

Thornback ray post-capture survival study caught by flyshoot in the English Channel

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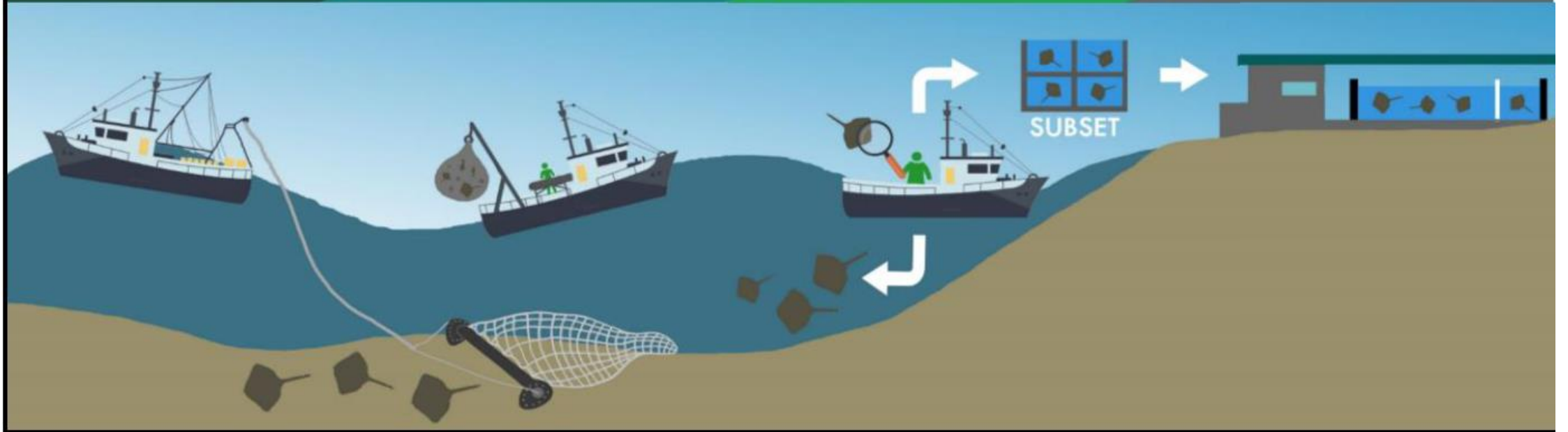


Fishing

Sorting

Scoring

Monitoring





Method

VITALITY



Score	State	Description
A	Excellent	Vigorous body movement, no or minor external injuries only
B	Good/fair	Weak body movement, responds to touching/prodding, minor external injuries
C	Poor	No body movement but can move spiracle opening, minor or major external injuries
D	Dead	No movement of body or spiracle opening (no response to touching or prodding)

- Minor injuries = minor bleeding/ minor tear of mouthparts or wing (<10% of diameter), or minor surface abrasion.
- Major injuries= major bleeding, or major tear of mouthparths or wings, or

RAMP - SCORE

Reflex	Description	Unimpaired response
Tailgrab	Gently grab ray by the tip of the tail between thumb and indexfinger	Actively struggles free and swims away
Spiracles	Look at the opening and closing of the valves inside the spiracles	Spiracles close and open actively
Startle touch	Tap gently but firmly behind the eyes and spiracles using a fingertip	Actively closes and retracts its eyes
Bodyflex	Hold the ray by its anterior end of its disc in a horizontal, plane position, one hand on either side of the mid- line	Actively moving its pectoral fins, tail and body



INJURIES

- Quantify the amount of surface covered by bleeding, discoloration of three body regions
 - HEAD
 - BODY
 - TAIL

Score	Description
1	<10%
2	10-50%
3	>50%

Injury type	Description
Bleeding head	Point bleeding and/or bruising of the head
Bleeding body	Point bleeding and/or bruising of the body
Bleeding tail	Point bleeding and/or bruising of the tail
Open wounds	Areas where skin was removed and underlying tissue can be observed
Fin damage	Area of the fin that were damaged and/or split

