top 50%)



Datos pesqueros #3: GFW y 50% Núcleo Hábitat

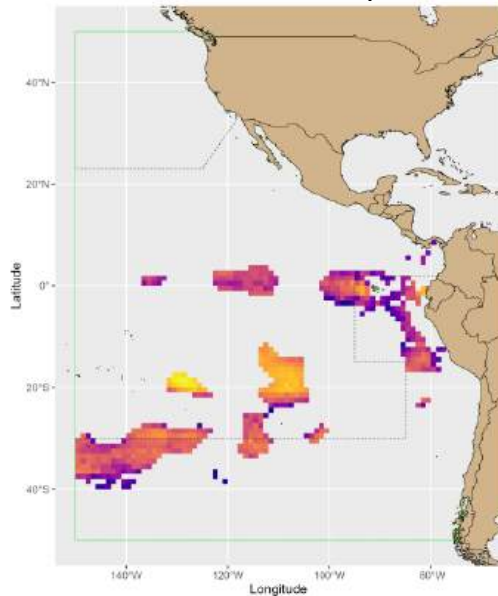
Overlap Analysis #3: GFW & 50% Core Habitat

Non-breeding adult Chatham Albatross



33%

Relative Overlap

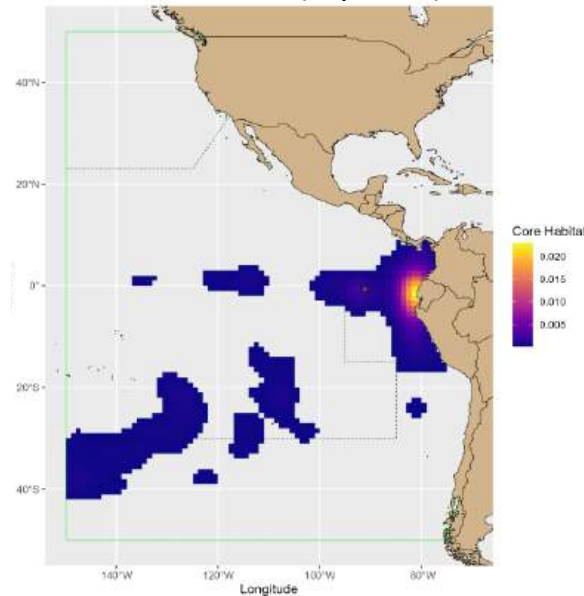


Non-breeding adult Black Petrel



66%

Core Habitat (top 50%)



Metric: % of
core habitat
overlapped



Datos pesqueros #3: GFW y 50% Núcleo Hábitat

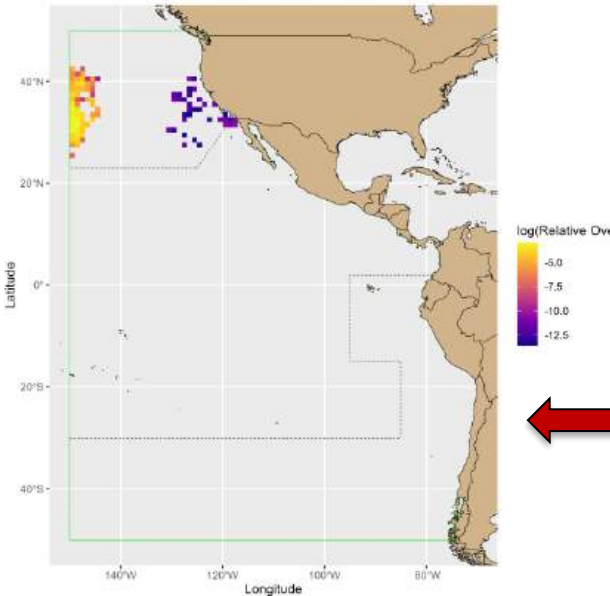
Overlap Analysis #3: GFW & 50% Core Habitat

