



Atlantic Ocean Tropical Tuna Tagging Programme

Estimating shedding and reporting rates for conventional tags

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ICCAT CICTA CICA



Tag shedding – experimental design

- Objective: 20% double tagged by species & team

	Senegal	GoG	Canaries	Azores	Brazil	S Africa	St Hel
<i>released</i>	13942	38045	9586	7960	30838	196	1518
<i>double tag</i>	2737	6377	1419	1257	5509	13	340
<i>% double tag</i>	0.2	0.17	0.15	0.16	0.18	0.07	0.22

BET	SKJ	YFT	LTA
0.19	0.18	0.14	0.21





Tag shedding – experimental design

- Single = left side
- Double = both side
- Sequential or logical sequence of tags

100	101
102	103
104	105

or

100	201
101	202
102	203

- Record tagger

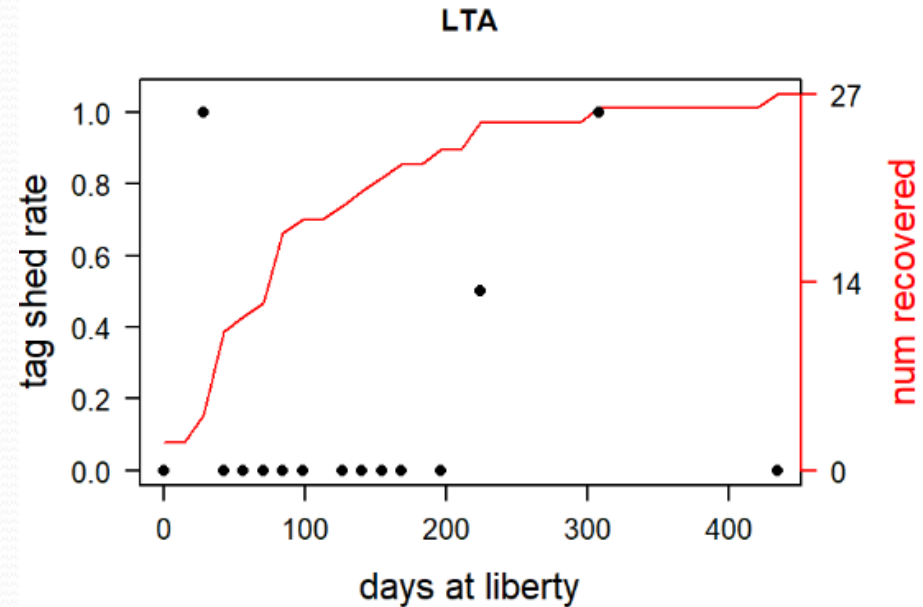
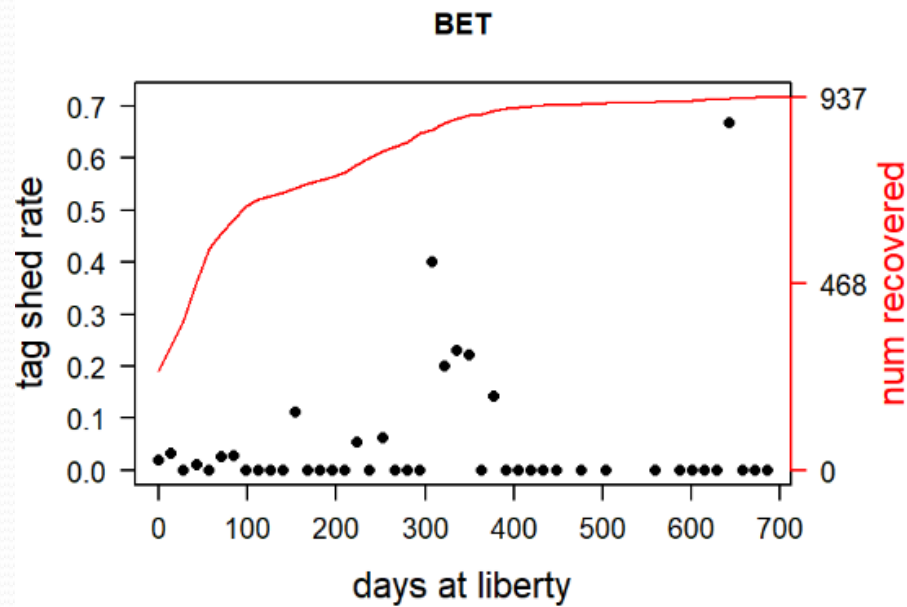
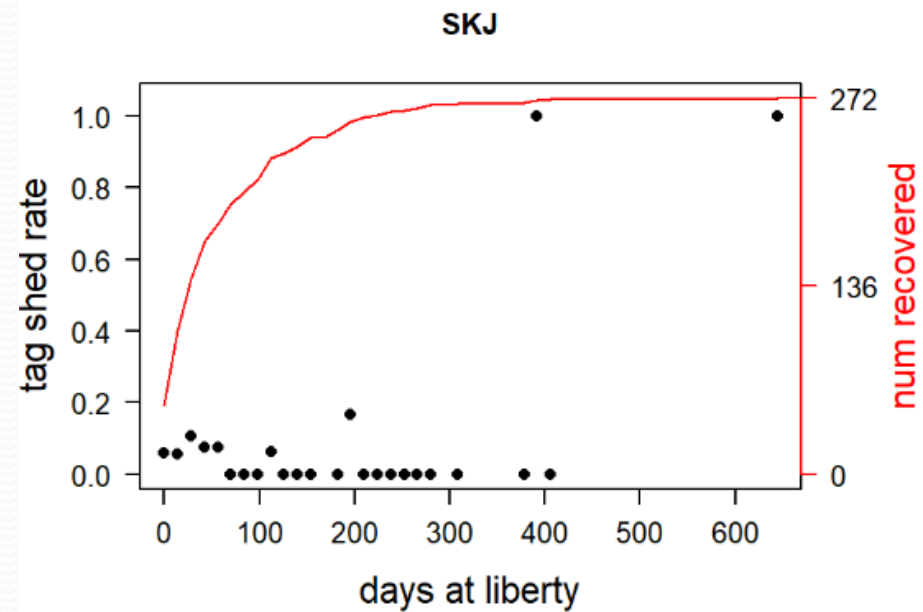
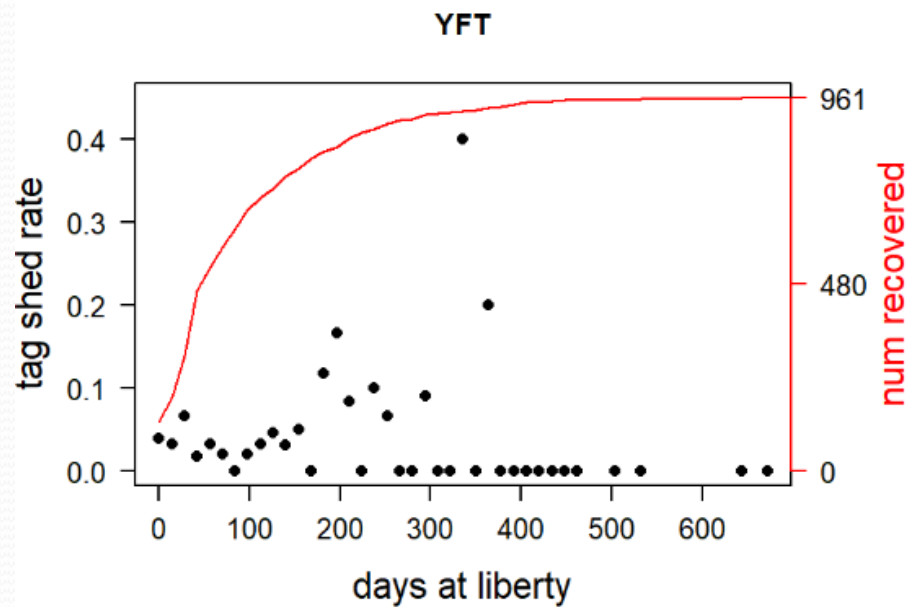




Tag shedding – preliminary results

	BET	SKJ	YFT	LTA
<i>released</i>	4108	7438	4402	1226
<i>recovered</i>	940	274	961	28
<i>retained</i>	0.97	0.93	0.96	0.82
<i>shed</i>	0.03	0.07	0.04	0.18