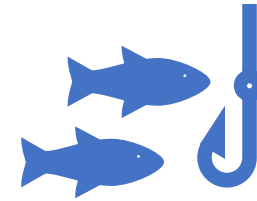
OTHER INFORMATION



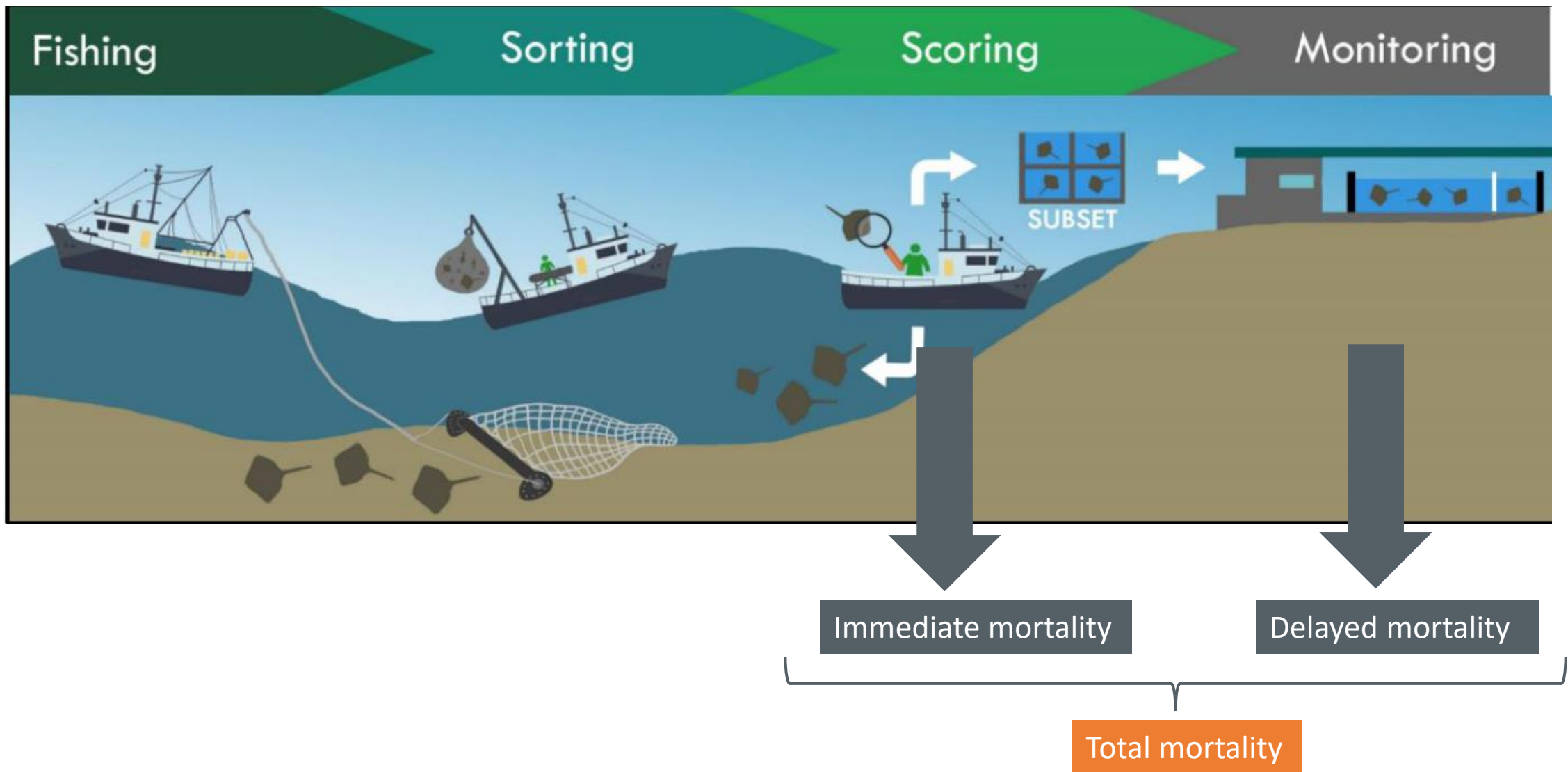
Environmental information such
as temperature, depth, etc.



