

Comisión Interamericana del Atún Tropical Inter-American Tropical Tuna Commission



Strategic Science Plan – review of past activities and considerations for the future
Plan Científico Estratégico - revisión de actividades anteriores y consideraciones para el futuro
(SAC-14-01)

14^a Reunión del Comité Científico Asesor - 15-19 de mayo de 2023
14th Meeting of the Scientific Advisory Committee – 15-19 May 2023
La Jolla, California, USA- EE.UU.

Temario - Outline

- El Plan Científico Estratégico (PCE) de la CIAT (2019-2023) finaliza este año
 - Dar una mirada retrospectiva a los logros y deficiencias del PCE 2019-2023
 - Introducir algunas consideraciones sobre los puntos fuertes y los desafíos para el próximo PEC
- The 2019-2023 IATTC Strategic Science Plan (SSP) ends this year
 - Taking a retrospective glance at the accomplishments and shortcomings of the 2019-2023 SSP
 - Introduce some considerations on strengths and challenges for the next SSP

¿Por qué necesitamos un Plan Estratégico?

Why do we need a *Strategic Plan*?

- Solicitud de la Comisión
- "Hoja de ruta" para planificar y priorizar las actividades de investigación
- Presentar a la Comisión y las partes interesadas
- Presupuestar
- Evaluación de resultados



- Request from the Commission
- “Road map” for planning and prioritizing research activities
- Present to Commission and stakeholders
- Budgeting
- Performance evaluation

Hoja de ruta para planificar y priorizar las actividades de investigación

Road map for planning and prioritizing research activities

4. ECOLOGICAL IMPACTS OF FISHERIES: ASSESSMENT AND MITIGATION

Goal L: Evaluate the ecological impacts of tuna fisheries

- L.1. Develop analytical tools to identify and prioritize species at risk for data collection, research and management
- L.2. Conduct ERAs of EPO fisheries to identify and prioritize species at risk

Goal M: Mitigate the ecological impacts of tuna fisheries

- M.1. In collaboration with the industry, conduct scientific experiments to identify gear technology that will reduce bycatches and mortality of prioritized species
- M.2. In collaboration with the industry, conduct scientific experiments to develop best practices for the release of prioritized bycatch species
- M.3. Conduct spatiotemporal analyses to identify areas of high bycatch/catch ratios for potential use in spatial management
- M.4. Investigate alternative tools for bycatch mitigation
- M.5. In collaboration with the industry, conduct experiments to develop best practices for mitigating the impacts of fishing on habitats in the EPO

3. SUSTAINABLE FISHERIES

Goal H: Improve and implement stock assessments, based on the best available science

- H.1. Undertake the research necessary to develop and conduct at least one benchmark stock assessment for yellowfin and bigeye tunas
- H.2. Develop a spatially-structured stock assessment model for bigeye tuna as a basis for management advice, and initiate a similar model for yellowfin tunas
- H.3. Develop a benchmark stock assessment for skipjack tuna (conditional on implementation of tagging program (Project E.4)
- H.4. Develop update assessment and/or stock status indicators for tropical tunas to ensure that management advice is current
- H.5. Undertake the research necessary to develop and conduct data-limited assessments for prioritized species
- H.6. Maintain active participation in ISC stock assessments
- H.7. Develop conventional stock assessments for data-rich prioritized species and species of specific interest
- H.8. Assess the status of dolphin stocks in the eastern tropical Pacific



Una herramienta para presentar las actividades de investigación a la Comisión

A tool to present research activities the Commission

PROJECT A.3.b: Develop databases of biological and fisheries parameters to support Ecological Risk Assessment and ecosystem models	
THEME: Data Collection GOAL: A. Database maintenance, preservation, and access TARGET: A.3. Standardize and automate data submissions EXECUTION: Data Collection and Database Program, Biology and Ecosystem Program	
Objectives	Develop a comprehensive database of best-available biological and fisheries data to provide key parameters for Ecological Risk Assessment (ERA) and ecosystem models
Background	• The Antigua Convention requires the IATTC to ensure the sustainability of target, associated, and dependent species affected by EPO tuna fisheries, and the ecosystem to which they belong. • ERA and ecosystem models, used by IATTC staff to assess the ecological impacts of tuna fisheries in the EPO, require information on biological, physiological and trophodynamic characteristics of thousands of species in the EPO ecosystem. • A database with the most up-to-date information for impacted species is required to expedite the initial parameterization, or updating, of future models.
Relevance for management	• The database will contain data needed for ERAs and ecosystem models, used to identify and prioritize data collection, mitigation, and/or management measures for vulnerable species. • The databases could be shared with scientists of CPCs.
Duration	48 months
Workplan and status	• Jan–Apr 18: Create a basic database structure ready to be populated with biological parameters and associated literature sources. • Ongoing: Conduct biological and ecological literature searches for species that interact with EPO fisheries • Ongoing: Conduct literature searches for species that interact with EPO fisheries, identify fishery-related susceptibility parameters for bycatch species, create database
External collaborators	Scientists from CPCs interested in contributing to and/or using the databases
Deliverables	Comprehensive life history and susceptibility information that can be shared with IATTC (for a particular region and/or fishery).

Informe de avances del proyecto (segunda página)

Project progress report (second page)

PROJECT A.3.b: Develop databases of biological and fisheries parameters to support Ecological Risk Assessment and ecosystem models	
Updated: March 2019	
Progress summary for the reporting period • Life history database is in development for all species reported to have interacted with purse-seine and large-scale longline fisheries • Values for fisheries-related susceptibility parameters have been obtained for many of the bycatch species	
Challenges and key lessons learnt • Database development will be ongoing and parameter values will be updated as new literature and improved data becomes available	
Reports/publications/presentations Two manuscripts that use this life history and susceptibility data have been submitted to scientific journals	
Comments:	

Descripción del proyecto (primera página)

Project description (first page)



