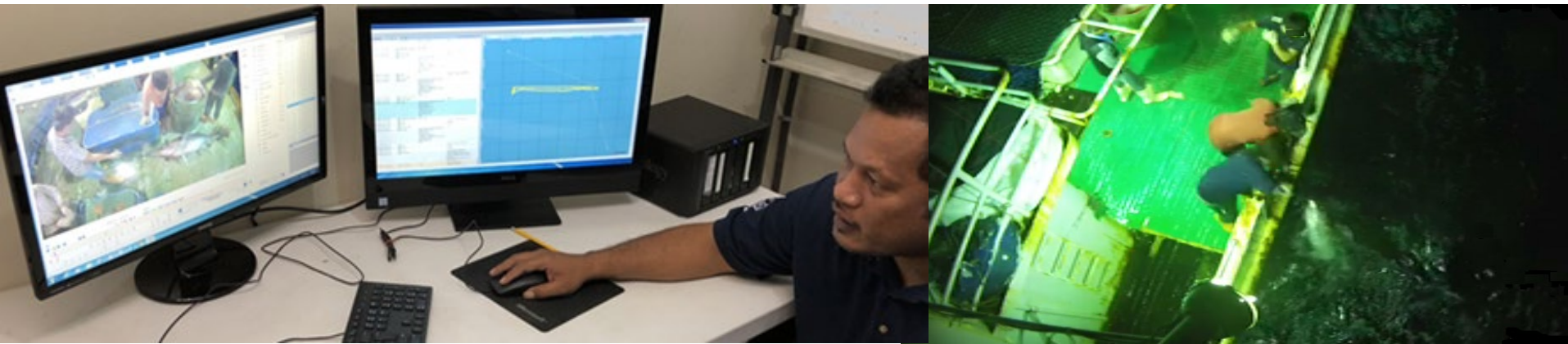


Status of the Development and Adoption of Minimum Standards on Fisheries Electronic Monitoring Systems by Intergovernmental Organizations

IATTC 6th Workshop of an EM System in the EPO
13-15 Dec 2023

Eric Gilman, Fisheries Research Group, Safina Center [Egilman@utas.edu.au](mailto:EGilman@utas.edu.au)
https://www.researchgate.net/profile/Eric_Gilman2



Contents

- Status of IGO development of fisheries EM minimum standards
- Scope of sample of EM minimum standards
- Scope of ACAP recommendations on fisheries EM standards
- Benefits of EM over at-sea observer programs, with caveats
- Consideration for EM min standards to provide specs for: EM audit models, crew cooperation, complementary dockside audits



Name	Acronym	EM standards: 1 adopted 2 draft 3 planned 4 being discussed 5 not being discussed As of Feb 2023
RFMO/As		
Commission for the Conservation of Southern Bluefin Tuna	CCSBT	4
General Fisheries Commission for the Mediterranean	GFCM	4
Indian Ocean Tuna Commission	IOTC	2 1
Inter-American Tropical Tuna Commission ¹	IATTC	2,3,4
International Commission for the Conservation of Atlantic Tunas	ICCAT	3 1
International Pacific Halibut Commission	IPHC	5
Joint Norwegian-Russian Fisheries Commission	JNRFC	5
North East Atlantic Fisheries Commission ²	NEAFC	4
Northwest Atlantic Fisheries Organization	NAFO	4
North Pacific Fisheries Commission	NPFC	4
Pacific Salmon Commission	PSC	5
South East Atlantic Fisheries Organisation	SEAFO	5
Southern Indian Ocean Fisheries Agreement	SIOFA	4
South Pacific Regional Fisheries Management Organisation	SPRFMO	4
Western and Central Pacific Fisheries Commission	WCPFC	2
Remit broader than managing fishery resources		
Commission for the Conservation of Antarctic Marine Living Resources	CCAMLR	4
International Whaling Commission	IWC	5
North Atlantic Salmon Conservation Organization ³	NASCO	5
North Pacific Anadromous Fish Commission	NPAFC	5



Recommendation by ICCAT to Establish Minimum Standards and Program Requirements for the use of Electronic Monitoring Systems (EMS) in ICCAT Fisheries