Vessel information



Fishing information





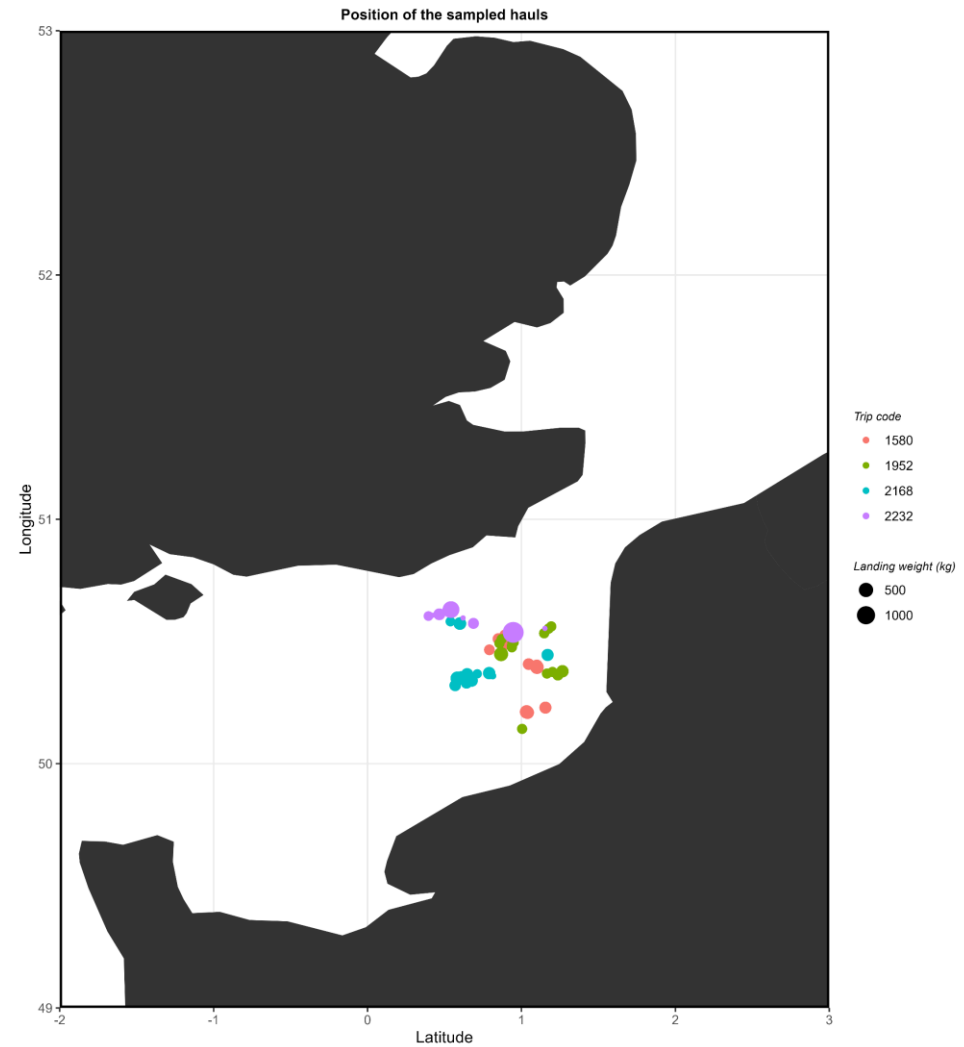
Preliminary results

Data

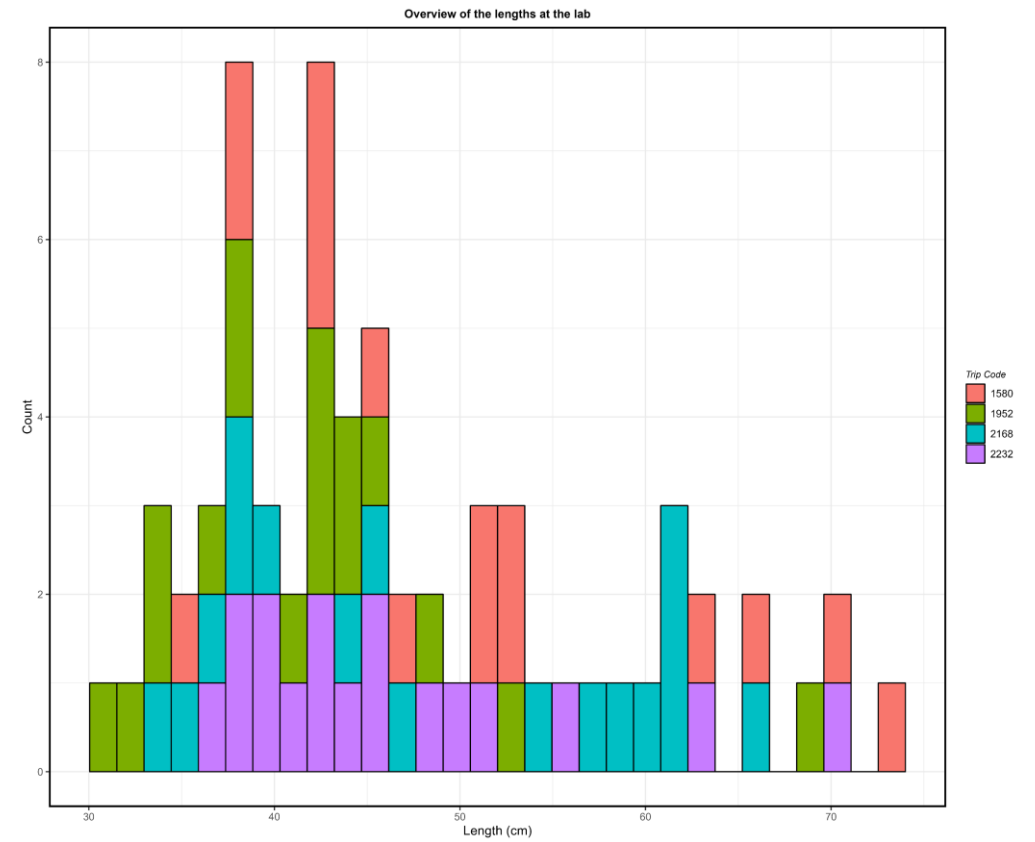
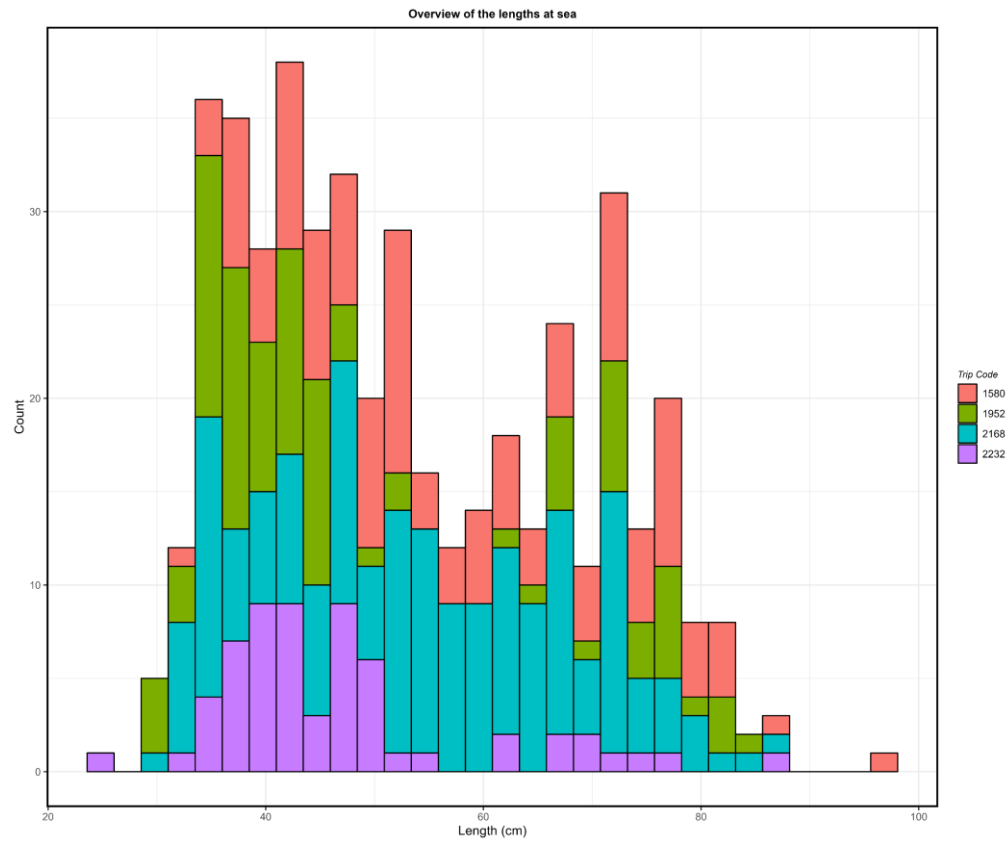
4 trips

