Australian Government
Department of Agriculture

Catch reporting under E-Monitoring in the Australian Pacific longline fishery

ERandEMWG2-DP01
Bali, Indonesia

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Purpose

Describe the EM system objectives and design in the Australian Pacific tuna longline fishery.

Characterise the performance of the EM system during its first eight months of operation with a focus on catch and bycatch reporting.

Outline of presentation

- Australian EM System Objectives and Design
- Trial EM in the ETBF (2009-10)
- Full EM introduction in the ETBF (from July 2015)
  - Comparison between EM and logbook data—the first eight months
  - Impact of EM on quality of logbook reporting—the first eight months
- Discussion points and Conclusions

Australian Longline Fishery

- The Australian longline fishery operates primarily in the Australian EEZ.
- Five key target species (YFT, BET, ALB, SWO and STM) which are each managed under a total allowable commercial catch.

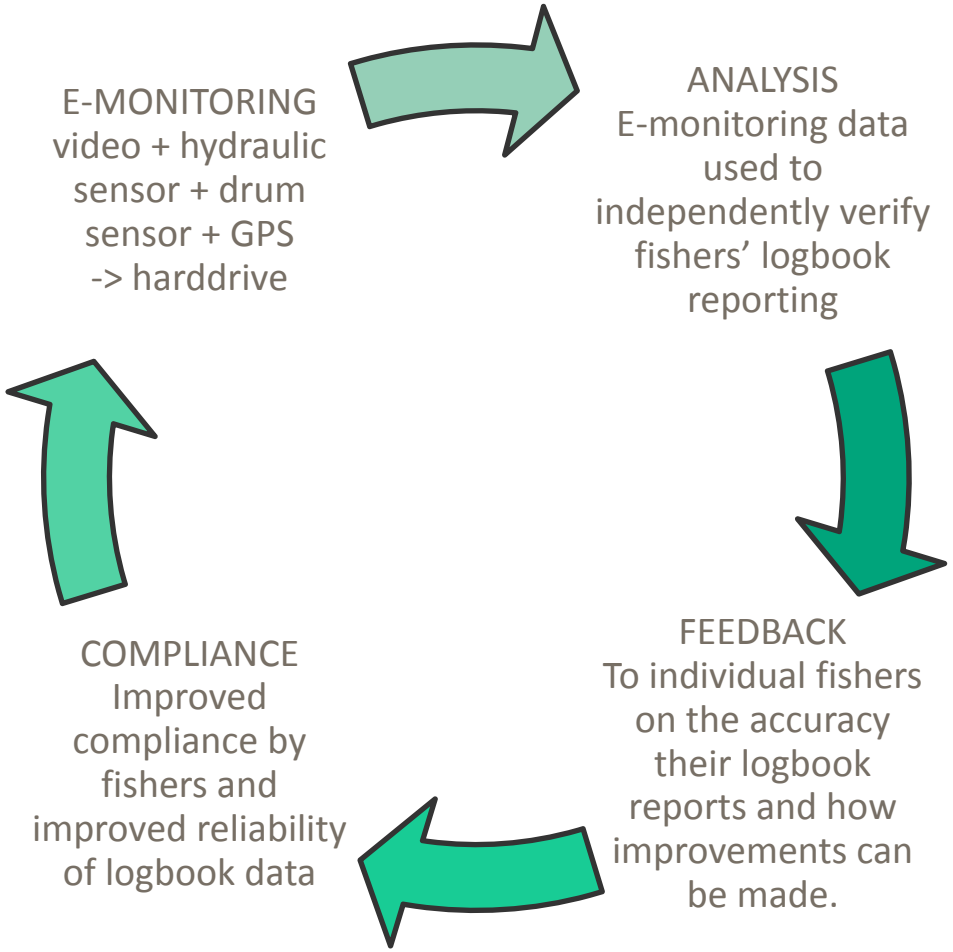
Australian EM System Objectives

Overall objective = to improve the quality and coverage of the data and information that is provided by fishing vessels.