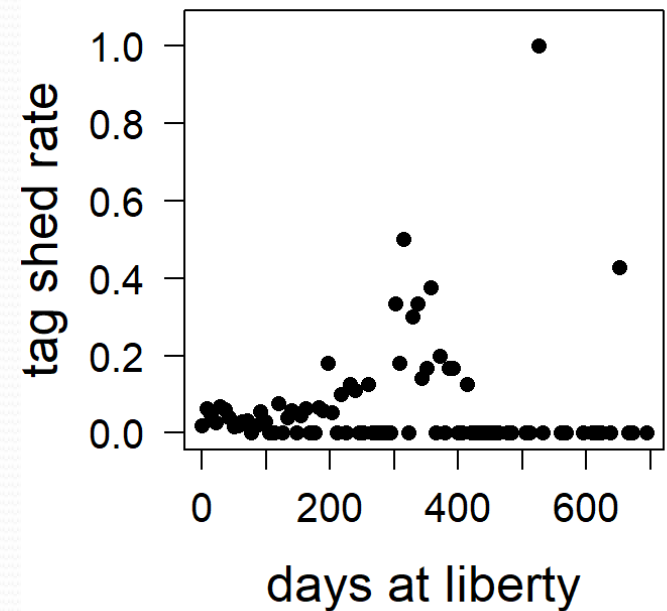


Data binned by 2 week period



Tag shedding – analyses

- Exploratory analyses during capacity building workshops
 - $\text{glm}(\text{tagloss} \sim \text{vessel} + \text{sizebin} + \text{daysliberty}, \text{data}, \text{family} = "binomial")$
- More in-depth analyses in 2019





Tag shedding – recommendations

- Beware of recoveries (2 tags 1 fish = 1 reward)
- Sequential or logical sequence of tags
 - Keep track of tag side
 - Single tags always on same side
- Keep track of individual tagger





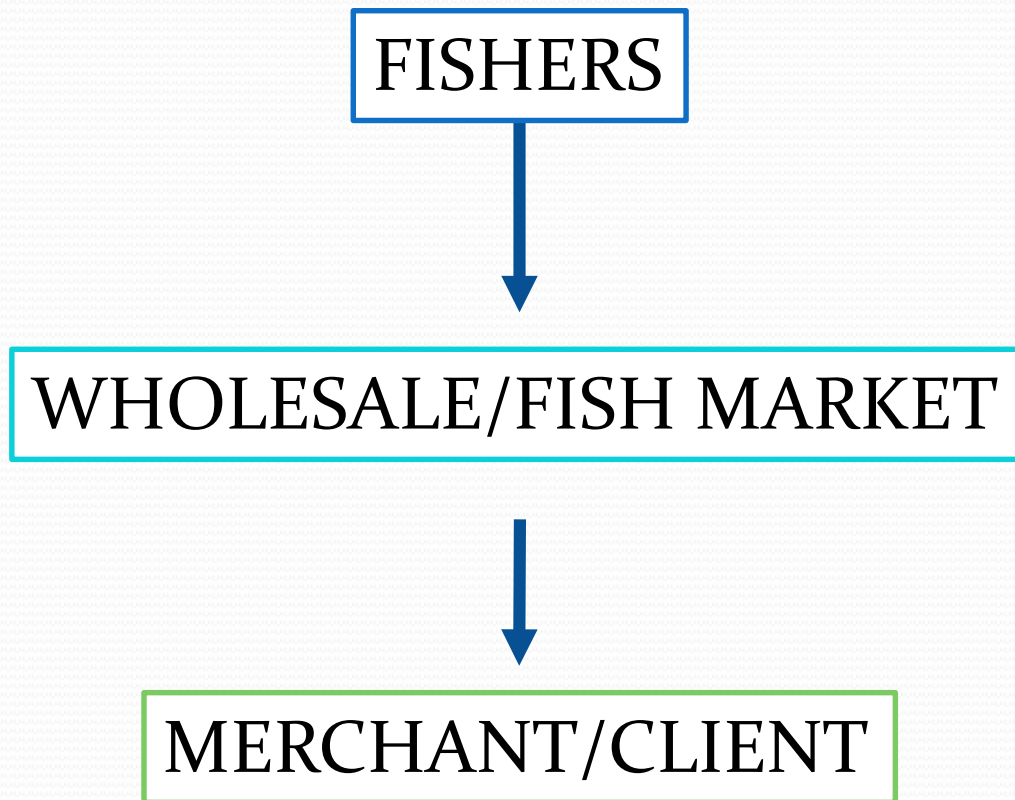
Tag seeding – experimental design

- Priority: tag reporting rate for **purse seine**
- Tried on LL (1 tag!)
- Tried in artisanal fishery...