459 lengths and
vitality scores

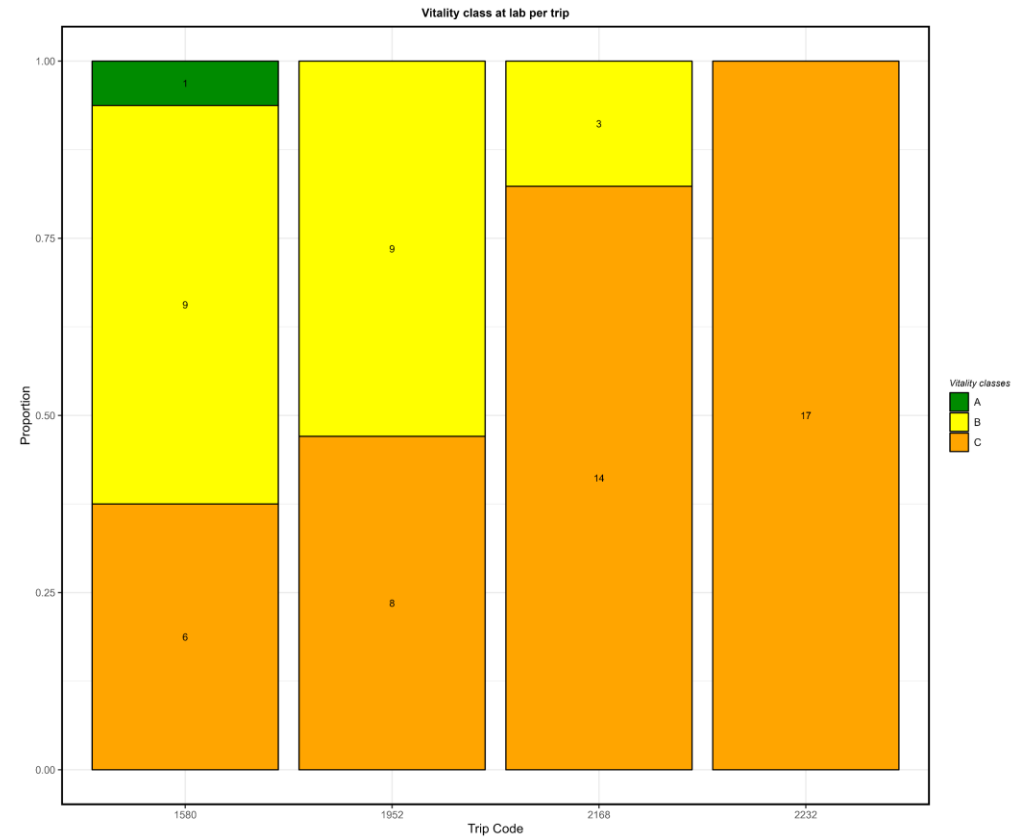
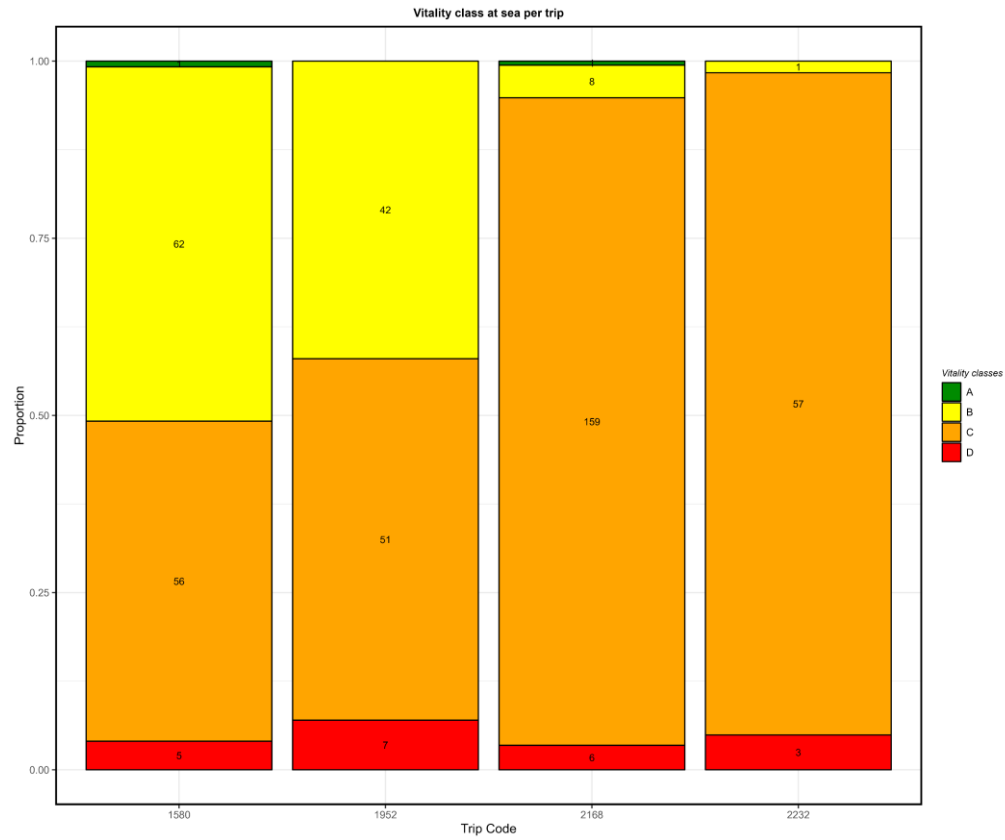
67 individuals
taken to lab