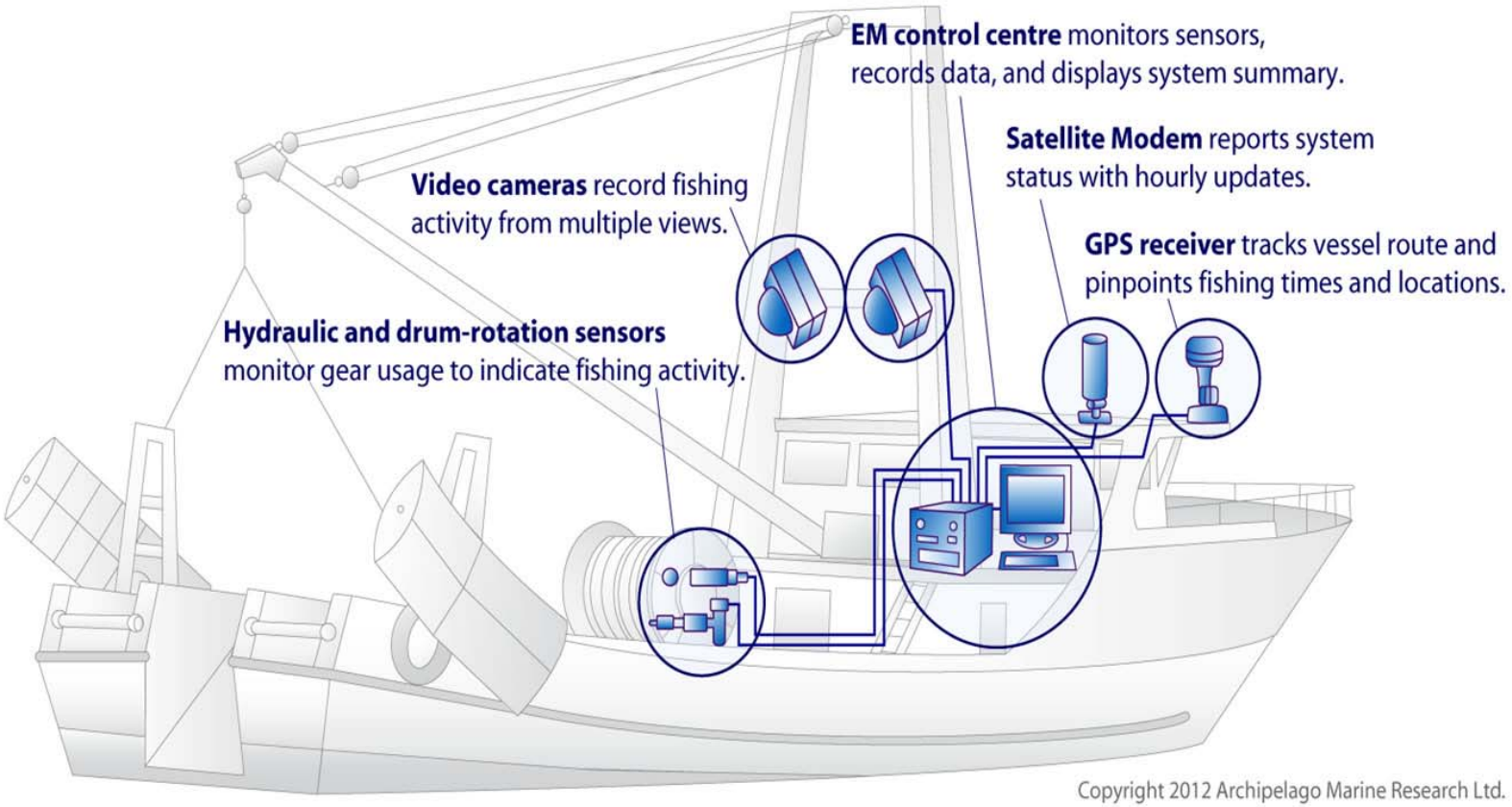
Sub-objectives:

- Verify the reporting of amount and type of fish
- Verify the reporting of interactions with protected species
- Reduce the costs in comparison to on-board observers
- Better target compliance and enforcement actions where they are needed without penalising responsible fishers (risk-based approach).