Non-breeding adult Chatham Albatross



33%

Relative Overlap

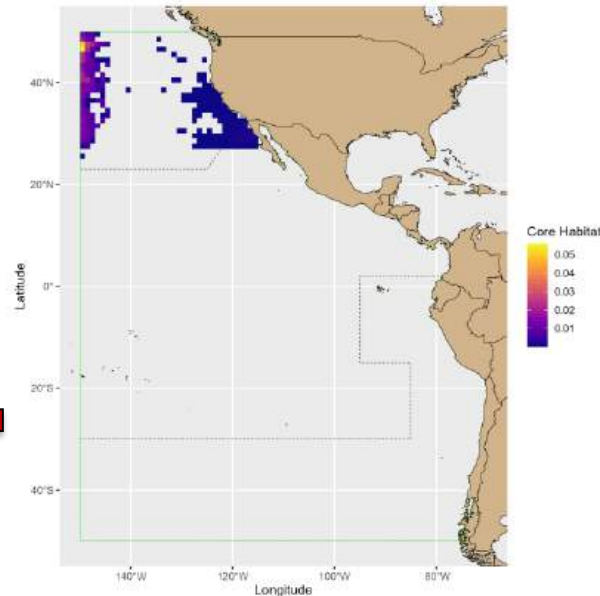


Non-breeding adult Black Petrel



66%

Core Habitat (top 50%)



Metric: % of
core habitat
overlapped

Breeding Laysan Albatross



45%

Table 1. EB-03-02

Tasas de interacción de captura incidental de aves marinas

Seabird Interaction Bycatch Rates

1. Tasas de interacción observadas cumplidas que se solapan con el área de la CIAT
 - Pabellón del buque/de la flota, especies objetivo, años, medidas de mitigación
 - Agregaciones de especies (ej., albatros)
2. Tasas de interacción calculadas a partir de datos observados de la CIAT en el Área de la CIAT
 - 2013-2023
 - Agregaciones de especies
 - Diferencias latitudinales
 - Tasas de captura incidental calculadas en cuadrículas de $1^{\circ} \times 1^{\circ}$

1. Complied observed interaction rates that overlap with IATTC Area
 - Vessel/fleet flag, target species, years, mitigation measures
 - Species aggregations (e.g., albatrosses)
2. Calculated interaction rates from IATTC observed data in IATTC Area
 - 2013-2023
 - Species aggregations
 - Latitudinal differences
 - Calculated bycatch rates at $1^{\circ} \times 1^{\circ}$ grid cells

Tasas de interacción de captura incidental de aves marinas

Seabird Interaction Bycatch Rates

Revisión bibliográfica (Tabla 2. EB-03-02)

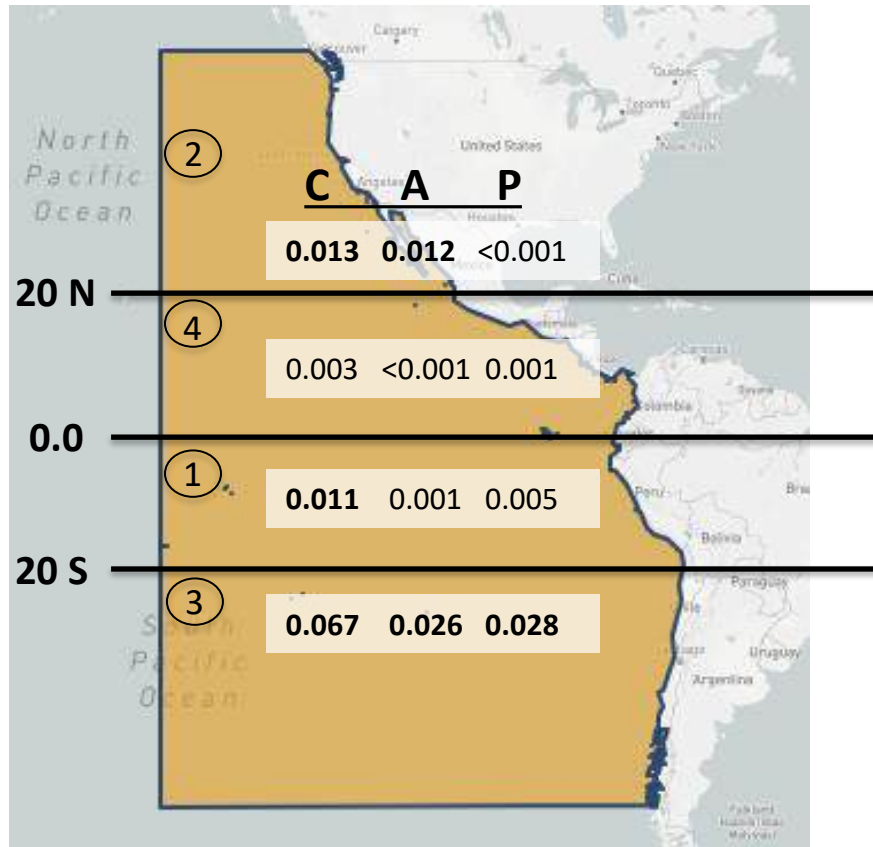
- 25 estudios, 48 registros de tasas de capturas accesorias, 23 combinadas de todas las aves marinas
- Rango: 0 - 0,594 ind/1000 anzuelos
- Mediana: 0,02; Media: 0.058
- Bajo número de lances observados
- Especies objetivo: pez espada, atún, dorado, y tiburones
- Rango espacial: Pacífico entero, costa afuera de Perú, Pacífico Norte, Pacífico Sudeste, OPO
- Difícil detectar tendencias