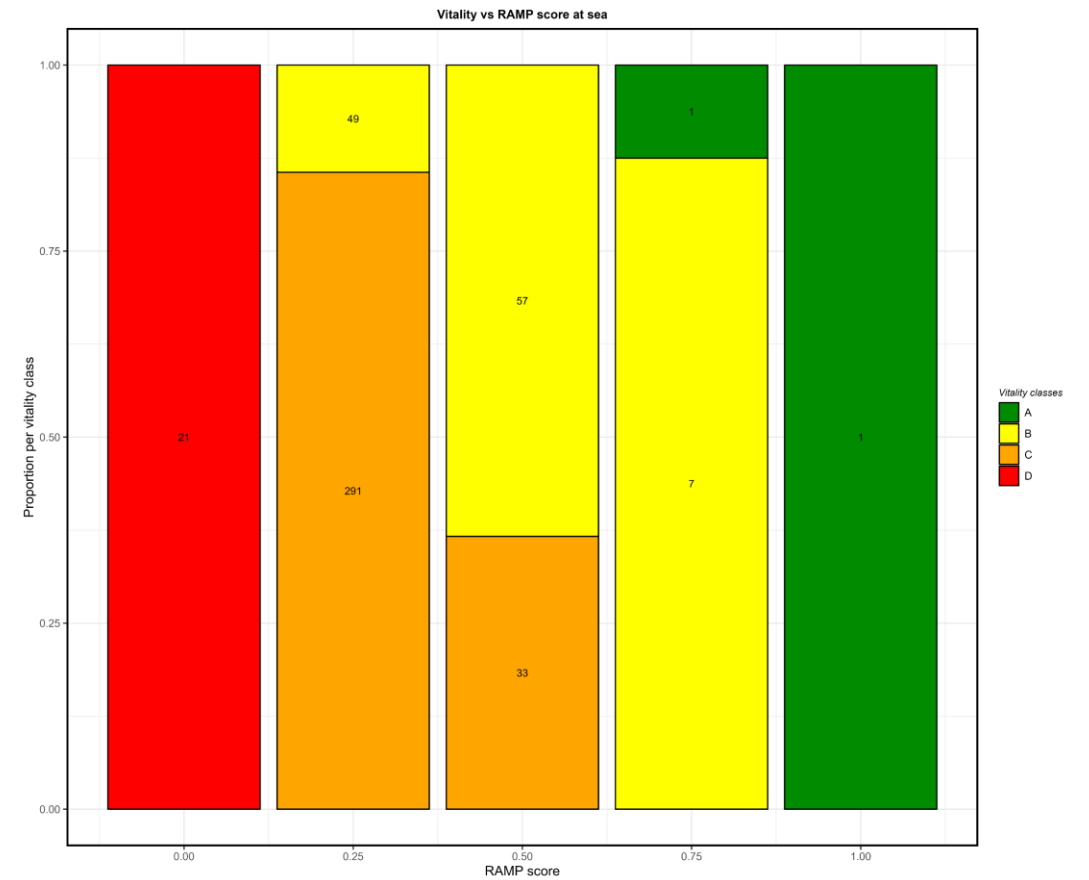
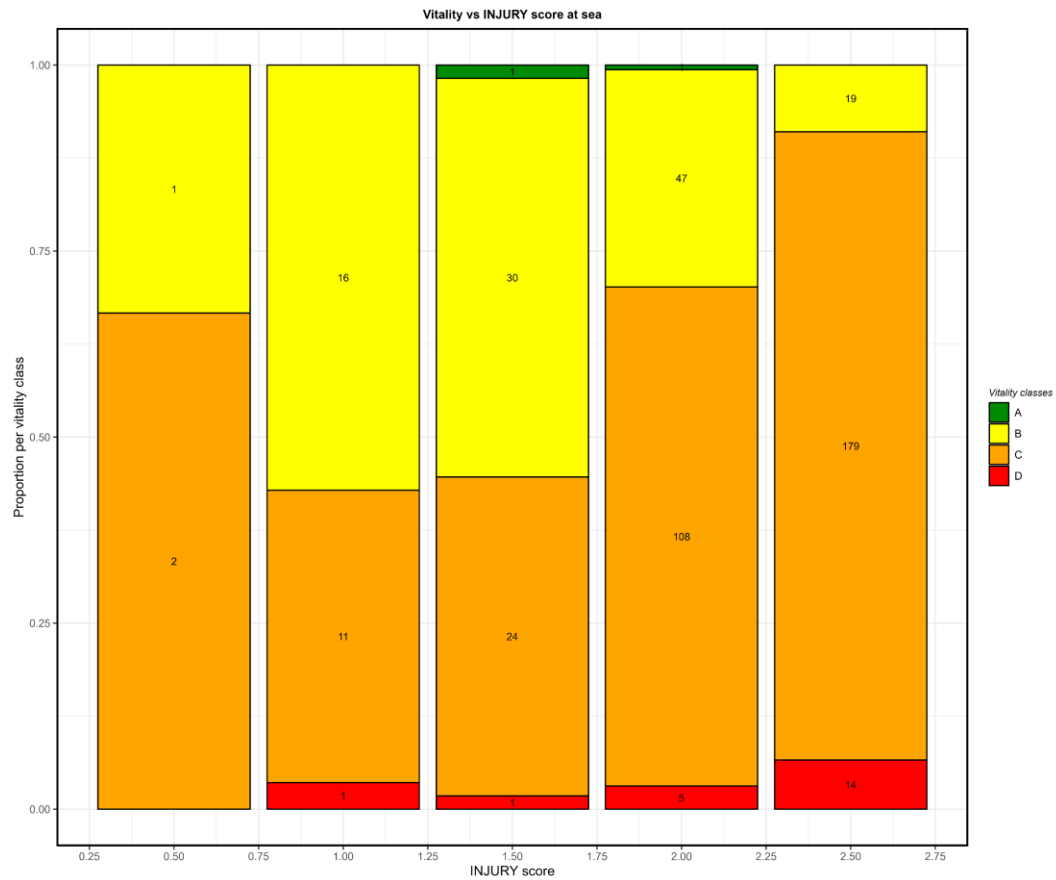