Uso de la nueva página web de la CIAT para buscar proyectos del PCE

Use new IATTC website to browse the SSP for projects

**Keep current SSP
framework (Goal-
Target-Project
structure)**

CIAT IATTC

MEETINGS PUBLICATIONS NEWS RESOLUTIONS CONTACT

ESPAÑOL

ABOUT US SCIENTIFIC RESEARCH AIDCP DATA MANAGEMENT RESOURCES

Home / Research / Research projects

Research projects

DESCRIPTION PROJECTS

Search

1. Theme 2. Goal 3. Target

4-Ecological impacts of fishing: assessment and mi --- ---

Programs Search title Date from Date to Completed Clear

--- Any Yes No Ongoing

1 2 >

14 PROJECT(S)

L.1.a - Develop habitat models for bycatch species caught in the EPO to support ecological risk assessments (ERAs)

01 Jun 2018 - 01 Jun 2019 **Funded**

Objectives:

- To use presence-only catch data to develop habitat models for all bycatch species caught in EPO tuna fisheries to facilitate mapping of their geographic range.
- To make distribution maps available in a format suitable for use as base

L.1.b - Develop a flexible spatially-explicit ERA approach for quantifying the cumulative impact of tuna fisheries on data-limited bycatch species in the EPO

01 Jan 2018 - 31 Dec 2021 **Funded**

Objectives:

- To develop a spatially-explicit model for quantifying the cumulative impact of multiple fisheries on data-limited bycatch species in the EPO
- To use the model to prioritize potentially vulnerable species for further



¿Una extensión de un año para el PCE (2019-2023)? A one-year extension for the SSP (2019-2023)?



Cronograma de evaluaciones – atunes tropicales
Stock assessment schedule – tropical tuna

Triennial assessment and management cycle (2022-2024)

SPECIES	2021	2022	2023	2024
Tropical Tunas	Indicators	Indicators	Indicators	Indicators
SKJ	Review of assessment methods	Interim SKJ assessment Initial results of tagging analysis; External review		Benchmark assessment
YFT		WS on longline data; WS on improving spatio-temporal methods for CPUE and L-F standardization (Project H.1.f)	Exploratory assessment; External review (Nov-Jan)	Benchmark assessment
BET		WS on longline data; WS on improving spatio-temporal methods for CPUE and L-F standardization (Project H.1.f)	Exploratory assessment; External review (Nov-Jan)	Benchmark assessment
Risk analysis		WS to improve metrics and scoring in risk analysis (Proposal H.1.g)		Risk analysis
MSE process	MSE WS, Tech. Work	MSE WS, Tech. Work	MSE WS, Prelim. results	MSE WS, BET HS, Future Work

Temas - Themes



Recolección de
datos en apoyo
científico de la
ordenación

Data collection for
scientific support of
management

Estudios del ciclo
vital en apoyo
científico de la
ordenación

Life-history studies
for scientific support
of management

Pesquerías
sostenibles

Sustainable fisheries

Impactos ecológicos
de la pesca:
evaluación y
mitigación

Ecological impacts of
fisheries:
assessment and
mitigation

Interacciones entre el
medio ambiente, el
ecosistema, y la
pesca

Interactions among
the environment, the
ecosystem and
fisheries

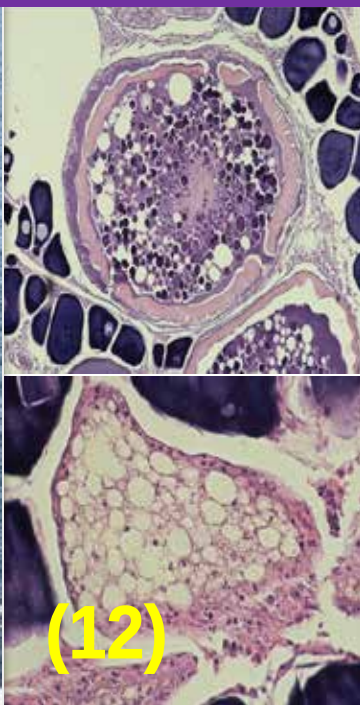
Transferencia de
conocimientos y
fomento de
capacidad

Knowledge transfer
and capacity building

Excelencia científica
Scientific excellence



(11)



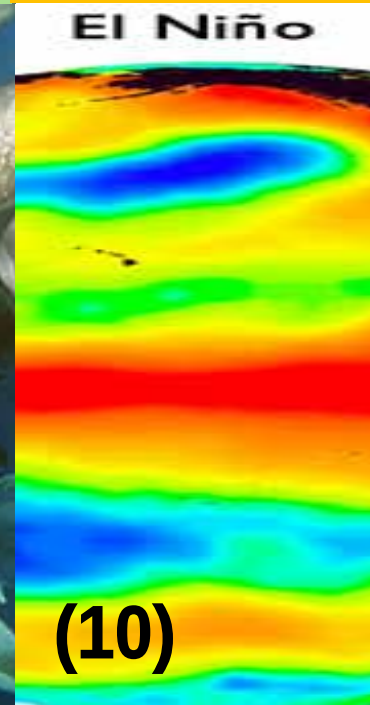
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(10)



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Recolección de datos en apoyo científico de la ordenación

Data collection for scientific support of management



1

1. Data collection for scientific support of management		Start	End
A.1.a	Regular activities of the Bycatch and IDCP Program	Ongoing	
A.3.a	Conversion of all remaining Visual Basic 6 (VB6) computer programs to Visual Basic Net (VB.net)	2014	2021
A.3.b	Develop databases of biological and fisheries parameters to support Ecological Risk Assessment and ecosystem models	2018	2023
B.1.a	Improving smart species identification tools	2022	2023
B.3.a	Pilot study to develop the Enhanced Monitoring Program for BET catches	2022	2023
C.1.a	Purse-seine catch composition bias estimation	2022	2023
C.2.b	Pilot study of electronic monitoring (EM) of the activities and catches of longline vessels	2021	2023
C.4.a	Improving data collection for Central American shark fisheries	2018	2019
C.4.b	Long-term sampling program for shark catches of artisanal fisheries in Central America: Phase 1	2020	2021
D.1.a	Exploring technologies for remote identification of FADs	2022	2023
D.2.a	Pilot study of electronic monitoring (EM) of the activities and catches of purse-seine vessels	2018	2021