Literature Review (Table 2. EB-03-02)

- 25 studies, 48 bycatch rates records, 23 combined all seabirds
- Range: 0 – 0.594 inds/1000 hooks
- Median: 0.02; Mean: 0.058
- Low number of observed sets
- Target species: swordfish, tuna, mahi mahi, and sharks
- Spatial range: entire Pacific, offshore of Peru, North Pacific, Southeast Pacific, EPO
- Difficult to detect trends

Tasas de interacción de captura incidental de aves marinas

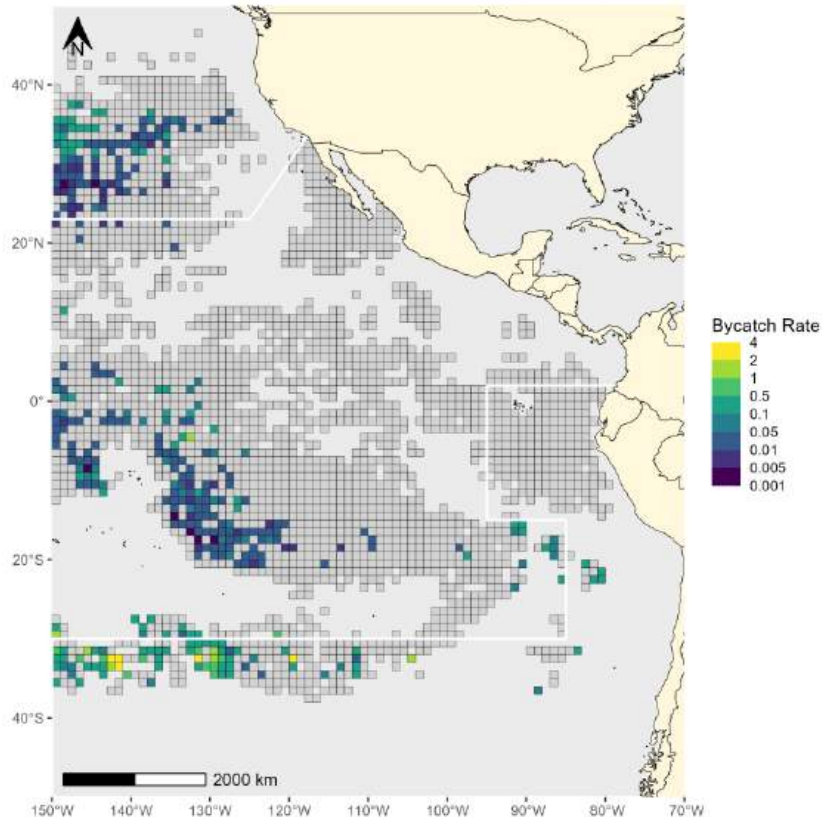
Seabird Interaction Bycatch Rates



- >85,000 observed sets 2013-2023
- 1% interacted with seabirds
- All species: 0.015 ind/1000 hooks
- Albatrosses: 0.006 ind/1000 hooks
- Petrels: 0.005 ind/1000 hooks