Australian EM System Design

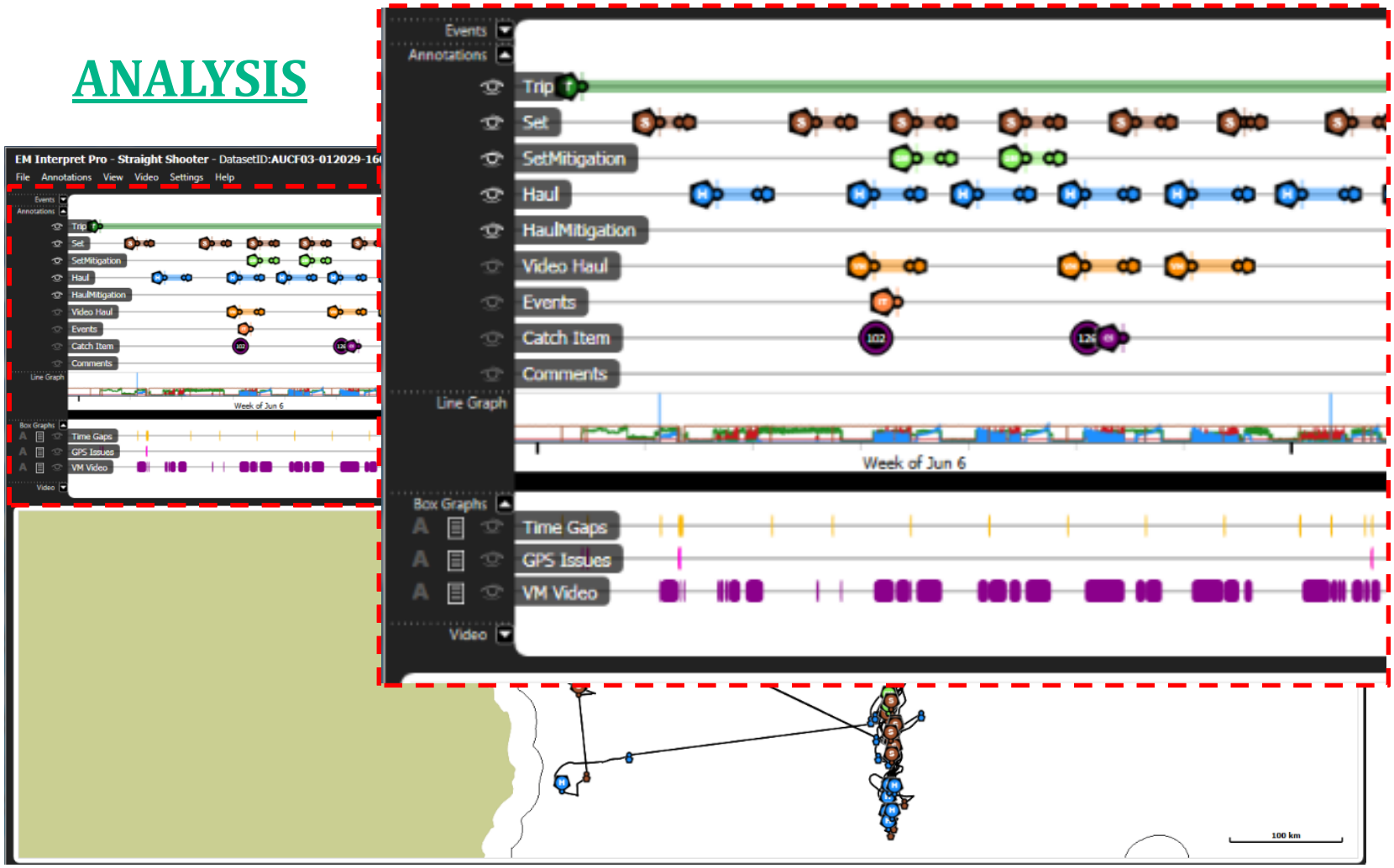


E-MONITORING data collection



Typical e-monitoring hardware components

ANALYSIS



EM data analysis environment for deriving tabular/numerical data from events in the e-monitoring data streams which are then aligned with logbook data for the purpose of verifying logs