- Technical requirements
 - Control box or EM control centre
 - Cameras
 - Sensors
- Data fields
- Coverage of vessel areas
- Vessel-specific monitoring plan
- Data management
- Vessel master obligations
- Flag CPC obligations
- Commission roles and responsibilities
- Secretariat roles and responsibilities



Circular No.: 2022/09
Date: 7 March 2022



Communication from the ERandEMWG Chair - Draft Standards, Specifications and Procedures for WCPFC Electronic Monitoring Program

- Technical specifications
 - Cameras
 - Sensors
 - Geolocation
 - Control Centre
 - Communication
 - EM record transmission
 - Storage
- Program specifications
 - Downtime, predeparture, failure procedures
- Logistical specifications
 - EM record transmission
 - Accreditation in WCPFC EM program
 - Compatibility
- EM records analysis specifications
 - EM records analysis for trips on high seas
 - Data submission to WCPFC
- Data standards
- Audit protocols

WCPFC plans to consider a draft CMM for an EM program at their 21st regular session in Dec 2024 and adopt the CMM in 2025

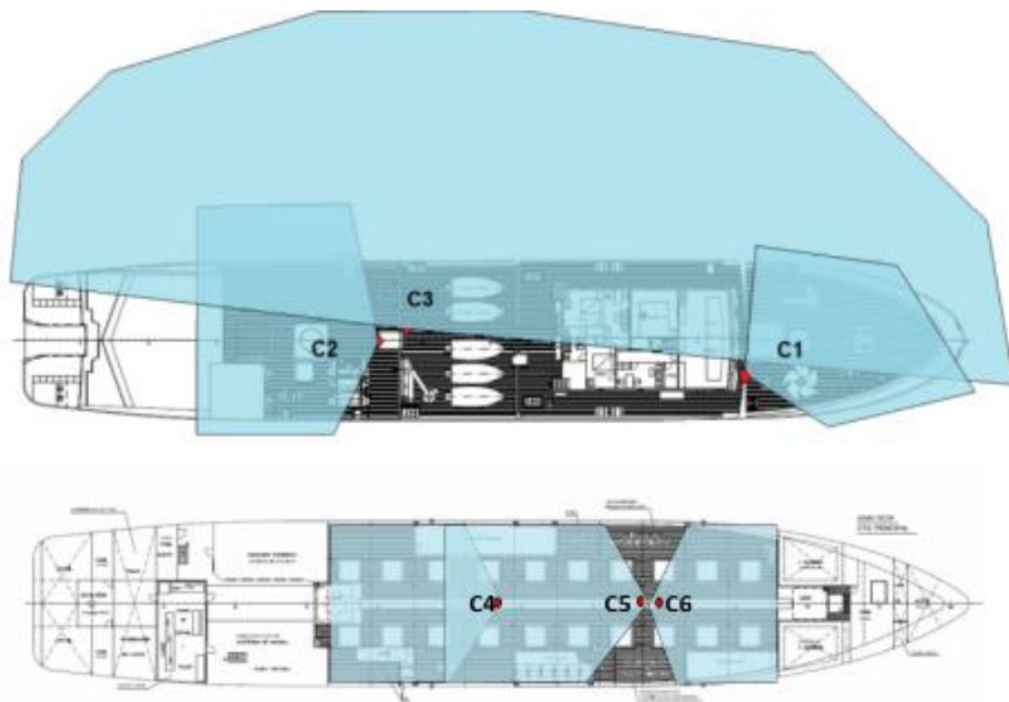
WCPFC. 2022. Standards, Specifications and Procedures for the WCPFC Electronic Monitoring Program. Annex to WCPFC Circular No. 2022/09. Western and Central Pacific Fisheries Commission, Kolonia, Federated States of Micronesia.

<https://www.wcpfc.int/file/774708/download?token=SmKCerJ> .