item 8.b
SAC-14-10 and INF-I



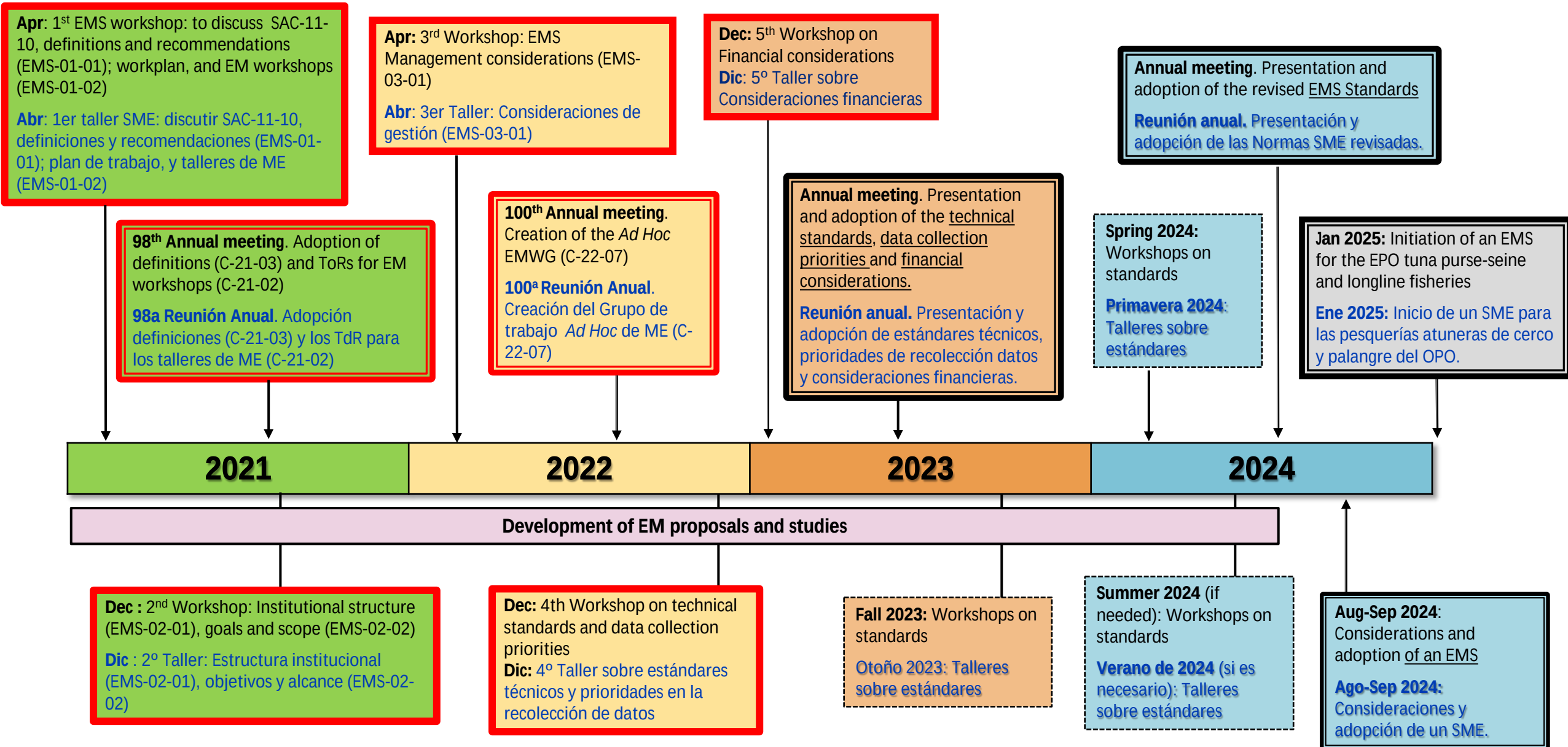
item 8.a
SAC-14 INF-H



item 11
SAC-14 INF-M/J

Workplan of the EMS for the tuna fisheries in the EPO

Plan de trabajo del SME para la pesquería atunera en el OPO (item 8.a)



Mejorar la recolección de datos de las pesquerías tiburoneras en Centroamérica

Improving data collection for Central American shark fisheries (item 11.b)



2015-2017



CIAT- FAO/GEF ABNJ
Project

Metadata
(SAC-07-06b (ii))

Challenge and
Recommendations
to improve
SAC-07-06b(iii)

Capacity building

2018-2019



Pilot study for shark
sampling program
(SAC-11-13)

Mapping shark
landing sites

Landing sites
characterization

Catch and effort
survey

Order-of-
magnitude
estimates

Catch sampling
designs

2020-2021



Long-term Shark Sampling
Program (SSP)

Order of
Magnitude (SSP)

Catch sampling
design for
artisanal fleet

Catch sampling
design for
median and
advance fleet

Pilot tissue
sampling
(Mobulidae)

