Gap-analysis

SKATES AND RAYS ROAD MAP WORKSHOP London Thursday 14th February 2019 Paddy Walker



An exemption from the Landing Obligation can be made for species with high survival rates once they are released back to the sea, if there is scientific evidence to demonstrate this for the particular species, the métier, fishing practice and ecosystem.

https://ec.europa.eu/fisheries/cfp/fishing_rules/discards_en

A two-tiered approach to developing a high survival exemption has been identified:

- (i) filling the data gaps;
- (ii) determining best practices.

To develop robust, quantitative estimates of discard survival within 3 years

TWO-TIERED APPROACH: <u>**1. GAP ANALYSIS AND 2. BEST PRACTICES</u></u></u>**

1. Gap analysis

- To address the lack of research on the survivability of all species in all métiers
- Create a matrix which gives an estimation of the level of survival for species in each of the relevant métiers
- Based on this analysis develop research priorities for the coming 3 years which focus on the most vulnerable species and/or métiers which potentially have the highest impact.

TWO-TIERED APPROACH: **1. GAP ANALYSIS AND <u>2. BEST PRACTICES</u>**

2. Best practices

- In the period needed to fill the data gaps on survival fishers wanting to make use of the high survival exemption will have to implement the best available <u>avoidance</u>, <u>selectivity</u> and <u>survival</u> measures available to them.
- Not every measure could be a solution in for all fisheries. What is needed is an overview of possible measures with a description in what gears these could be of use. Fishers making use of the high survival exemption would than need to demonstrate which of the measures available to them they had used.



The analysis consists of:

- A review of current studies on survivability;
- A table which gives an estimation of the level of survival for species in each of the country specific relevant métiers.

Based on this analysis a work plan with research priorities for the coming three years will be developed, which will focus on country, and relevant species and métiers.



- 1. Review of current studies on survivability
 - STECF rapport from the 'Expert Working Group Long Term management of Skates and Rays'
 - Published reports e.g. CEFAS
- 2. Overview of ongoing research
- 3. Expert workshop in The Hague and consultation with experts initial table of species/metiers

RAY DISCARD SURVIVAL – DRAFT RESULTS CATCHPOLE *ET AL.*, 2017 DRAFT

- 1. Critical review of available discard survival estimates
- Enhancing estimates of ray discard survival from previous captive observation experiments
- An analysis of tagged rays to derive original discard survival estimates of rays



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1. CRITICAL REVIEW OF AVAILABLE DISCARD SURVIVAL ESTIMATES

- Systematic review
- Five key guidance criteria
 - 1. Are criteria given to define when death occurred?
 - 2. Was a control used that informed on experimental induced mortality?
 - 3. Was mortality observed to asymptote (captive observation only)?
 - 4. Did the sample present the part of the catch being studied?
 - 5. Did the sample represent the relevant population in the wider fishery?

 No studies met all 5 criteria and only 6 provided a discard survival estimate

Catchpole et al., 2017 DRAFT

OVERALL RESULTS CATCHPOLE *ET AL.*, 2017 DRAFT

 Re-analysis of data enabled enhanced discard survival estimates to be made

Species	Area	Gear	Survival
Thornback ray	Bristol Channel	Otter trawl	57-69% (71-77%)
Blonde ray	Western Channel	Beam trawl	41-44%
Cuckoo ray	Western Channel	Beam trawl	34-35%
Thornback ray	Southern North Sea	Trammel net	95%

CONCLUSIONS FROM CATCHPOLE *ET AL.*, 2017 DRAFT

- Build on existing work and tailor new research according to criteria laid out
- Re-analyse existing captive observation data
- Quantifying post-release survival using (electronic) tags is a promising approach

GEAR TYPES AND INTERACTIONS WITH SKATES AND RAYS – STECF (2017)



SPECIES BY GEAR



SURVIVAL – CONCLUSIONS STECF (2017)

- Difficulties in comparing studies: species, gear, area, tow duration, observation periods, season
- Highlight the data gaps by doing extending the review and analysis as done by Catchpole et al. (2017) on UK waters to other areas
- Future work:
 - develop a standardized data collection procedure and analysis
 - further data collection using tagging technologies (e.g. conventional, electronic, satellite, acoustic) estimates of both short and long-term survival
 - further encourage good practice on fish handling when discarded alive

Best practices

TWO-TIERED APPROACH: **1. GAP ANALYSIS AND <u>2. BEST PRACTICES</u>**

2. Best practices

- In the two year period needed to fill the data gaps on survival fishers wanting to make use of the high survival exemption will have to implement the best available <u>avoidance</u>, <u>selectivity</u> and <u>survival</u> measures available to them.
- Not every measure could be a solution in for all fisheries. What is needed is an overview of possible measures with a description in what gears these could be of use. Fishers making use of the high survival exemption would than need to demonstrate which of the measures available to them they had used.