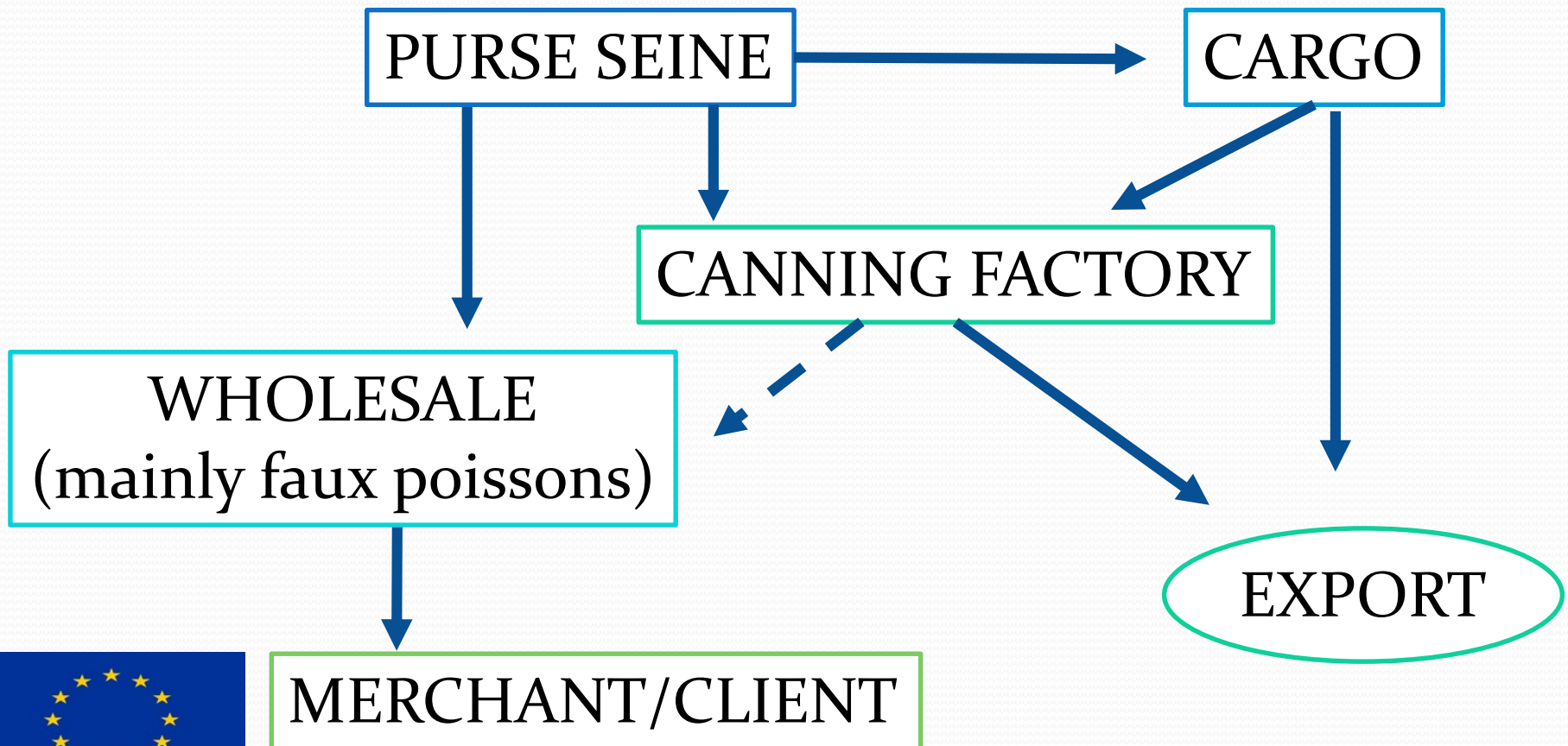
Tag seeding – artisanal





Tag seeding – industrial

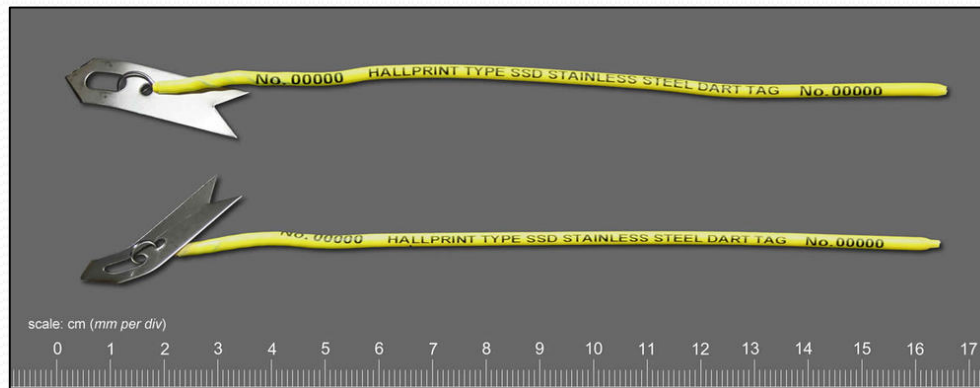
(captain, crew, observers)





Tag seeding – experimental design

- Started with 1 tag per experiment, now doing 5 tags
- Metal dart for frozen fish





Tag seeding – preliminary results

	2016	2017	2018
<i>seeded</i>	28	359	349
<i>reported</i>	9	292	268
<i>%</i>	0.32	0.81	0.77





Seeded

BB	PS	CACL	FISM	LL	TRAN
209	296	5	11	1	198

Reported

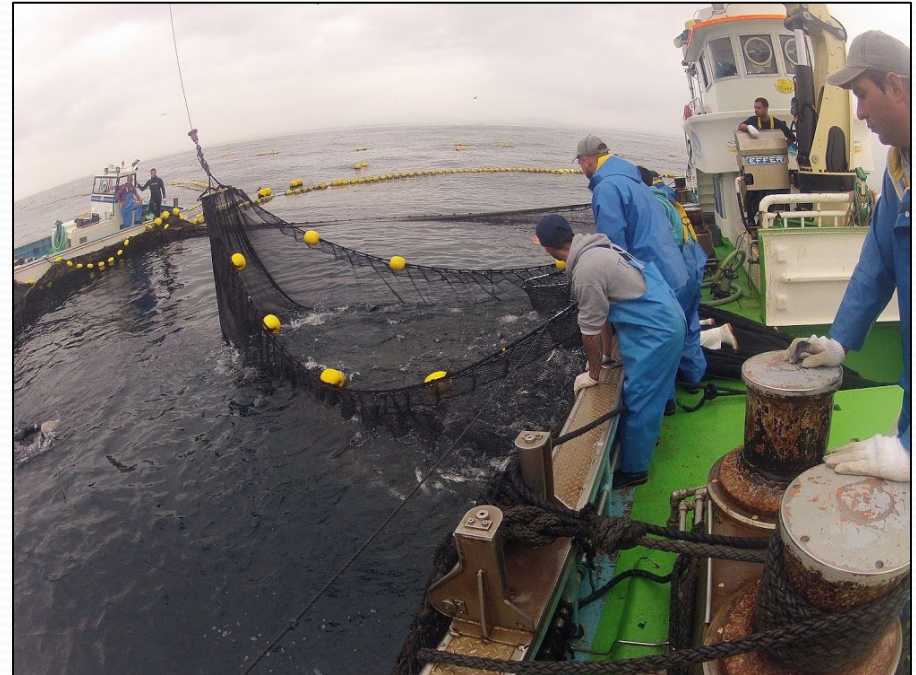
VESS	TRAN	UNLO	CACK	CACL	FISM	UNKN
158	71	156	9	9	70	96





Tag seeding – further analyses

- Need to estimate reporting rates by species, size (influence their handling at unloading), date and area (influenced by the publicity campaigns), tagger (skipper or observer)
- Additive probability at different levels of the industry





Tag seeding – recommendations

- Use completely separate tag series
- Use different data entry template (includes location type, name)
- Treat recoveries (rewards, etc.) the exact same as a regular tag
- Start as soon as you start tagging to see evolution through time and success of awareness campaigns
- Not worth effort on artisanal fisheries
- Worth doing it at several levels of the industry chain
- How many tags per event? (account for non independence within seeding experiment)



A photograph of a sunset over the ocean, taken from the deck of a boat. The sun is a bright, glowing orb on the horizon, casting a warm orange and yellow light across the sky and the water. The sky is filled with scattered, dark clouds. The ocean is dark with small, choppy waves. In the foreground, the dark silhouette of the boat's deck is visible, including some equipment and a person's arm on the right side.

Thank you!

...questions?

Photos courtesy of our tagging and recovery teams.