FEEDBACK to the vessel

	EM catch Review			Vessel Logbook		
Species	Retained (pcs)	Released (pcs)	Total (pcs)	Retained (pcs)	Released (pcs)	Total (pcs)
Albacore	1	0	1	0	0	0
Bigeye Tuna	1	0	1	1	0	1
Yellowfin Tuna	15	1	16	14	0	14
Swordfish	1	0	1	1	0	1
Striped Marlin	1	0	1	1	2	3
Bronze Whaler	0	0	0	0	2	2
Crocodile Shark	0	2	2	0	2	2
Sharks	0	1	1	0	0	0
Oceanic Whitetip Shark	0	1	1	0	0	0
Escolar	1	0	1	0	0	0
Lancetfishes	0	0	0	0	2	2
Mahi Mahi	40	3	43	45	0	45
Marlin species	0	3	3	0	0	0
Sailfishes	0	0	0	0	1	1
Wahoo	2	0	2	2	0	2

An example of individual fisher feedback on the accuracy their logbooks. Data are counts of fish species retained, released and total. On the left are counts from analysis of e-monitoring data and on the right from the vessels logbook.

COMPLIANCE activities

- For Australia, the EM system is a significant tool for compliance purposes.
- At startup of EM ⇨ escalating approach to compliance and enforcement actions noting the need for the fishery to adapt to EM.
- Ongoing ⇨ risk based approach where, EM effort, compliance and enforcement actions are linked to the non-compliance risk level of the vessel.

Trial of EM (2009-10)

Involved parallel data collection with both EM and at-sea observers.

Outcomes:

- 5 per cent of catch items were detected by EM viewers but not the observer
- 25 per cent of the items were recorded by the observer but not by the EM analyst
- Undercounted by EM due to fish being released without coming on-board and therefore out of the field of view of cameras
- Identification of small tunas to species from video footage was difficult. Poor camera placement and video quality were a factor in species ID.
- EM provided accurate temporal and spatial information on gear setting and hauling activities, aligning very closely with observer data
- EM hardware systems functioned and operated successfully during the trial.

Full introduction of EM – From July 2015

The routine deployment of at-sea observers for fishing within the Australian EEZ ceased from July 2015 and was replaced by EM.

Key improvements from the trial system were:

- Better quality and higher definition cameras,
- Substantial development of onshore data processing and analysis.