Estudios del ciclo vital en apoyo científico de la ordenación

Data collection for scientific support of management

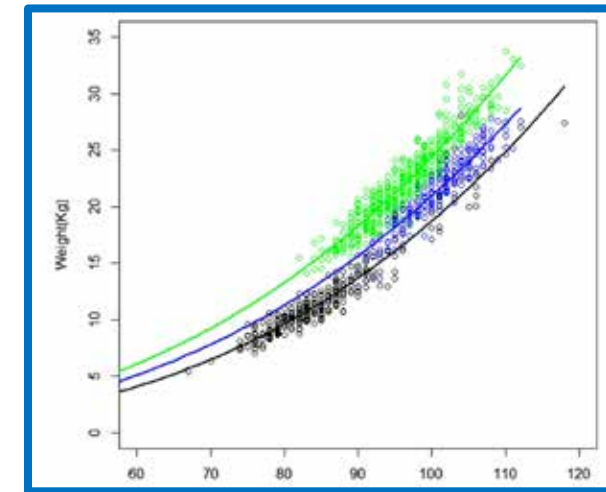


2

2. Life history studies for scientific support of management		Start	End
E.1.a	Evaluate potential improvement of growth model for bigeye in the EPO based on presumed annuli counts from otoliths of large fish	2017	2019
E.2.a	Investigate spatiotemporal variability in the age, growth, maturity, and fecundity of yellowfin tuna in the EPO	2017	2022
E.2.b	Workshop to evaluate differences in bigeye tuna age estimation methods and resulting growth models utilized in current stock assessments by the IATTC and WCPFC	2019	2019
E.3.a	Investigate geographic variation in the movements, behavior, and habitat utilization of yellowfin tuna in the EPO	2020	2021
E.4.a	Multi-year tuna tagging study	2019	2023
E.5.a	Evaluate the Pacific-wide population structure of bigeye and skipjack tunas, using genetic analyses	2017	2020
E.5.b	Investigate the spawning ecology of captive yellowfin tuna, using genetic analyses	2018	2019
F.2.a	Investigate the movements, behavior, and habitat utilization of silky sharks in the EPO	2020	2021
F.3.a	Feasibility study to develop a sampling program for updating morphometric relationships and collecting biological samples for priority species in EPO tuna fisheries: Phase 1	2022	2024
G.1.a	Studies of pre-recruit survival and growth of yellowfin tuna, including expanding studies of early-juvenile life stages	2018	2020
G.2.a	Develop comparative models of pre-recruit survival and reproductive patterns of Pacific tunas	2018	2020
G.3.a	Develop a larval growth index to forecast yellowfin recruitment	2018	2023



item 6.d.i
SAC-14-07



item 8.d
SAC-14 INF-J

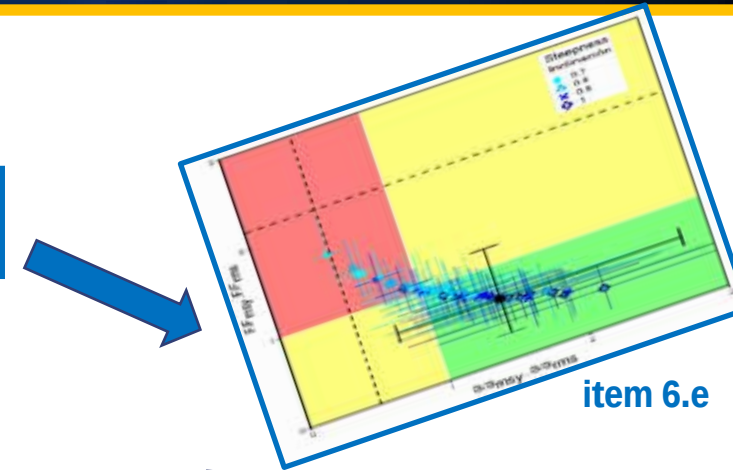
Pesquerías sostenibles

Sustainable fisheries



3

3a. Sustainable fisheries		Start	End
H.1.a	Improve the bigeye tuna stock assessment	2018	2020
H.1.b	Improve the yellowfin tuna stock assessment	2018	2020
H.1.b-2	Improve the yellowfin tuna stock assessment: Explore alternative hypotheses of stock structure and life-history for YFT in exploratory stock assessment models	2021	2024
H.1.c	Investigate potential changes in the selectivity of the longline fleet resulting from changes in gear configuration	2019	2019
H.1.d	Improve indices of abundance based on longline CPUE data	2018	2019
H.1.d-2	Improve indices of abundance based on longline data (Extension)	2020	2022
H.1.e	Construct indices of abundance and composition data for longline fleets	2019	2020
H.1.f	Improving the methodology of the risk analysis	2021	2024
H.3.a	Analysis of recent skipjack tagging data	2021	2024
H.3.b	Skipjack Stock assessment	2022	2023
H.3.c	Estimate skipjack growth rates from recent tagging data	2023	2024
H.4.a	Conduct regular stock assessments of tropical tunas	Ongoing	
H.5.a	Revise trend estimation methods for purse-seine silky shark indices for the EPO	2018	2019



item 6.d

Pesquerías sostenibles

Sustainable fisheries



3

3b. Sustainable fisheries		Start	End
H.6.a	Participate in assessments of shared species by the International Scientific Committee (ISC)	Ongoing	
H.6.c	Participate in south Pacific albacore assessment	Ongoing	
H.7.a	Pacific-wide exploratory assessment for bigeye tuna	2021	2022
H.7.b	South Pacific swordfish assessment	2019	2022
H.7.c	Participate in south Pacific albacore assessment	2021	2021
H.8.a	Design a survey for dolphins in the eastern tropical Pacific Ocean (ETP)	2018	2018
H.8.b	Second trial dolphin survey in the eastern tropical Pacific Ocean (ETP)	2022	2024
H.8.c	Cow-calf separation study	2022	2023
I.1.a	Conduct a Management Strategy Evaluation (MSE) for tropical tunas in the EPO	2018	2023
I.3.a	Evaluate potential reference points for dorado in the EPO	2019	2019
J.1.a	Temporal trends and variability in the spatial distribution of tropical tuna purse-seine fishing	2022	2023
J.2.a	Quantify the relationship between vessel operational characteristics and fishing mortality	2018	2020
J.2.b	Identifying operational characteristics associated with mobulid bycatch in the eastern Pacific Ocean	2022	2023
J.3.a	Developing alternative buoy-derived tuna biomass indexes	2020	2023
K.1.a	POSEIDON project	2019	2020



SAC-13 INF-S



item 6.g.i
SAC-14-15



Item 10.c SAC-14 INF-K



Item 7.a (SAC-14 INF-K)



item 7.a (SAC-14 INF-F)



item 7.c SAC-14 INF-G

IATTC Staff Activities and Research Plan (REVISED)

Actividades y Plan de Trabajo del Personal de la CIAT (REVISADO)

MSE tropical tunas – *EEO atunes tropicales*

DOCUMENT SAC-14-INF-K

GREEN: COMPLETED; **BLUE:** FUNDED; **RED:** UNFUNDED, Text ~~struck through~~ indicates completed or terminated projects

SSP ref.	Target/Project	2018		2019		2020		2021		2022		2023		2024	
		1	2	1	2	1	2	1	2	1	2	1	2	1	2
	1. SUSTAINABLE FISHERIES														
	Goal I: Test harvest strategies using Management Strategy Evaluation (MSE)														
I.1.	Conduct a comprehensive MSE for bigeye tuna and plan MSEs for the other tropical tuna species														
I.1.a	1. Stakeholder and technical MSE workshops														
	a. Technical meetings to agree on overall/revised MSE Plan by IATTC staff and collaborators														
	b. Stakeholder workshops on training and communication on MSE development and results														
	2. Technical development of MSE, HCR, MP, outputs														
	a. Improve the bigeye assessment for use as spatial OM														
	b. Run preliminary simulations with spatial OM														
	a. Run preliminary MSE based on initial input from managers and stakeholders														
	b. Run final MSE based on revised input from managers and stakeholders														
	c. Present evaluated HCR/MP to Commission, plan work for other tropical tunas														

