



# IMPLEMENTATION OF ELECTRONIC MONITORING SYSTEMS (EMS) IN CHILEAN FISHERIES.



**SERNAPESCA**

Ministerio de  
Economía, Fomento  
y Turismo

Gobierno de Chile

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Subdirección de Pesquerías  
Servicio Nacional de Pesca y Acuicultura  
9 de marzo de 2023  
IFOMC Hobart, Tasmania, Australia

## COMPLIANCE GOALS

1. Control compliance with the prohibition of discarding the target species and their accompanying fauna by fishery.

2. Control the discarding of authorized target species and their accompanying fauna.

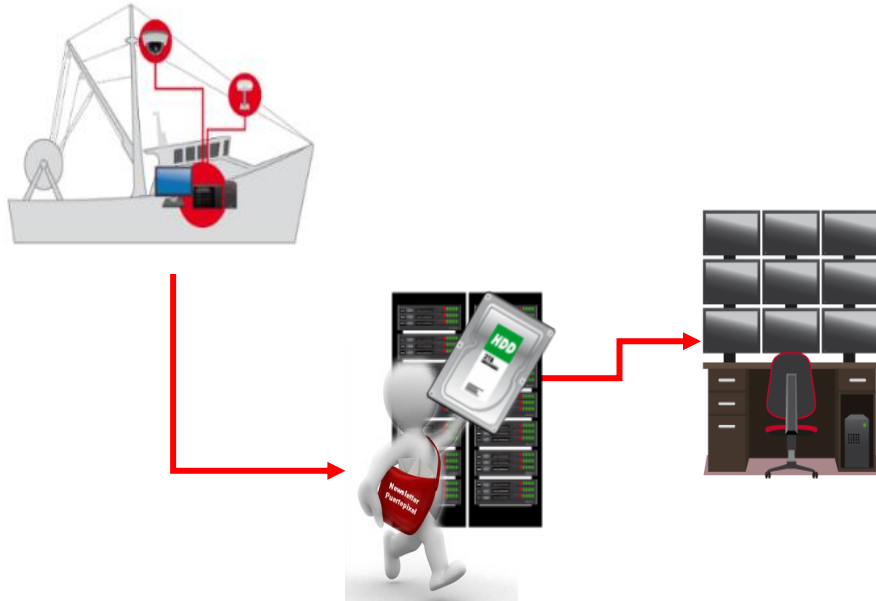
3. Control incidental bycatch mitigation and treatment protocols.

4. Control compliance with other administration measures.

## THE MAIN FEATURES OF THE DRI SYSTEM

The equipment is at the owner's cost.

System operation is throughout the fishing trip.



It generates videos without the intervention of third parties and its storage is on hard drives.

The information (videos) is confidential by law.

Analysis based on risk approach and random sample of fishing hauls.

Collection and replacement of hard drives from ships is based on storage capacity.