Length distributions

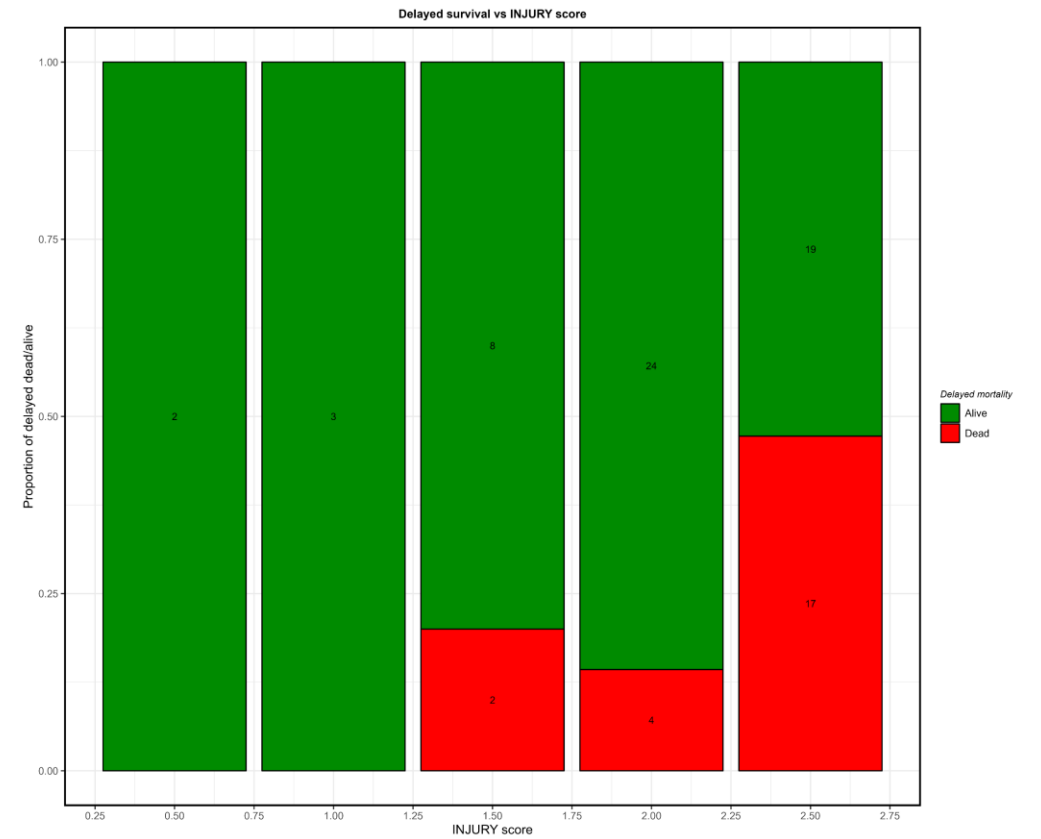
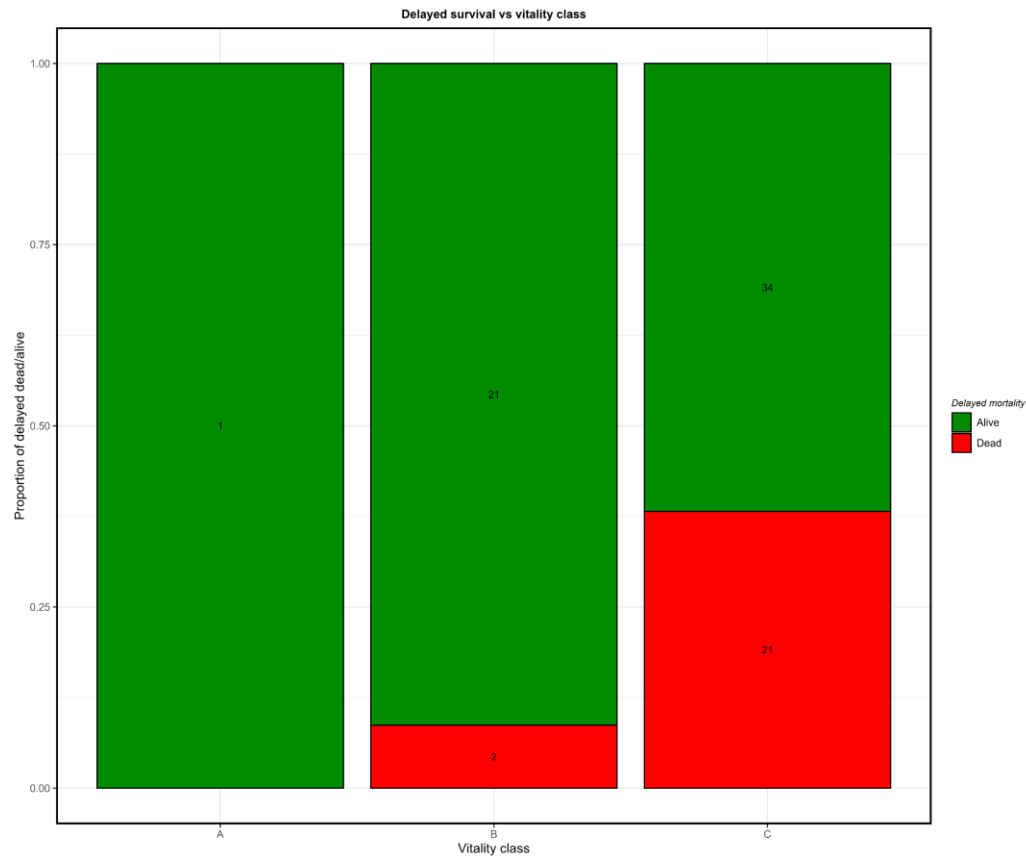