Transition of MSE work to other tropical species (YFT, SKJ) after 2024 to be outlined in the new IATTC Strategic Science Plan (planned in 2023-24)

Transición a EEO de otros atunes tropicales (YFT, SKJ) en 2024 detallado en el nuevo Plan Estratégico Científico de la CIAT (planeado en 2023-24)

Funds?
¿Fondos?
(see IATTC-100-2b, proposal I.1.b)

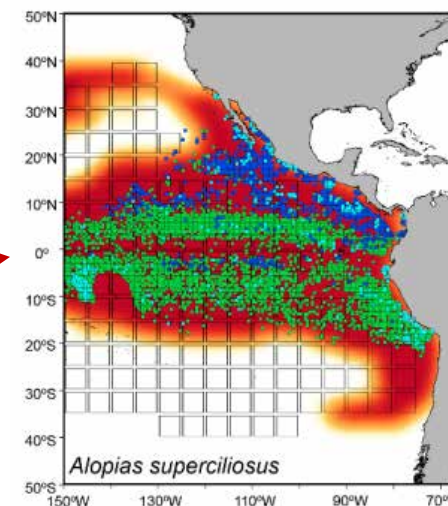
Impactos ecológicos de la pesca: evaluación y mitigación

Ecological impacts of fisheries: assessment and mitigation



4

4.a Ecological impacts of fishing: assessment and mitigation		Start	End
L.1.a	Develop habitat models for bycatch species caught in the EPO to support ecological risk assessments (ERAs)	2018	2022
L.1.b	Develop a flexible spatially-explicit ERA approach for quantifying the cumulative impact of tuna fisheries on data-limited bycatch species in the EPO	2018	2021
L.2.a	Develop and update Productivity-Susceptibility Analyses (PSAs) of tuna fisheries in the EPO	2018	2018
L.2.b	Vulnerability assessment of elasmobranch bycatch in EPO tuna fisheries using the EASI-Fish approach	2021	2022
L.2.c	Assessing the efficacy of potential management options on highly vulnerable shark species in the EPO	2022	2023
L.2.d	Pacific-wide vulnerability assessment of pelagic shark species caught as bycatch in tuna fisheries	2021	2023
L.2.e	Vulnerability assessment and efficacy of potential conservation measures for the east Pacific leatherback turtle stock	2021	2022
M.1.a	Evaluate the effect of the depth of non-entangling FADs on catches of tunas and bycatches of other species in the purse-seine fishery	2015	2018
M.1.b	Test sorting grids	2019	2020



SAC-09-12



item 11.a
SAC-14-12



BYC-10 INF-B



Impactos ecológicos de la pesca: evaluación y mitigación

Ecological impacts of fisheries: assessment and mitigation



4

4.b Ecological impacts of fishing: assessment and mitigation		Start	End
M.1.c	Acoustic discrimination to avoid purse seine catches of undersized yellowfin tuna	2020	2023
M.1.d	Developing and testing bycatch release devices in tuna purse seiners	2021	2023
M.2.a	Evaluate the post-release survival of silky sharks captured by longline fishing vessels in the equatorial EPO, using best handling practices	2016	2018
M.2.b	Evaluate best handling practices for maximizing post-release survival of silky sharks in longline fisheries, and identification of silky shark pupping areas for bycatch mitigation	2018	2020
M.2.c	Manta and devil ray post-release survival, movement ecology, and genetic population structure	2021	2023
M.3.b	Spatial and temporal closures and the tradeoff between bycatch and target catches	2020	2021
M.5.a	Develop and test non-entangling and biodegradable FADs	2015	2022
M.5.b	Reducing losses, and fostering recovery of FADs in the purse-seine fishery in the EPO	2021	2023
M.5.c	Definition of guidelines to reduce the impact of lost and abandoned FADs on marine turtles	2020	2022

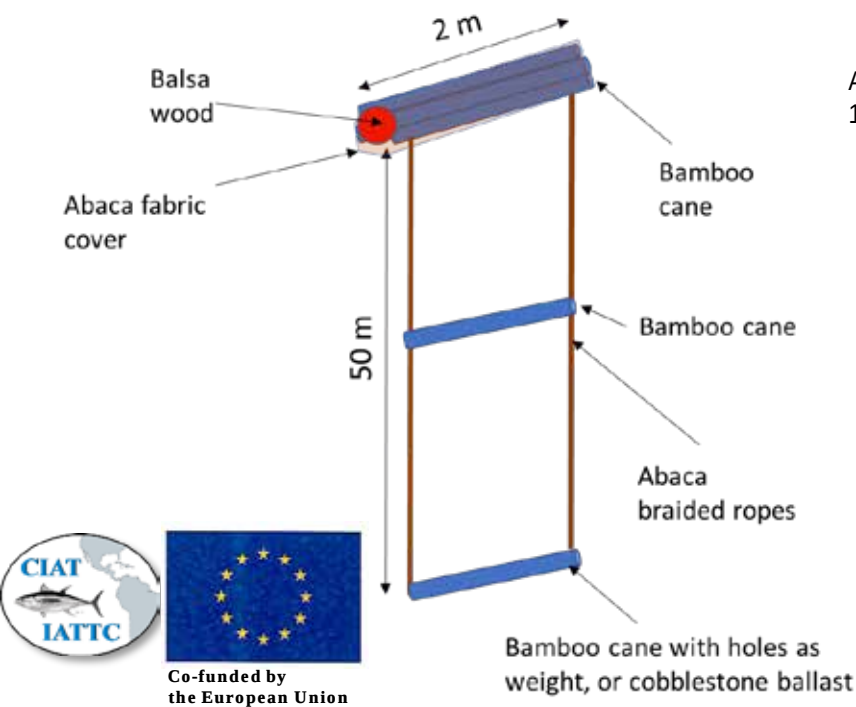


Item 9.a (FAD-07-02)