# STAKEHOLDERS OF THE CONTROL SYSTEM



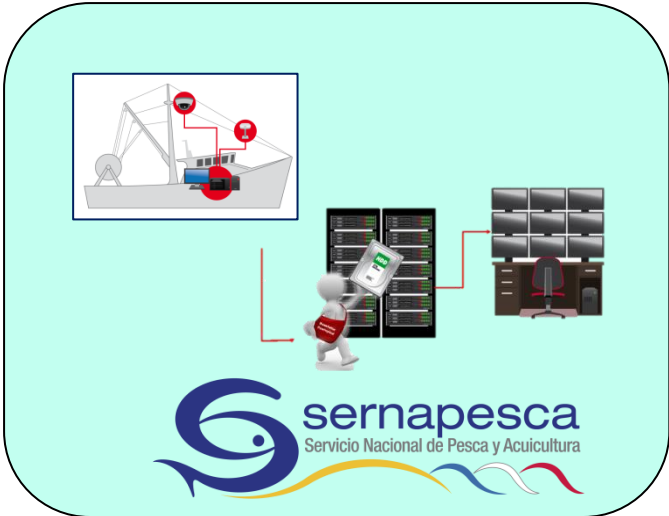
Shipowners



Certifiers



International experts and consultants in EMS



Suppliers DRI



Universities



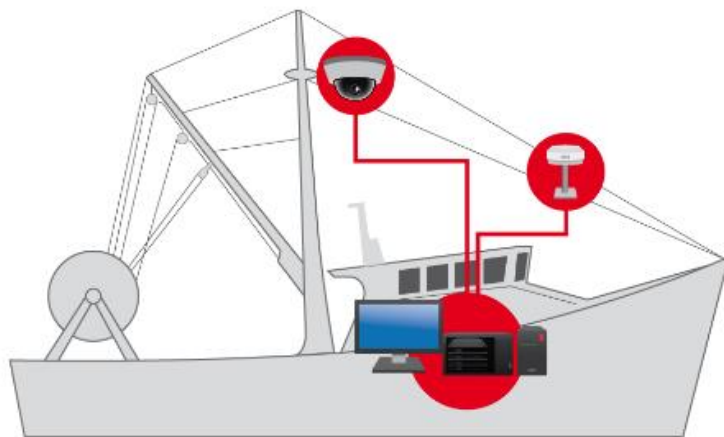
Government agencies



NGO's

# DEFERRED SYSTEM TO DETECT DISCARD ACTIONS

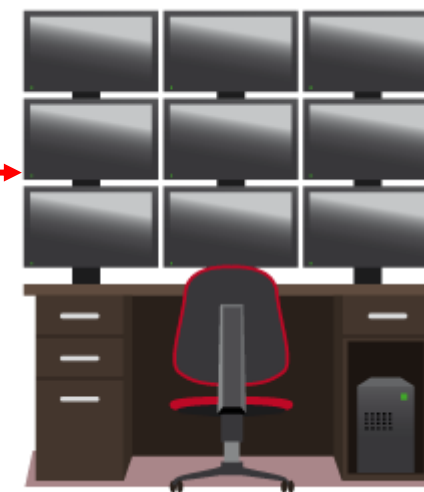
## Implemented modules



**Module for registration and storage on board**



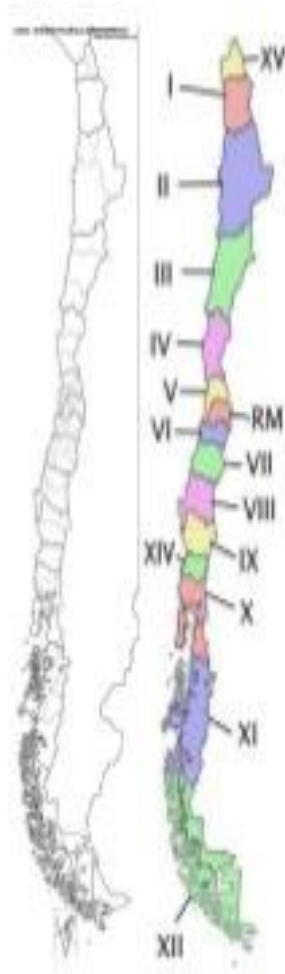