Vitality class



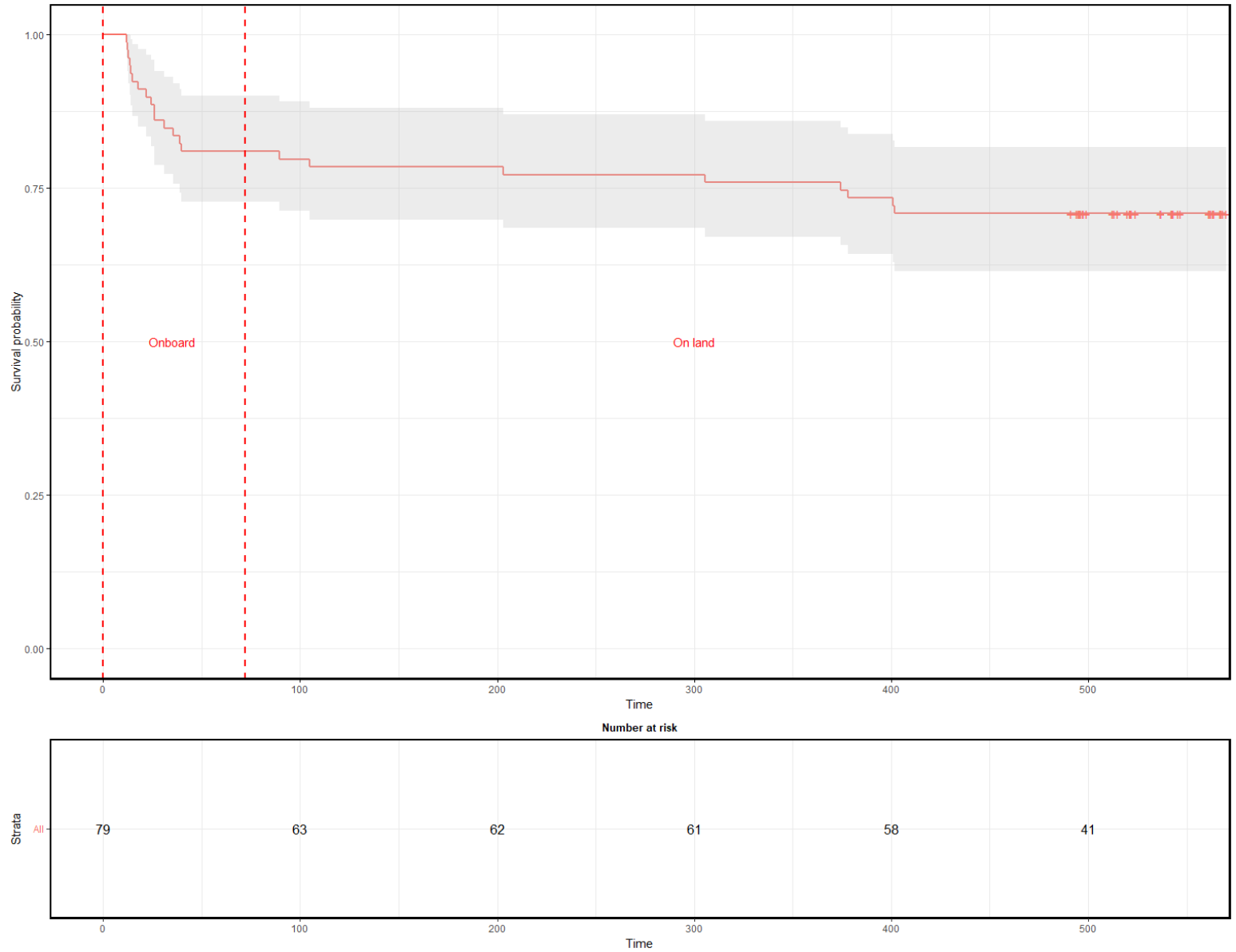


Correlation vitality class and injury/RAMP @sea



Correlation vitality class and injury vs survival @lab

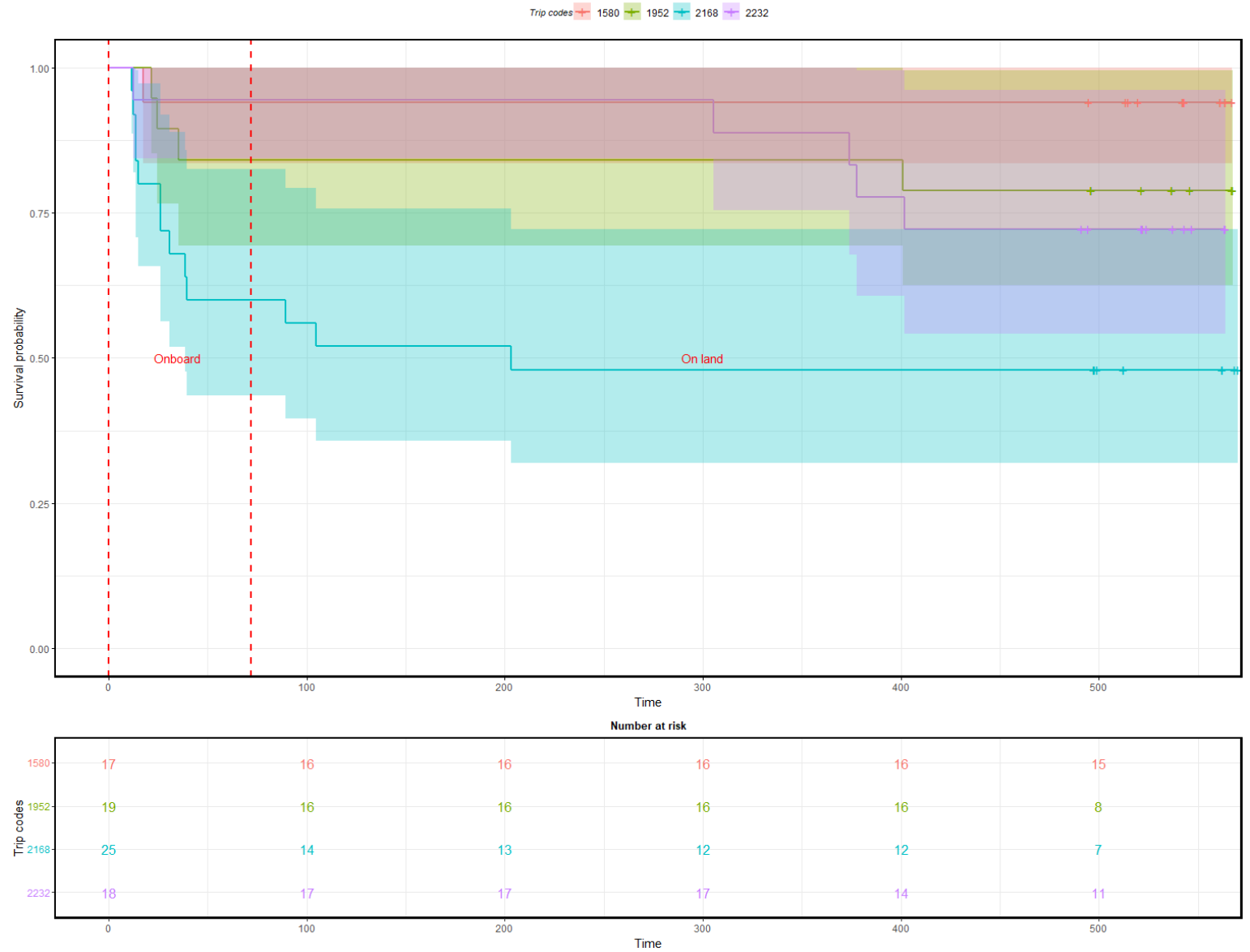
Survival probability over all trips



Immediate mortality	Delayed mortality	Total mortality
4,56%	29,11%	33,68%