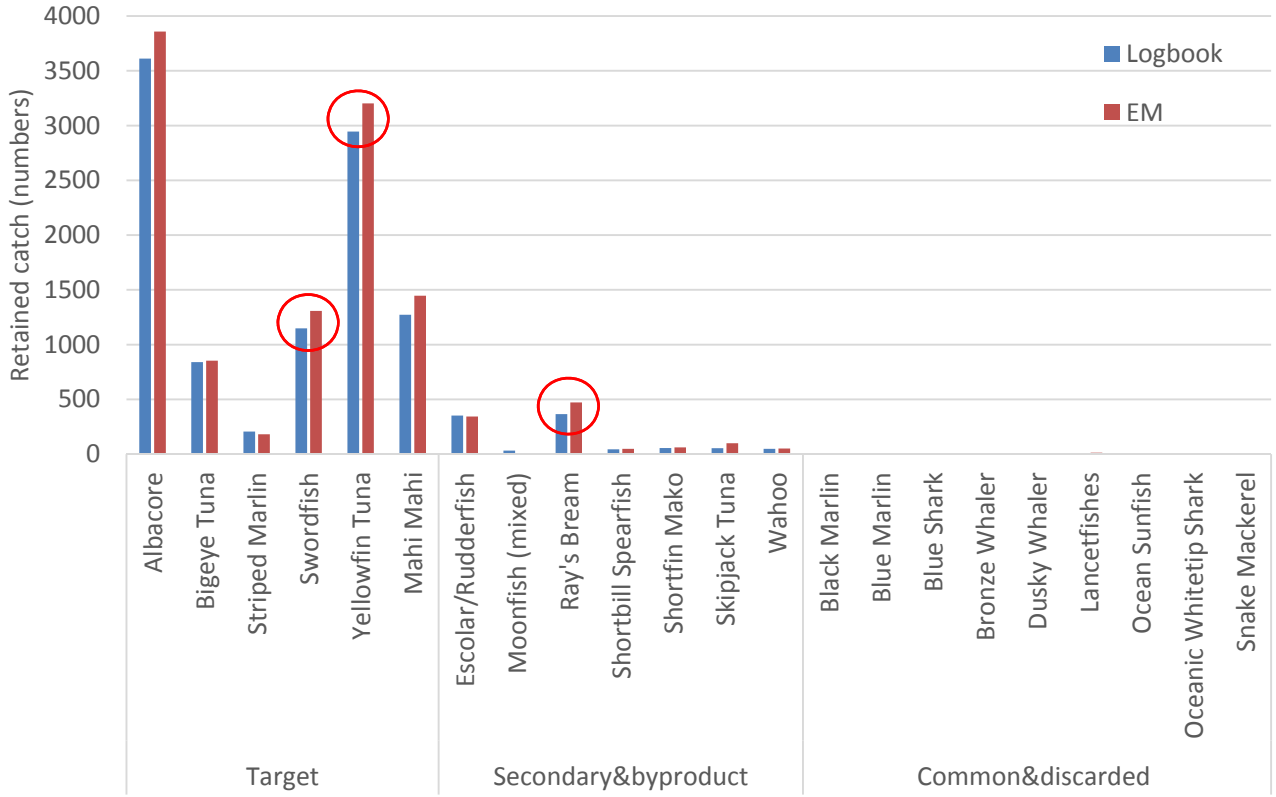
Performance during the first eight months

- Catch comparison between EM and logbooks (288 operations subject to review by EM analysts - 8 per cent of the total 3447 operations)
- Changes in quality of logbook reporting following the introduction of EM (comparison of logbook data following EM with an earlier baseline).

Comparison between EM and logbook data

(first eight months)