OPTIMISING SURVIVAL IS A 3-STAGE ROCKET



SURVIVAL → prompt release / handle with care / keep it wet

SELECTIVITY → deterrents (light/necro/magnets) / raised fishing line / escape panels / grids

AVOIDANCE → Avoiding spawning areas/real time communication between vessel / move on rules

AVOIDANCE – STECF (2017)

- .. temporal measures such as avoidance of catching skates and rays could be implemented by a 'move-on' principle in which the fishery relocates if a certain level of catch density is achieved
- .. information needed on avoidance and selectivity and information on handling to reduce mortality
- .. difficult to predict the location of aggregations or individuals which makes avoidance difficult
- Avoidance is seldom defined as such and is often seen to be synonymous with closed areas – there is work to be done!

SELECTIVITY – STECF (2017)

- Review of sorting grids, escape panels, trawl gear modifications and options for gillnets and longlines
- Succesful measures (e.g. raised fishing lines) exploit behavioural differences between species
- STECF concludes that there is potential to improve selectivity towards skates and rays and the incentive to avoid catches of skates and rays may increase with the implementation of the Landing Obligation

What about deterrents?

BEST PRACTICE MATRIX – BASED ON DIALOGUE SESSIONS

	Status	Type of measure		Gear	
	 research still needed could be trialled could be implemented 		Trawls	Nets	
Avoidance	1 and 2	Active sharing of information between operators	Х	Х	
	1	Move on rules	Х		
	1	Use of side-scan sonar to identify aggregations	Х		
	1	Identify and avoid known spawning/nursery areas	Х	Х	
Selectivity	1, 2	Deterrents - making use of sensory organs (lights, magnets)	Х	Х	
	1	Behaviour of rays in and around the net	Х	Х	
	1, 2	Tow speed & Tow duration	х		
	2, 3	Raised fishing line	х		
	2, 3	Mesh size	Х	Х	
	2, 3	Selective grid	х		
	2, 3	Escape panel	х		
Survival	2 & 3	Prompt release after catch	х		
	3	Handle with care (don't lift by tail)	х	Х	
	3	Keep catch wet before and during sorting	Х		
	2	Effects of fishing practice and gears	Х	Х	

Three years to finish the jig saw



GAP - Analysis

- Priorities for research
- Division of work among member states

Best practices

- ✤ Fishing plans to be developed
- Advisory councils have a coordinating role
 - New trials with avoidance and selectivity

Filling the gaps

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GEAR IMPACT → Cuckoo ray?!

New research? e.g. SUMARIS

PRIORITISING

- Do we need to research all metier-species combinations or are there common denominators to be found
- Can we identify the most vulnerable and sturdy species and estimate a worst-case scenario or a range of survival estimates
- Is commercial value or 'choke' potential also a criterium we could use
- Do we 'go for gold' (electronic tagging) or can we develop 'proxies' e.g. estimate survival from vitality or mark-and-recapture studies

ICES SHARK WORKSHOP - BACKGROUND

- Current tock assessments based predominately on either survey data or landings data – biomass may be underestimated
- Elasmobranchs frequently discarded, due to quota limitation and/or low market value but potential for high discard survival rate
- Discard sampling programmes in several countries are now collecting data that may inform on total catch and support more robust assessments – how to integrate

ICES SHARK WORKSHOP – TERMS OF REFERENCE

- a) Investigate and propose a raising method for elasmobranch fishes when a species is mostly discarded, as standard raising procedures are not applicable;
- Evaluate and define the data quality and onboard coverage; discard retention patterns between fleets and countries; discard survival, as well as the definition of acceptable types/sources of data required for advice;
- c) Propose how to include discard information into the advisory process for elasmobranch fishes;
- d) Propose a method to provide fishing opportunities that ensure that exploitation is sustainable when a species has been under moratorium, as is the case with the

WHAT NEXT

- develop robust, quantitative estimates of discard survival
 - Choice of species, métier and fishing practice
 - develop criteria sensitivity, importance in fishery, 'choke' potential
 - Standardised methodologies WKMEDS/Catchpole
 - Tagging programmes
- develop a programme of best practices
 - Standardise data collection on best practices
 - E.g. Self-sampling programme
 - Background research still needed e.g.
 - use camera's to identify behavior in net
 - discard predictor models for avoidance

COLLABORATION BETWEEN MEMBER STATES