RESOLUTION 23/08 ON ELECTRONIC MONITORING STANDARDS FOR IOTC FISHERIES

- Authorization
- EM data
- EM equipment and vessel system
- Logistics
- EM data review and reporting





Agreement on the Conservation
of Albatrosses and Petrels

Tenth Meeting of the Seabird Bycatch Working Group

Virtual meeting, 17 - 19 August 2021 (UTC+10)

ACAP Guidelines on Fisheries Electronic Monitoring Systems

SBWG10 Doc 14 Rev 1

- Priority EM data fields
- EM data collection protocols
- Fisher cooperation
- Complementary dockside monitoring for fields EM systems cannot collect
- EM coverage rate, sampling design
- EM system specifications
 - Independent assessment
 - Confidentiality
 - EM equipment specifications
 - Responses to EM equipment malfunctions
 - Chain-of-custody protocols, management of EM data
 - EM reviewing
 - EM data integration into monitoring program databases
 - Responses to non-compliance
 - EM analyst minimum qualifications

<https://www.acap.aq/working-groups/seabird-bycatch-working-group/sbwg-10/sbwg10-meeting-documents/3790-sbwg10-doc-14-acap-guidelines-on-fisheries-electronic-monitoring-systems/file>

Benefits of EM over at-sea observers

- Overcome observer effect
- Overcome observer displacement effect
- No coercion & corruption; independent audit
- Multiple fields of view
- Continuous monitoring



 **frontiers** | Frontiers in Marine Science PUBLISHED 13 September 2023
DOI 10.3389/fmars.2023.1232642

Harassment and obstruction of observers in U.S. fisheries

Jessica L. Dobson, Matthew R. Kahley, Anna M. Birkenbach* and Kimberly L. Oremus*

School of Marine Science and Policy, University of Delaware, Newark, DE, United States



The Guardian

Fishing observers 'intimidated and bribed by EU crews'

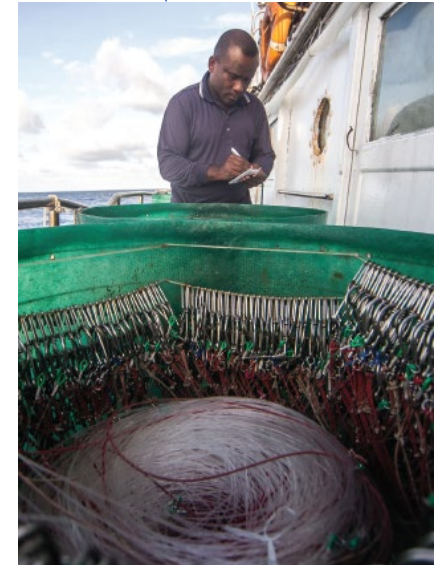
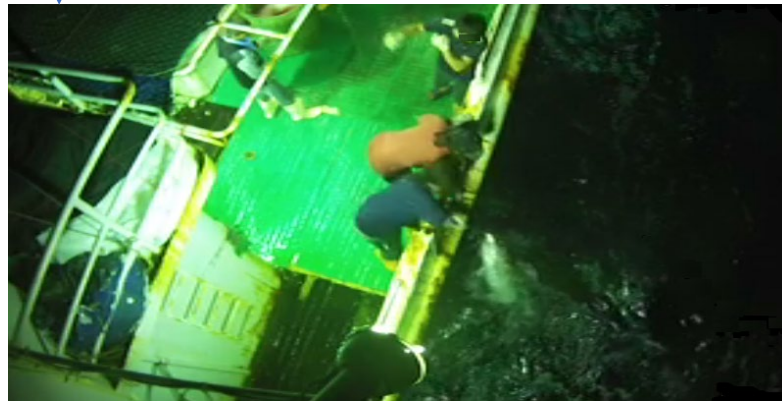
Quota checks allegedly being compromised aboard Northwest Atlantic Fishery boats, as observers report surveillance and theft

Gilman et al. 2019. *Aquatic Conservation* 29:901-926.