**Module video review module.**



**Module image analysis module in processing stations**

# COLLECTION OF INFORMATION HARD DRIVES

## Fishing ports



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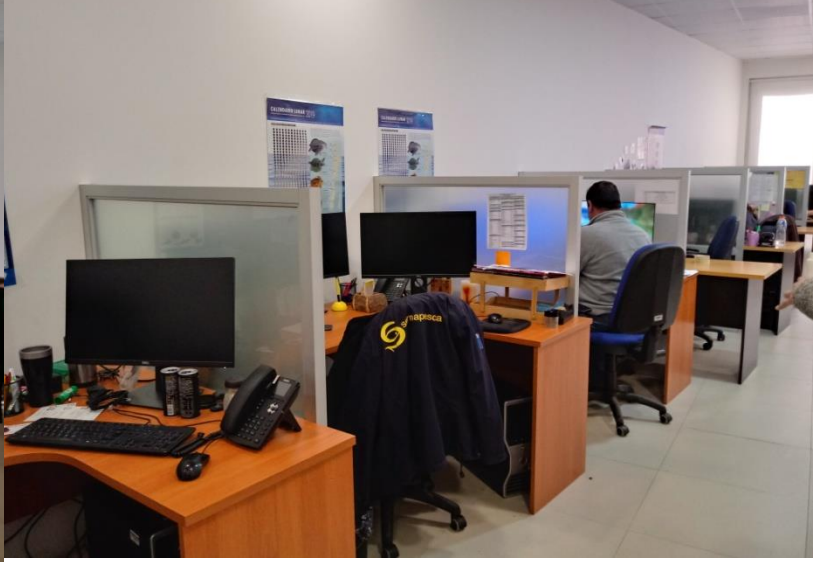
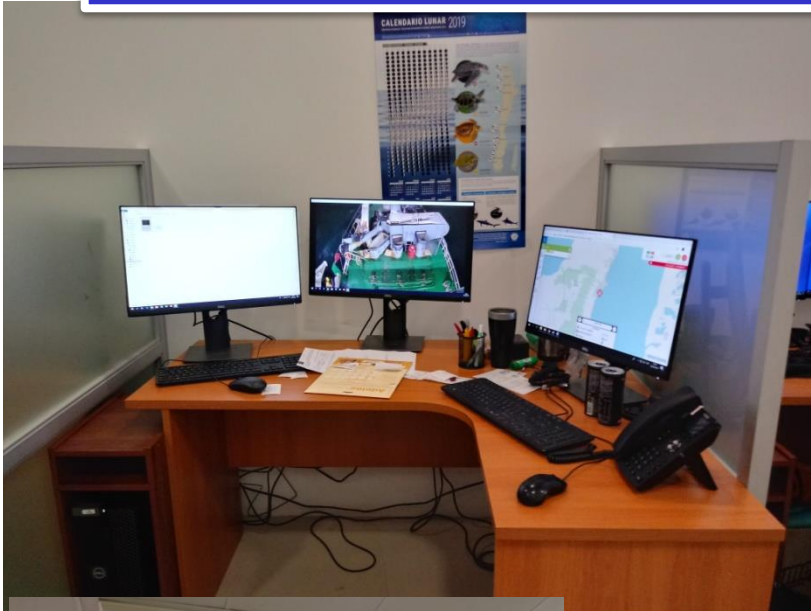




# COLLECTION OF HARD DRIVES



# DISCARD AND INCIDENTAL BAYCATCH MONITORING CENTER

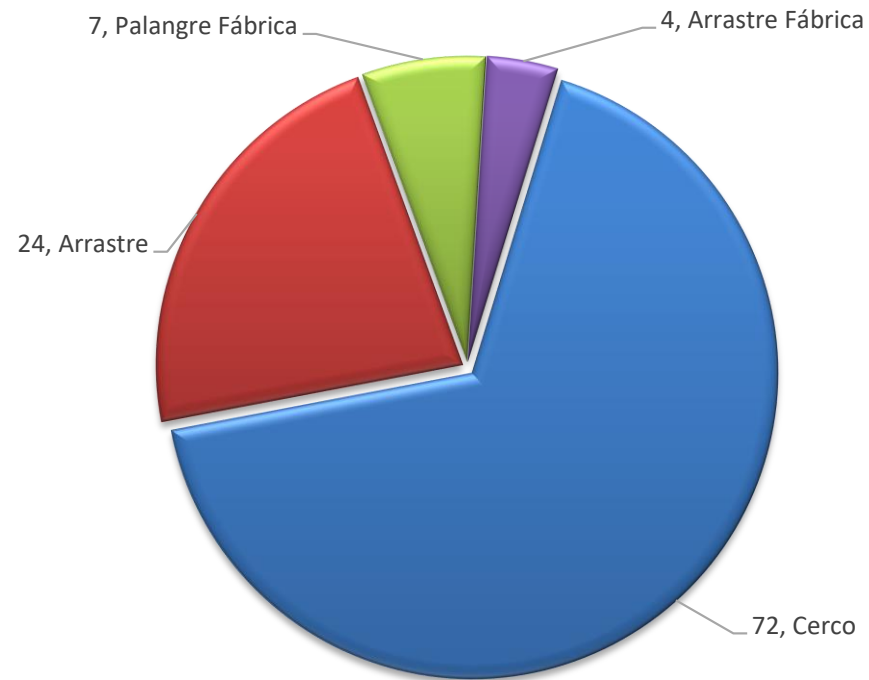




# CONTROL SYSTEM FOR DISCARD AND BYCATCH

## Industrial fleet in regime since January 1, 2020

Flota Pesquera Industrial con DRI al año 2020  
(n=107)