Prototypes tested in the project (n = 730; 45 participant vessels)

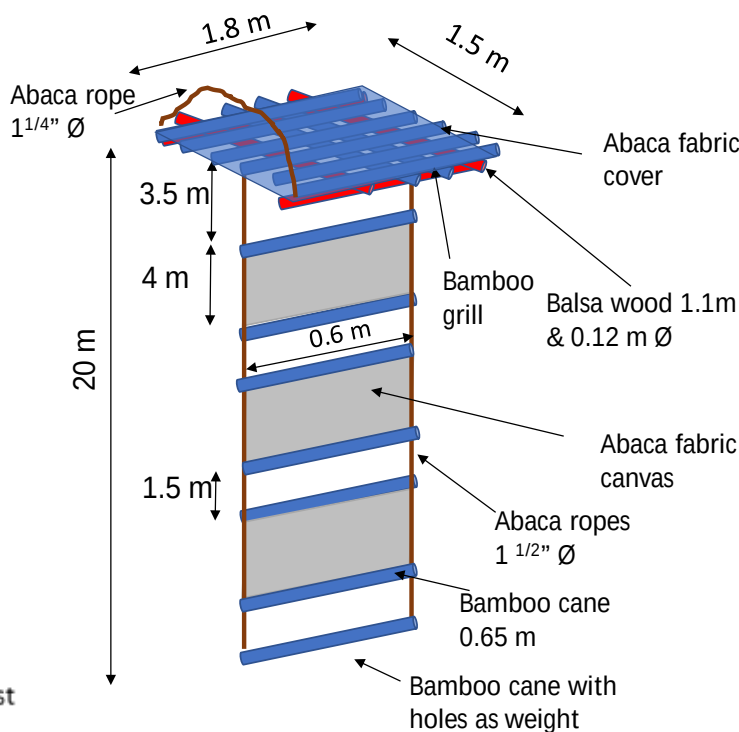
Prototype 1

- **Abaca** as main vegetal fiber component
- Sausage-like bamboo/balsa as floating component
- Two ropes as submerged component



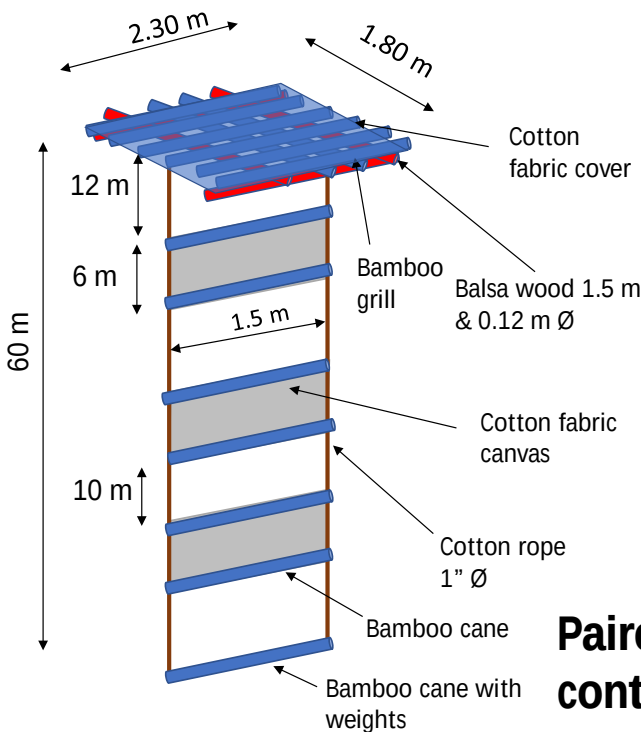
Prototype 2

- **Abaca** as main vegetal fiber component
- Gridded-like bamboo/balsa as floating component
- Three abaca fabric canvas as submerged component



Prototype 3

- **Cotton** as main vegetal fiber component
- Gridded-like bamboo/balsa as floating component
- Three cotton fabric canvas as submerged component



**Paired
control FADs**

Deployments	114	392	224	720
Visits	5	73	8	106
Sets	8	46	2	134
Catch per set	61	29.2	38	31.2

Interacciones entre el medio ambiente, el ecosistema, y la pesca

Interactions among the environment, the ecosystem and fisheries

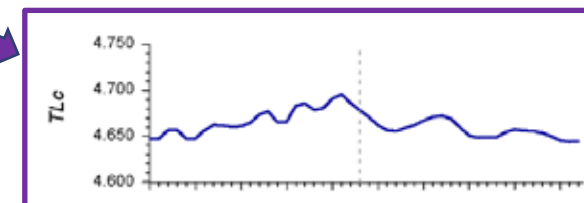
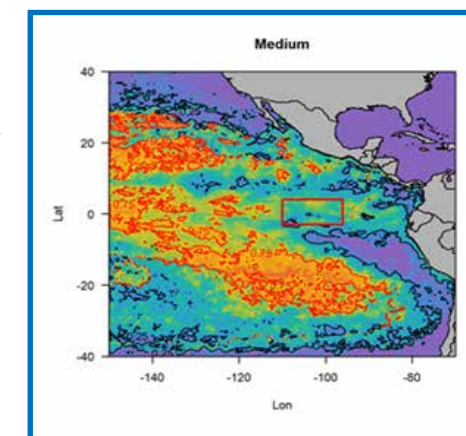