Tasas de interacción de captura incidental de aves marinas

Seabird Interaction Bycatch Rates



- Range: 0.0027-3.4 ind/1000 hooks
- Highest bycatch rates: 25°S–35°S and 125°W–150°W
- Other hotspots
 - 5°N–20°S and west of 120°W
 - 20°N-40°N and 130°W-150°W
- Large areas where longline effort is observed but no seabird interactions

Conclusiones: Distribución de aves marinas

Conclusions: Seabird Distribution

Especies con mayor riesgo de interacción

Pardela de Parkinson adulta no reproductora

Albatros de Chatham adulta no reproductora

Albatros de Buller adulta no reproductora

Albatros de las antípodas adulta no reproductora



Species with highest interaction risk

Non-breeding adult Black Petrel

Non-breeding adult Chatham Albatross

Non-breeding adult Buller's Albatross

Non-breeding adult Antipodean Albatross

Conclusiones: Distribución de aves marinas

Conclusions: Seabird Distribution

Especies con mayor riesgo de interacción

Albatros de Salvin adulta no reproductora

Albatros de Laysan reproductor

Pardela gorgiblanca adulta no reproductora

Albatros de las Galápagos reproductor



Species with highest interaction risk

Non-breeding adult Salvin's Albatross

Breeding Laysan Albatross

Non-breeding adult White-chinned Petrel

Breeding Waved Albatross

Conclusiones: Distribución de aves marinas

Conclusions: Seabird Distribution

Lagunas

- Lagunas en los datos de las marcas GPS/PTT
 - Albatros de Laysan adulta no reproductor
 - Albatros de patas negras reproductores y no reproductores
 - Albatros de Salvin reproductores y no reproductores
- Otras especies de aves marinas (pardelas, fregatas, charranes, aves del trópico y piqueros)

Gaps

- Lacking GPS/PTT tag data
 - non-breeding Laysan Albatross
 - Breeding & non-breeding Black-footed Albatross
 - Breeding & non-breeding Salvin's Albatross
- Other seabird species (shearwaters, frigatebirds, terns, tropicbirds, and boobies)

Conclusiones: Tasas de captura incidental de aves marinas

Conclusions: Seabird Bycatch Rates

- Difícil detectar tendencias a partir de la bibliografía
 - Grandes zonas con solapamiento, pero sin tasas de interacción con aves marinas registrada
 - Zonas de interacción de aves marinas fuera de las regiones de mitigación
 - Primer paso positivo, pero resalta la necesidad de mejorar los datos de captura incidental de aves marinas (artículo 7 C-11-02)
 - Falta de estudios a lo largo de las zonas costeras
- Difficult to detect trends from literature
 - Large areas where overlap occurs but no seabird interaction rate recorded
 - Areas of seabird interaction outside mitigation regions
 - Positive 1st step, but highlights the need to improve seabird bycatch data (Article 7 C-11-02)
 - Lack of studies along coastal areas

Recomendaciones

Recommendations

- Beneficios de la colaboración con ACAP y BirdLife
- Mejorar los informes y la cobertura de observadores (ver Sección 7.2 en SAC-16-11)

La CIAT debería continuar colaborando con expertos y organizaciones líderes en aves marinas tanto a nivel regional como mundial (por ejemplo, ACAP, BirdLife), incluyendo otras OROP atuneras (por ejemplo, WCPFC), para comprender mejor y mitigar los impactos potenciales de las pesquerías de atunes y especies afines sobre la conservación de las aves marinas.

- Benefits from collaboration with ACAP and BirdLife
- Improve observer reporting and coverage (see Section 7.2 in SAC-16-11)

The IATTC should continue collaborating with leading seabird experts and organizations both regionally and globally (e.g., ACAP, BirdLife), including other tuna RFMOs (e.g., WCPFC), to better understand and mitigate the potential impacts of tuna and tuna-like fisheries on seabird conservation.

Preguntas – Questions?