# ELECTRONIC LOGBOOK SYSTEM (SIBE)

THE INFORMATION IS DISPATCHED DEFERRED ONCE THE VESSEL ARRIVES AT THE PORT

APP MOVIL

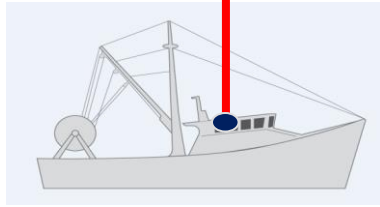
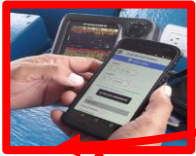


Image Recording Device (DRI) on board ships

APP WEB



Management of the owner of logbooks of his own fleet



SERVSERVERS AND INFORMATION STORAGE Sernapesca

Bitácora Electrónica SERNAPESCA

REGISTRAR CAPTURAS

Lance N°1 2019-09-13 14:19:21

Armadore CAMANCHACA PESCA SUR S.A.  
 Embarcación ALTARI 1  
 Area de Pesca CIRCULO  
 Latitud 33° 2' 58" S  
 Longitud 71° 36' 22" W  
 Inicio de Lance 2019-09-13 14:19:21  
 Fin de Lance 2019-09-13 14:19:36

Lance sin captura

Captura total por lance (Barcos fábrica)

Captura Retenida  
 AGREGAR

Captura Descartada  
 AGREGAR

Captura Incidenta  
 AGREGAR

Observaciones



INFORMACIÓN GENERAL			
ARMADOR	CAMANCHACA PESCA SUR S.A.		
EMBARCACIÓN	ALTARI 1	PAÍS ABANDERAMENTO	CL
MATRICULA	1733	SEÑAL DE LLAMADA	CB-3356
CAPITAN	JENNIFER JELVEZ		
BITACORA	FECHA HORA	PUERTO	
ZARPE	2019-09-12 13:43:45	ZARPE	ARICA
RECALADA	2019-09-12 13:45:31	DESEMBARQUE	ANTOFAGASTA
TOTAL DE LANCES	1		


CAPTURAS TOTAL				
ESPECIE	TIPO DE CAPTURA			
	Retenida (TON)	Descartada (TON)	Descartada (N°)	Incidental (N°)
1. Albatros europeo	0	0	0	13
2. Baita negra	0	13	0	0
3. Longirostris amarillo	10	0	0	0
4. Mariposa de tres alas	0	12	0	0
5. Tollo negro	0	0	15	0

Excel spreadsheet showing logbook data with columns for Embarcación, Método de Captura, Fecha de Zarpe, Fecha de Ingreso, Bitácora, and POF.

Embarcación	Método de Captura	Fecha de Zarpe	Fecha de Ingreso	Bitácora	POF
1. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	13-09-2019 13:43:45	13-09-2019 15:07:55	MAP-BE2019-1733-1 Ver	
2. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	13-09-2019 15:44:41	13-09-2019 15:06:07	MAP-BE2019-1733-2 Ver	
3. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	13-09-2019 16:28:38	13-09-2019 15:07:02	MAP-BE2019-1733-3 Ver	
4. CAMANCHACA PESCA SUR S.A. POLARISTRO	2019_jhonne.rosas.vargas	12-09-2019 16:58:37	12-09-2019 17:27:26	MAP-BE2019-2309-1 Ver	
5. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	12-09-2019 12:45:45	12-09-2019 15:45:39	MAP-BE2019-1733-4 Ver	
6. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	10-09-2019 12:20:16	10-09-2019 15:06:17	MAP-BE2019-1733-5 Ver	
7. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	10-09-2019 12:21:35	10-09-2019 15:08:17	MAP-BE2019-1733-6 Ver	
8. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	09-09-2019 10:20:34	10-09-2019 11:42:34	MAP-BE2019-1733-7 Ver	
9. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	09-09-2019 9:18:00	09-09-2019 10:21:20	MAP-BE2019-1733-8 Ver	
10. CAMANCHACA PESCA SUR S.A. ALTARI 1	1733_jennifer.jelvez	09-09-2019 8:40:48	09-09-2019 10:06:07	MAP-BE2019-1733-9 Ver	