5

5. Interactions among the environment, ecosystem, and fisheries		Start	End
N.1.a	Analyze EPO bycatch data to assess the influence of environmental drivers on catches and vulnerability	2018	2018
N.1.b	Investigate the effects of wind-induced microturbulence on yellowfin larval survival	2018	2021
N.1.c	Developing dynamic species distributions models to inform conservation and management of non-target species and communities in the eastern Pacific Ocean	2021	2022
N.2.a	Develop models of the effects of climate change on pre-recruit life stages of tropical tunas	2018	2022
N.2.b	Supporting climate-ready and sustainable fisheries: using satellite data to conserve and manage life in the ocean and support sustainable fisheries under climate change	2021	2023
O.1.b	Quantifying spatial and ontogenetic variation in the feeding ecology of skipjack tuna in the eastern Pacific Ocean	2019	2020
O.1.c	A review of methods to determine prey consumption rates, gastric evacuation and daily ration of pelagic fishes: a precursor to experimental estimation for key predators in the EPO	2019	2021
O.2.a	Develop and implement analytical tools for understanding the trophic ecology of apex predators	2018	2019
O.2.b	An updated ecosystem model of the tropical EPO for providing standardized ecological indicators for monitoring of ecosystem integrity	2018	2021
O.2.c	Temporal network analysis of bycatch communities caught in purse-seine fisheries	2021	2023



item 10.a
SAC-14-11



Transferencia de conocimientos y fomento de capacidad

Knowledge transfer and capacity building



6

6. Knowledge transfer and capacity building		Start	End
P.1.a	Fulfil requests for development of database and data processing applications for entities outside the IATTC	Ongoing	
P.1.b	Respond to requests for scientific analyses	Ongoing	
Q.1.a	Achotines Laboratory support of Yale University's Environmental Leadership Training Initiative (ELTI) in Panama	2018	2022
R.1.a	Workshop on training, communication and evaluation of management strategies for tuna fisheries in the EPO	2018	2018
R.1.b	Development, communication and evaluation of management strategies (MSE) for tropical tuna fisheries in the EPO involving managers, scientists and other stakeholders	2019	2020

- **1st IATTC MSE Workshop (December, 2019)**

- § MSE overview, objectives and performance metrics

- § [Workshop report](#) available at IATTC website

- **2nd IATTC MSE Workshop (videoconference, May 2021)**

- § Reference points, harvest control rules, performance metrics

- **3rd IATTC MSE Workshop (videoconference, Dec 2022)**

- **1^{er} Taller CIAT EEO (Diciembre, 2019)**

- § EEO resumen, objetivos y métricas de desempeño

- § [Informe de taller](#) disponible en el sitio CIAT

- **2^{do} Taller CIAT EEO (videoconferencia, Mayo 2021)**

- § Puntos de referencia, reglas de control, métricas de desempeño

- **3^{er} Taller CIAT EEO (videoconferencia, Dic 2022)**





Code	Title	Start	End
T.1.a	External review of bigeye tuna assessment	2019	2019
T.1.b	External review of yellowfin tuna assessment	2019	2019
T.1.c	External review of skipjack tuna assessment	2022	2022
U.1.a	Long-term plan to strengthen research at the Achotines Laboratory	2021	2022
X.1.a	Workshop to advance spatial stock assessments of bigeye tuna in the Pacific Ocean	2021	2022

item 12a



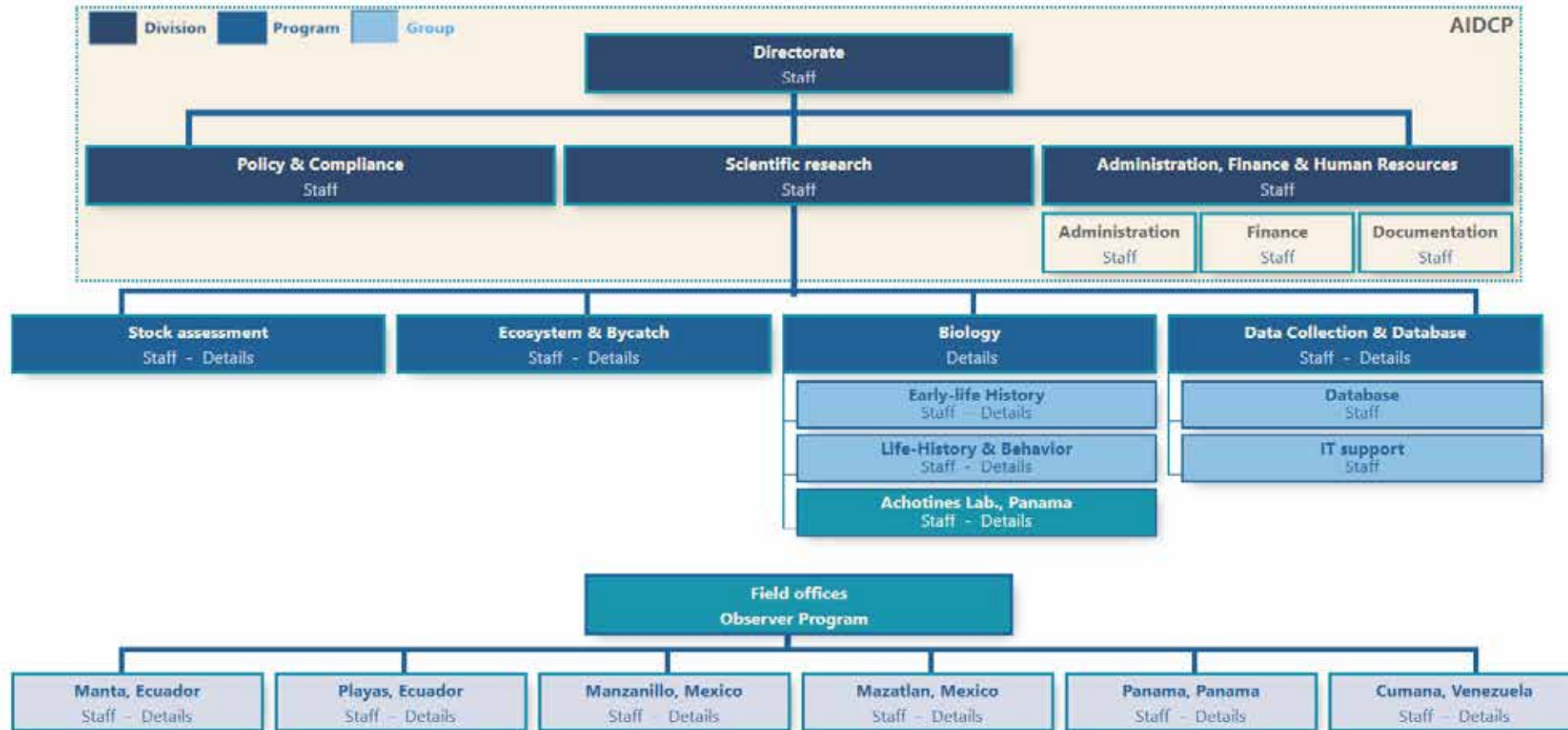
item 12.a
SAC-14-13



Center for the Advancement of Population Assessment Methodology

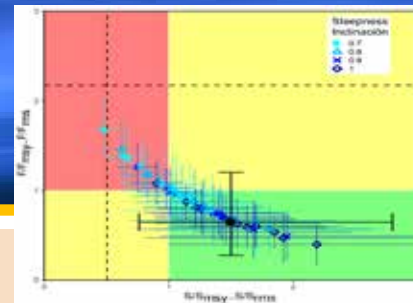
item 7.b

Staff



Evaluación de stock: Fortalezas y Desafíos

Stock Assessment Program: Strengths and challenges



Principales funciones

- § Mejorar e implementar las evaluaciones de poblaciones, con base en la mejor ciencia disponible
- § Probar estrategias de extracción usando evaluaciones de estrategias de ordenación (EEO)
- § Apoyo estadístico en el diseño de programas de colecta de datos