EM Deficits and Solutions

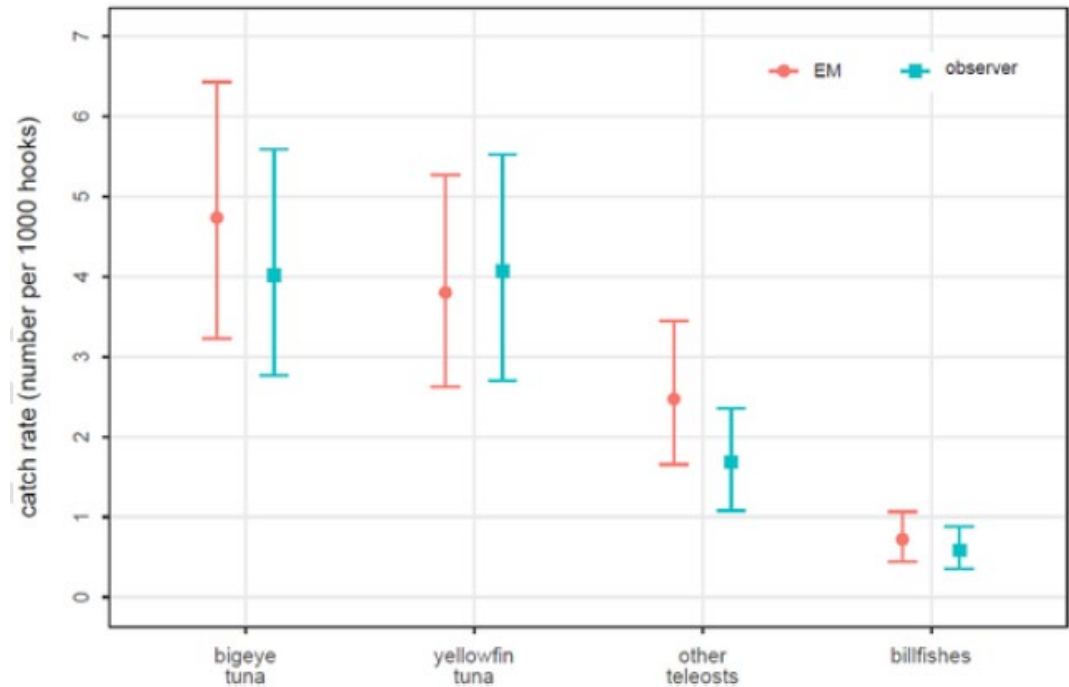


- Repositioning existing or adding new cameras
- Obtaining crew cooperation
- Dockside data collection

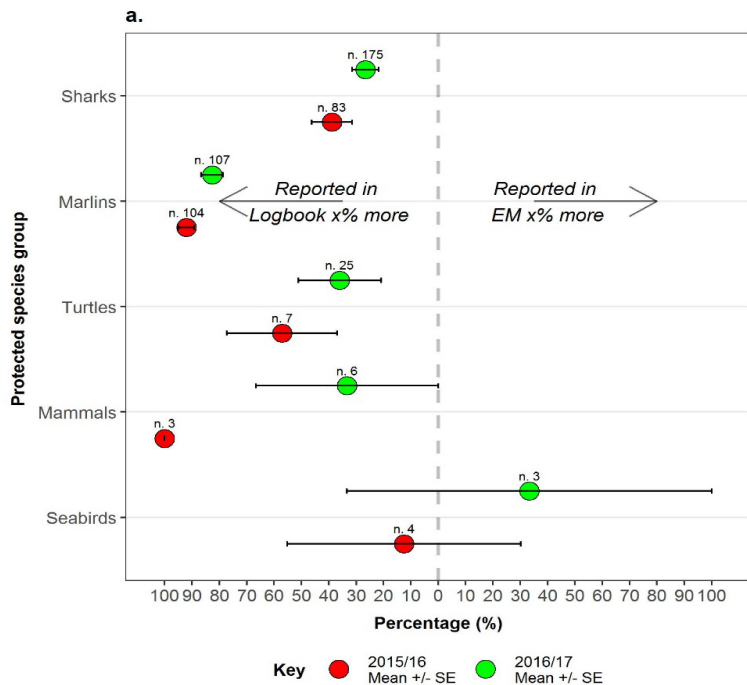


Deficits with some contemporary EM systems

- Fields on discards – species (43%), length (1%), at-vessel condition (57%), release condition (48%)
- Fields on terminal tackle components



Gilman et al. 2019. *Marine Policy*
<https://doi.org/10.1016/j.marpol.2019.103792>