**CHALLENGES EMS ARTISANAL FLEET:  
Implementation of the artisanal fleet gradually as of January 1, 2024  
(Law N° 21,259/2020).**

- **Begin socialization work with organizations of artisanal fishermen.**
  - **Prepare procedures and specific technical of the DRI and its applicability.**
  - **Start pilots of M.E. in artisanal fisheries, such as Patagonian toothfish with support from The Nature Conservancy.**
  - **Simplify the devices in the artisanal fishing fleet with M.E.**
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# CHALLENGES EMS ARTISANAL FLEET:

## EMS PILOT PROJECT IN THE ARTISANAL CHILEAN SEABASS FISHERY

**SISTEMA DE REGISTRO DE IMAGENES PARA LA PESCA ARTESANAL EN CHILE**

**PROJECT'S PARTNERS**

- Subsecretaría de Pesca y Acuicultura
- INSTITUTO DE FOMENTO PESQUERO (IFOP)
- The Nature Conservancy
- SERNAPESCA (Ministerio de Economía, Fomento y Turismo)

**Software Interface:** The screenshot shows a multi-panel interface. The top left panel displays a live video feed of a boat deck. The top right panel shows a map of a coastal area with a red boundary. The bottom left panel contains a data table with columns for 'Fecha', 'Hora', 'Estado', 'Cantidad', and 'Peso'. The bottom right panel shows a detailed map of a coastline.

**Boat Equipment:** A close-up image shows a white camera with a lens and a microphone, mounted on a metal structure on a boat. Another image shows a fisherman in orange gear on a boat deck with various equipment.


**Boat Name:** A boat named 'CONSTITUCION' is docked at a pier.

Pilot project for the implementation of EMS in the artisanal longline fleet of Patagonian toothfish developed between The Nature Conservancy (TNC), SERNAPESCA, SUBPESCA, artisanal fishermen and IFOP. Note that according to the law, artisanal vessels equal to or greater than 15m in length must implement DRI on board from January 2024.





**CHALLENGES EMS ARTISANAL FLEET:  
Implementation of the artisanal fleet gradually as of January 1, 2024  
(Law N° 21,259/2020).**

- Evaluate and incorporate wireless video streaming and cloud storage. Associated costs.
  - Analyze actions of discarding and recognition of species by A.I. and M.L.
  - Improve Electronic Logbook Fishing and its implementation in the artisanal sector.
- 

# CHALLENGES EMS ARTISANAL FLEET:

Número	Tipo de pesquerías	Número de embarcaciones que operaron	Pesquerías
1	Pez espada de la XV a la X regiones con palangre y enmalle.	98	Pelágicas
2	Tiburón y dorado de altura entre la XV a la III región con espinel y palangre.	97	
3	Pequeños pelágicos entre la XV a la XI con cerco.	293	
4	Jurel entre la XV a la X regiones con cerco.	140	
5	Langostino colorado y camarón nailon entre XV a la VIII regiones con arrastre de fondo.	6	Crustáceos
6	Jaiba, Centolla y Centollón entre la XV a la XII regiones con trampa.	43	
7	Reineta entre la XV a la XII regiones con enmalle.	80	Demersales
8	Merluza común entre la IV a la X regiones con enmalle.	0	
9	Raya Volantín entre la VIII a la XII regiones con espinel.	9	
10	Merluza del sur entre la X a la XII regiones con espinel.	0	
11	Congrio dorado entre la V a la XII regiones con espinel.	9	
12	Jibia o calamar rojo entre la XV a la XII regiones con potera o trampa tubo.	31	
13	Bacalao de profundidad entre la XV y X regiones con espinel o palangre.	98	

## LESSON LEARNED FOR IMPLEMENTATION IN THE ARTISANAL FLEET:

- **Graduality in the implementation of M.E. by type of fishery**
- **Identify volunteers to implement M.E.**
- **Export market requirements related to reducing bycatch**
- **Government funding of part or all of the cost of M.E. equipment in fisheries of lesser commercial value**

Gracias.



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