Retained catch

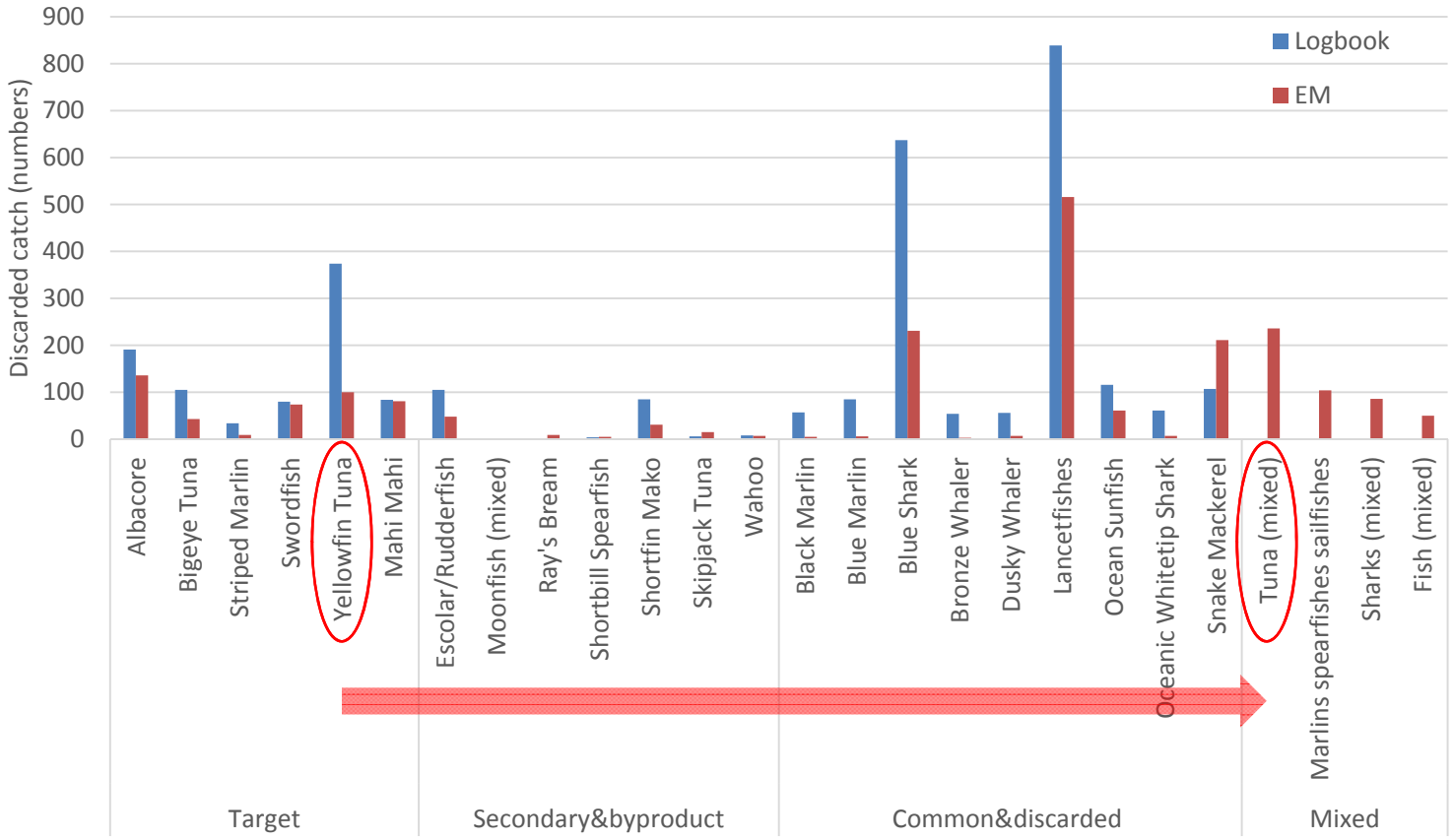


Comparison between EM and logbook catch reported in the Australian ETBF following the full introduction of e-monitoring (July 2015 to Feb 2016)

Comparison between EM and logbook data

(first eight months)