Emery et al. 2019. *Ocean & Coastal Management* 168: 307-321

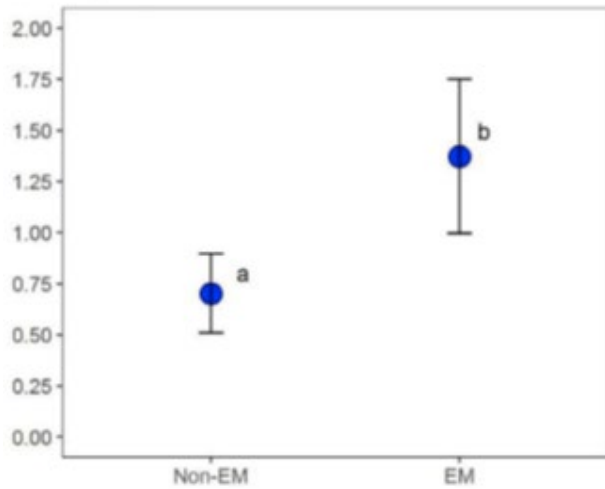


Programme Observateur de la Nouvelle-Calédonie

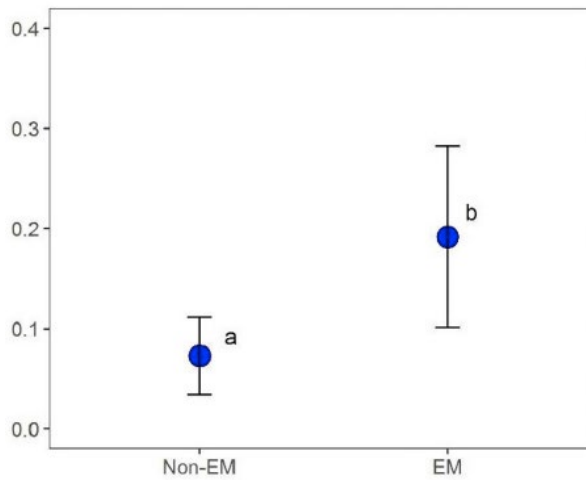


National Marine Fisheries Service

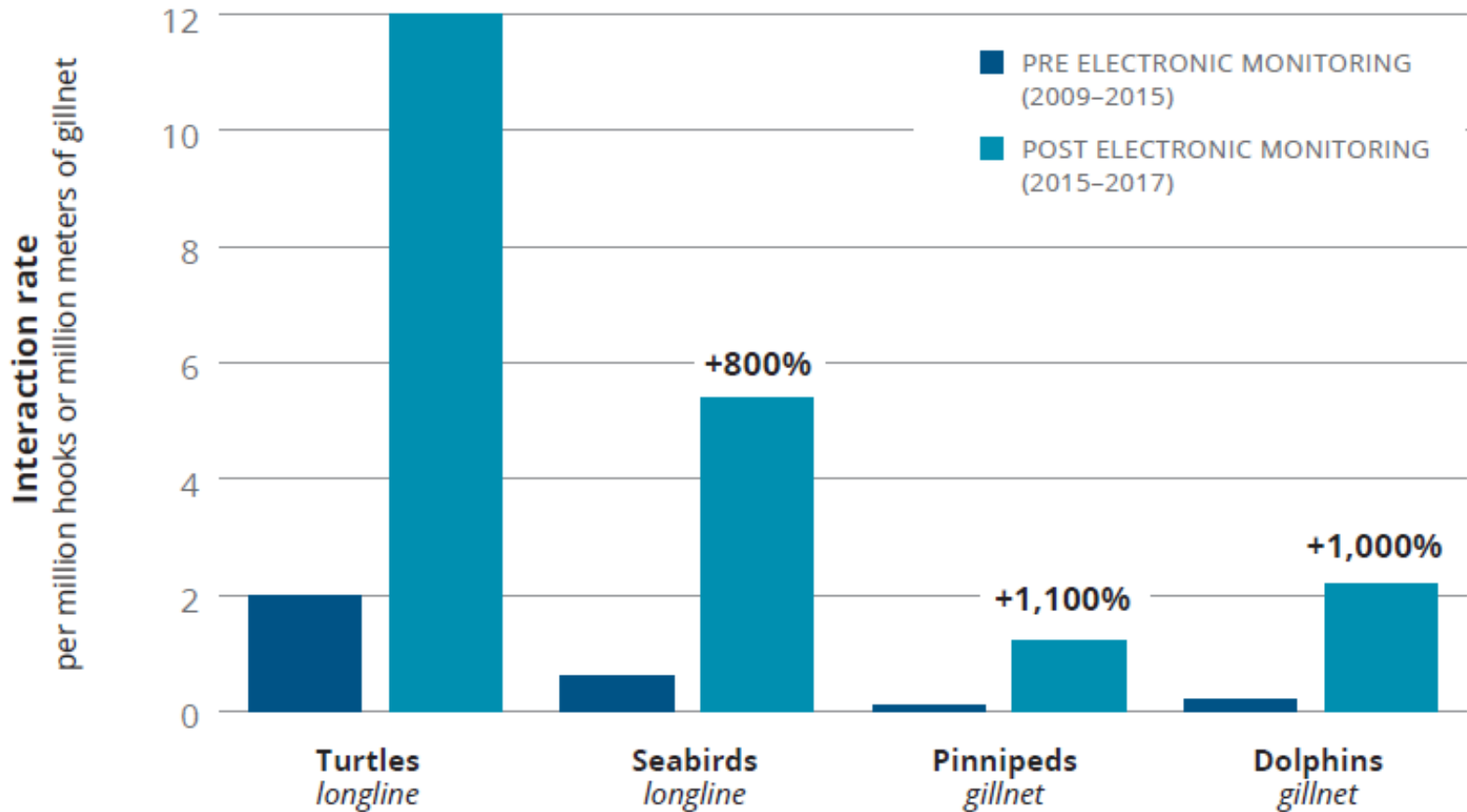
Target Discarded ETBF