Fortalezas

- § Personal en su mayoría permanente, de alto nivel y gran dedicación

Desafíos

- § Estrategias de extracción: Financiación incierta y limitada (p. ej., quedan 5 meses de EEO, fondos externos, necesidad de un puesto específico en el personal o financiación sostenida).
- § Evaluaciones de nuevas especies, MSC/FIP: Aumento de la carga de trabajo del personal, necesidad de un puesto específico en el personal o de racionalizar la financiación.

Main duties

- § Improve and implement stock assessments based on the best available science
- § Test harvest strategies using MSE
- § Statistical support in designing data collection programs

Strengths

- § Mostly Permanent, high-level, highly dedicated staff

Challenges

- § Harvest Strategies: Uncertain and limited funding (e.g., 5 months left on MSE, external funds, need dedicated position in staff or streamline funding)
- § Assessments of new species, MSC/FIPs: Increase workload on staff, need dedicated position in staff or streamline funding

Ecosistema y captura incidental: Fortalezas y Desafíos

Ecosystem and Bycatch Program: Strengths and challenges



Principales funciones

- § Desarrollar enfoques analíticos y evaluar el impacto ecológico de las pesquerías
- § Mitigar el impacto ecológico de las pesquerías
- § Mejorar nuestros conocimientos sobre las interacciones entre los factores medioambientales, el clima y la pesca.
- § Mejorar nuestros conocimientos de los ecosistemas del OPO
- § Investigación sobre FADs
- § Desarrollar el Programa de Monitoreo Electrónico (punto 8.a)
- § Implement ABNJ (part 2) shark project (item 11.b.2)

Fortalezas

- § Personal en su mayoría permanente, de alto nivel y gran dedicación
- § 3 nuevos miembros del equipo

Desafíos

- § Principalmente retos relacionados con los datos (punto 8)

Main duties

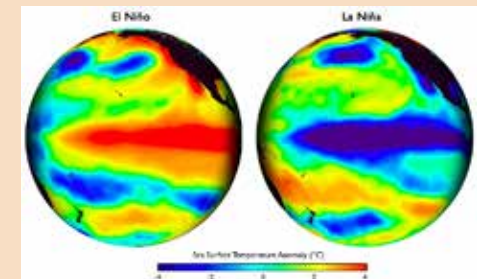
- § Develop analytical approaches and evaluate the ecological impacts of fisheries
- § Mitigate the ecological impacts of tuna fisheries
- § Improve our understanding of the interactions among environmental drivers, climate and fisheries
- § Improve our understanding of EPO ecosystems
- § FAD research
- § Develop the Electronic Monitoring Program (see item 8.a)
- § Implement ABNJ (part 2) shark project (item 11.b.2)

Strengths

- § Permanent, high-level, highly dedicated staff
- § 3 new team members

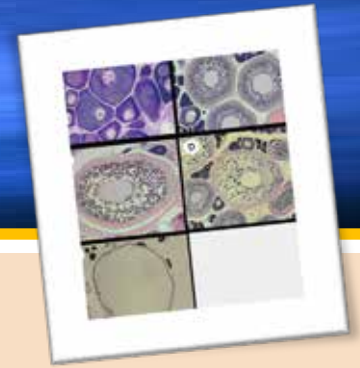
Challenges

- § Mainly data challenges (see item 8)



Programa Biología: Grupo del Ciclo Vital y Comportamiento

Biology Program: Life history & Behavior Group



Main responsibilities

- § Investigaciones sobre la biología y el comportamiento de los túnidos, y obtención de estimaciones de los parámetros poblacionales.
- § Experimentos de marcado de atunes para obtener información vital sobre movimientos y estructura de la población, crecimiento, mortalidad y tasas de explotación

Fortalezas

- § Dos empleados permanentes de alto nivel y gran dedicación (con gran experiencia de trabajo sobre el terreno)

Desafíos

- § Cruceros de marcado: Financiación incierta y limitada, fondos externos, necesidad de un puesto específico en el personal o financiación sostenida)



Main duties

- § Investigations of the biology and behavior of tunas, and deriving population parameter estimates
- § Tuna tagging experiments to obtain vital information on movements and population structure, growth, mortality, and exploitation rates

Strengths

- § Two permanent, high-level, highly dedicated staff (very strong field work experience)

Challenges

- § Tagging cruises: Uncertain and limited funding, external funds, need dedicated position in staff or streamline funding)



Programa Biología: Grupo Ciclo Vital Temprano

Biology Program: Early Life History Group



Main responsibilities

- § Experimentos de campo y de laboratorio para investigar la fase temprana del ciclo vital de los atunes que afectan el reclutamiento de peces jóvenes a la población explotable.
- § Desarrollar herramientas para predecir el reclutamiento de atunes jóvenes a la población explotable.

Fortalezas

- § Personal permanente, de alto nivel y gran dedicación
- § El laboratorio de Achotines, Panamá

Desafíos

- § Jubilaciones inminentes, infraestructura (ítem 12)

Main duties

- § Field and laboratory experiments to investigate the early life history of the tuna that affect the recruitment to the exploitable population.
- § Develop tools to forecast recruitment of young tuna to the exploitable population.

Strengths

- § Permanent, high-level, highly dedicated staff
- § The Achotines Laboratory, Panama

Challenges

- § Impending retirements, infrastructure (item 12)





Preguntas - Questions