Discarded catch

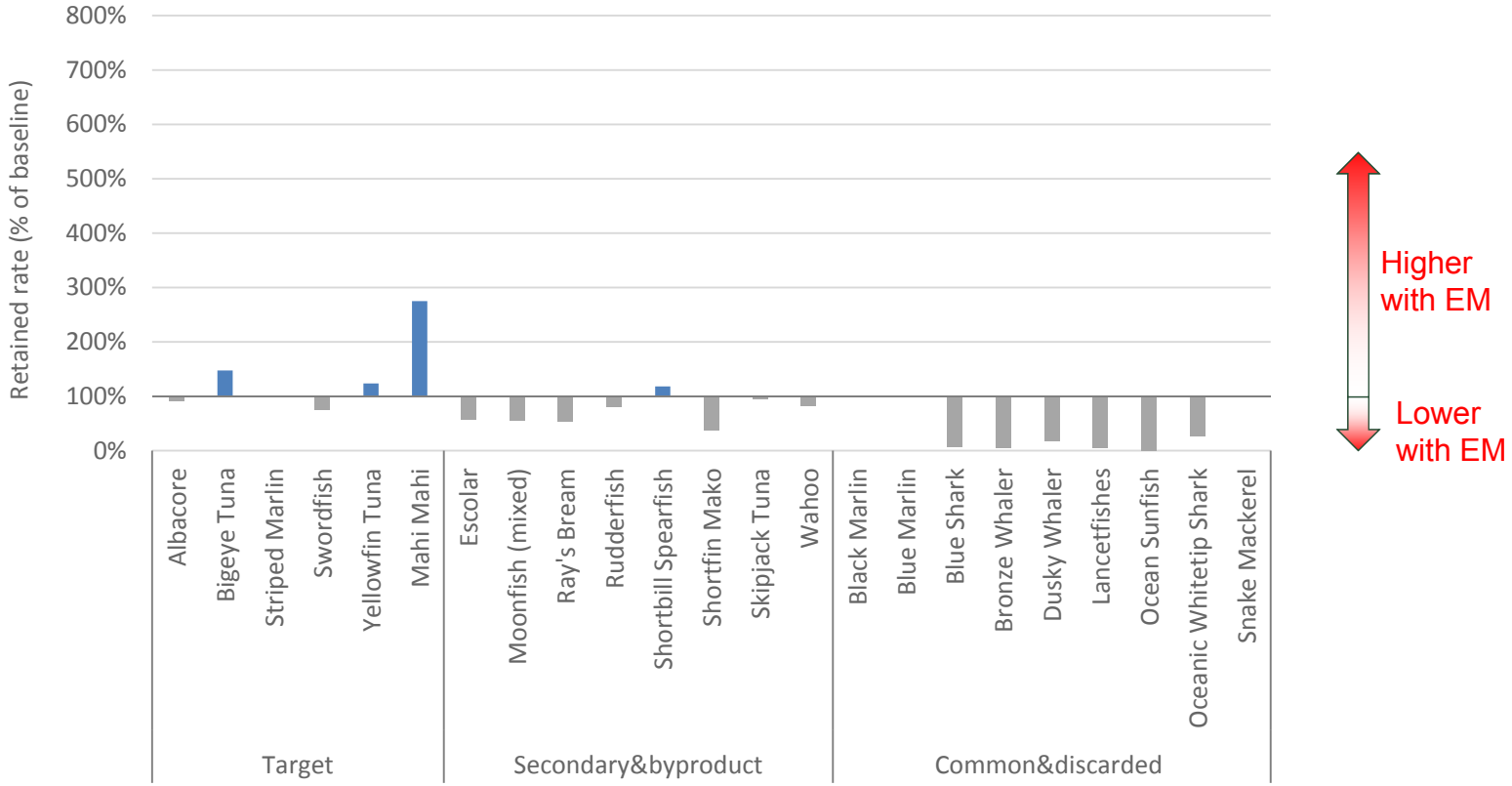


Comparison between EM and logbook catch reported in the Australian ETBF following the full introduction of e-monitoring (July 2015 to Feb 2016)

Impact of EM on quality of logbook reporting

(first eight months)

