

# Overview of survivability studies

Technical meeting Scheveningen Group

25 November, Ruben Verkempynck



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- Why survival?
- Definition of survival
- Overview survival studies around the NS
- State of play
- “High survival”

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# Survival studies

- Exemption from LO
  - Article 15 of CFP Basic Regulation
  - for *"species for which scientific evidence demonstrates high survival rates, taking into account the characteristics of the gear, of the fishing practices and of the ecosystem"*
- clear, defensible, scientific evidence for high discard survival rates are required → Exemption

# Survival

- *“The state or fact of continuing to live or exist, typically in spite of an accident, ordeal, or difficult circumstances” (OED, 2014)*
- varying states of “survival” having differing levels of “vitality” (Davis, 2010; Dawkins, 2004)
- Understanding and measuring signs of vitality → useful for predicting the likelihood of survival (e.g. Benoit *et al.*, 2010; Davis, 2010)
- Survival  $\leftrightarrow$  Death : survival rate = 1/mortality rate

## HANDLING

### Technical

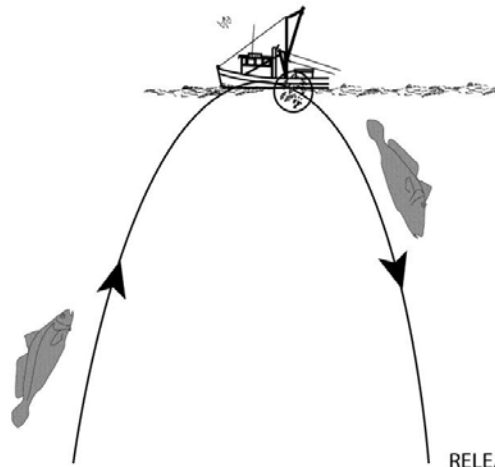
Hauling/towing speed, vessel/deck configuration, crew experience, behaviour, handling, mechanical impact

### Environmental

Thermo-, halocline, weather, sea state, light, air temperature, air exposure, humidity, air pressure

### Biological

Evasion response, catch composition, volume



## CAPTURE

### Technical

Active/passive gear encounter, deployment duration, fishing effort, gear type, design, configuration

### Environmental

Sediment type, temperature, salinity, light, current speed, depth, oxygen, weather, sea state

### Biological

Size, condition, stress, injury, morphology, physiology, traits, behaviour, catch composition, catch density, catch volume, depredation

## RELEASE

### Technical

Release devices (chutes, weights, recovery boxes, live wells)

### Environmental

Halo-, thermoclines, salinity, habitat

### Biological

Predation (above/below surface), displacement



IMARES

WAGENINGEN

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# Survival studies around the NS (past)

- 82 studies (conducted by 10 countries)
- 1890 - 2014
- 33 species (28 TAC)
- 11 gear types (from beam trawl to pelagic longline)
  
- → large variability in studies
- e.g. "40% mortality, equating to 60% survival; 6 days observation"

# Current situation

## ■ WKMEDS

Land	Gebied	Visserij	Vissoort
Nederland	Noordzee	Pulsvisserij Boomkor Twinrig Flyshoot	Tong, Schol, Schar Schol Schol, Schar Schol, Schar
België	Noordzee, Kanaal, Ierse Zee	Boomkor met kettingen	Schol, tong, schar
Duitsland	Oostzee	Bordenvisserij	Schol, bot
Denemarken	Skagerrak, Kattegat & Oostzee	Bordenvisserij, staandwant & Deense zegen	Nephrops en platvis
Verenigd Koninkrijk	Noordzee	Bordenvisserij Diverse tuigen	Schol, tong, tongschar, roggen Schol
	Ierse Zee	Bordenvisserij Staandwant	Schol Schol
	Kanaal	Bordenvisserij Boomkor Staandwant	Schol, tong, zeeduivel, roggen Schol, tong, zeeduivel, roggen, inktvis Schol, tong, schar, roggen
Frankrijk	Noordzee	Twinrig	Noorse kreeft

# State of play

- e.g. Sole
- 7 references

Discard_survival_lower_limit	Discard_survival_rate_higher_lim
33	59
4	37
53.1	76.4
93	97.7
14	29
27	70
17	54



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- Significantly more than “zero”

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# What constitutes high survival?

- STECF EWG 13–16 (STECF, 2013)
- the term “high survival” is somewhat subjective and defining a single value cannot be scientifically rationalized
- assessing proposed exemptions on the basis of “high survival” need to be considered on a case-by-case basis

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