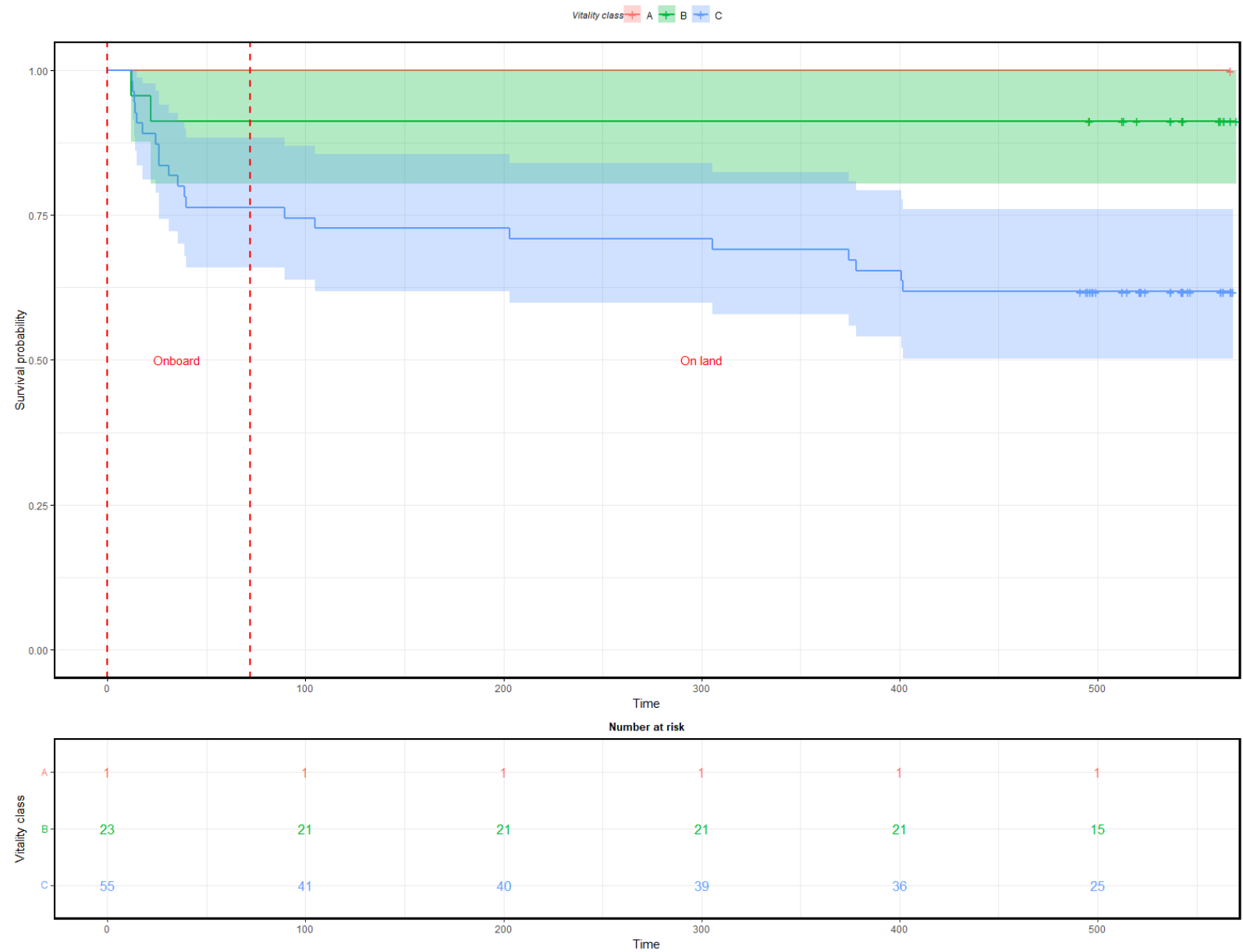
Survival probability per trip

Trip	Immediate mortality	Delayed mortality	Total mortality
1	4,03%	5,88%	9,91%
2	7,00%	21,05%	28,05%
3	3,43%	52,00%	55,43%
4	4,92%	27,78%	32,70%



Survival probability per vitality class

Vitality class	Delayed mortality
A	0%
B	8,70%
C	38,18%



Thank you!