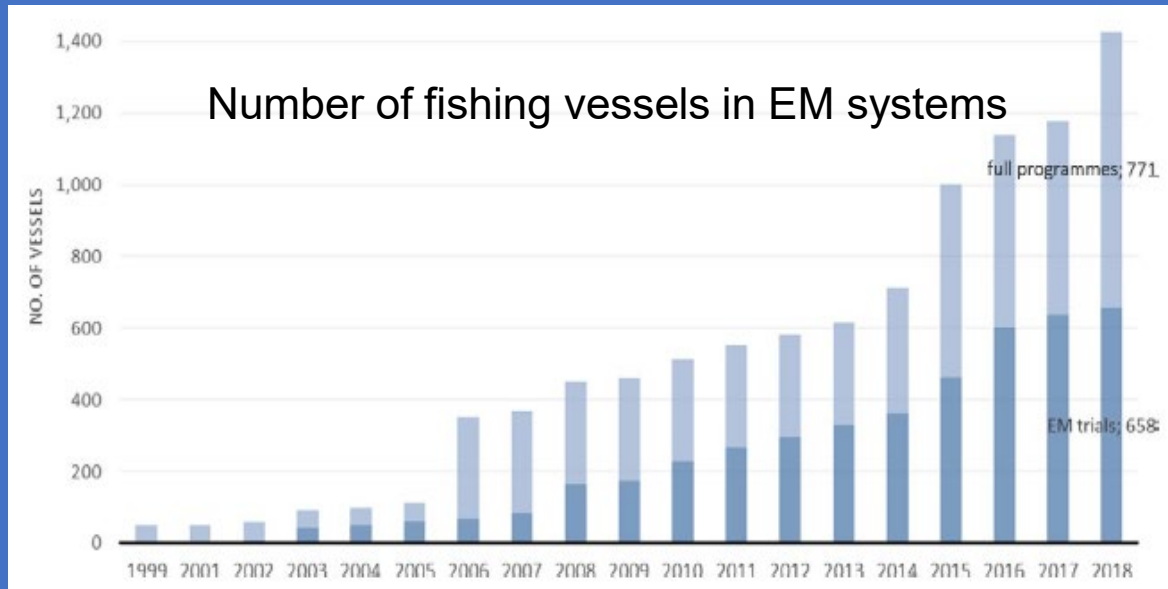
Target Discarded GHAT



EM AUDIT MODEL
Emery et al. 2019. *Marine Policy* 104:135-45.



<https://em4.fish/wp-content/uploads/2023/02/Fisheries-Electronic-Monitoring-min-standards-2023.pdf>



Van Helmond et. 2019 Fish & Fisheries

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