Retained catch

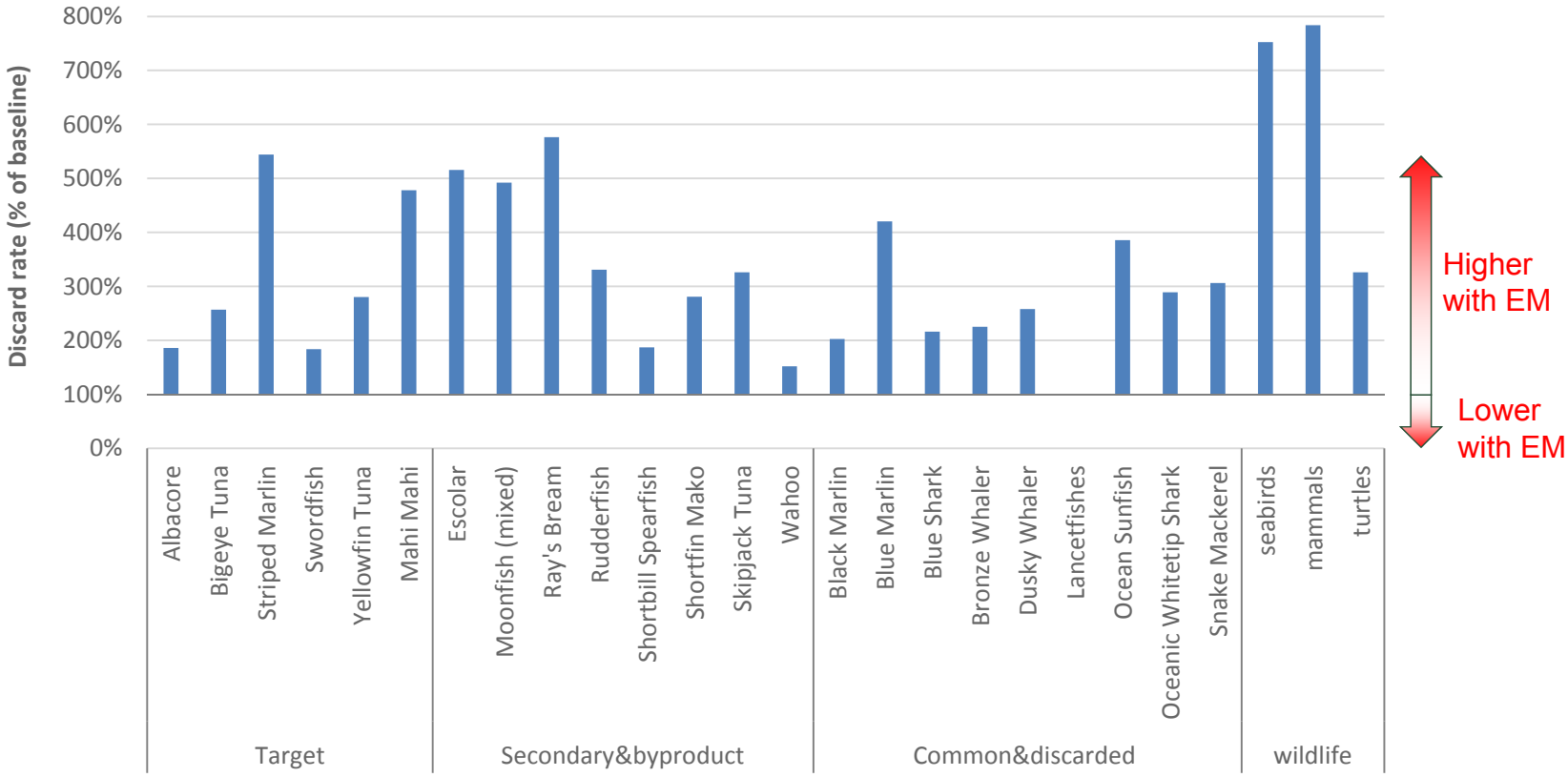


Percentage change in the catch rates reported in the Australian ETBF following the full introduction of EM on 1 July 2015. The first 8 months of EM (July 2015 to Feb 2016) are compared with a mean of the same 8 month period for the previous six years prior to EM. Figures are percentages where 100 per cent would indicate no change.

Impact of EM on quality of logbook reporting

(first eight months)

Discarded catch



Percentage change in the catch rates reported in the Australian ETBF following the full introduction of EM on 1 July 2015. The first 8 months of EM (July 2015 to Feb 2016) are compared with a mean of the same 8 month period for the previous six years prior to EM. Figures are percentages where 100 per cent would indicate no change.

Conclusions and discussion points

- EM accuracy?
  - Retained catch: Accurate
  - Discards: underestimated + some taxonomy issues
- Impact on logbook “quality”?
  - Good evidence that the EM system has modified fisher behavior and improved logbook reporting.
  - Retained catch: Marginal impact (noting pre-existing CDR system)
  - Discards: Major improvement to discards reporting
- Poses a question as to what is the more accurate data source for discards?
- Room for ongoing improvements to the EM system (improvement cycle).
- Further work: Changes/improvements across future years.

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Thankyou
(Terima kasih!)