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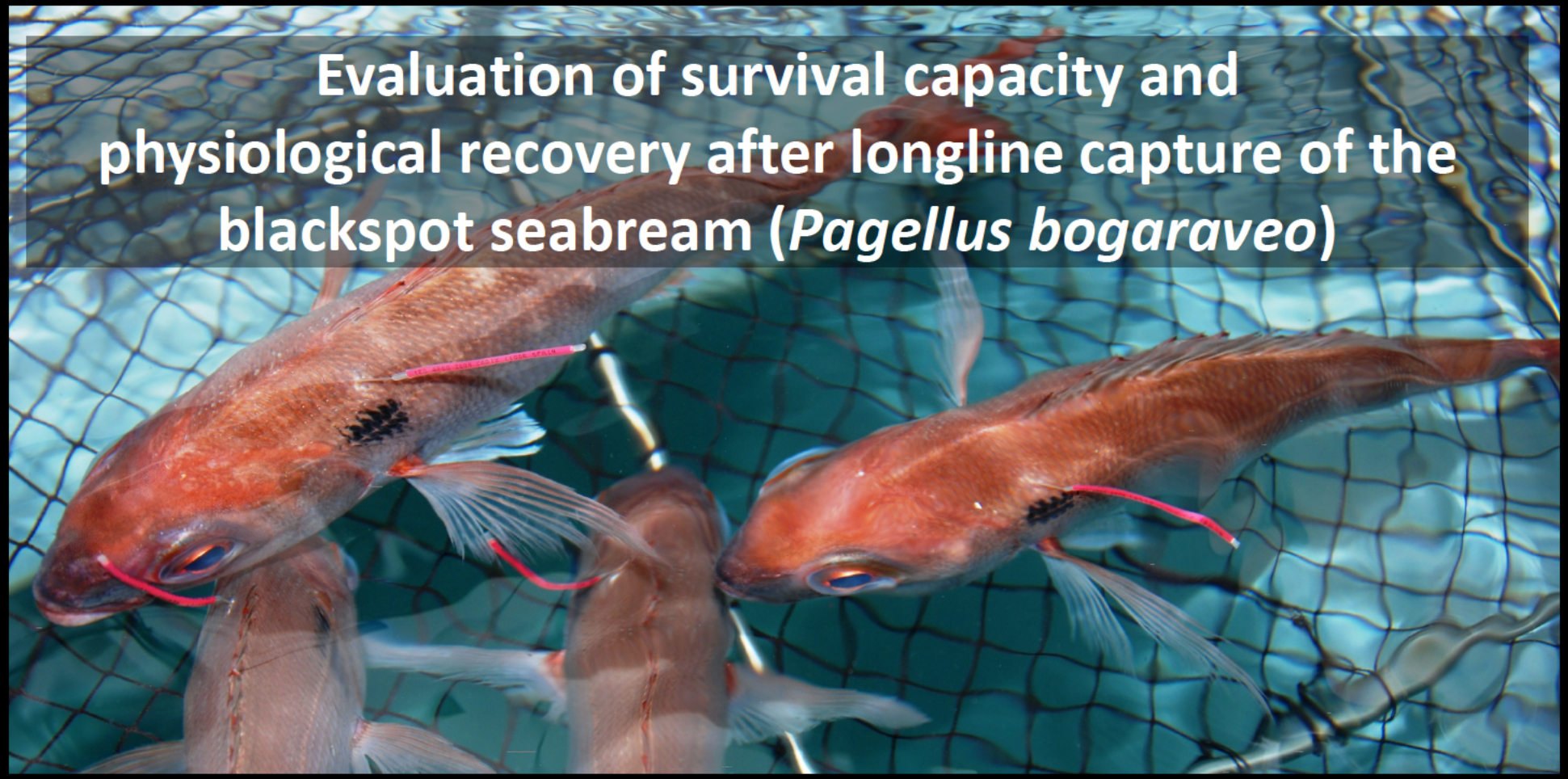
UCA Universidad de Cádiz

INSTITUTO ESPAÑOL DE OCEANOGRAFÍA 1914

MARTEC 18
INTERNATIONAL CONFERENCE ON ADVANCES IN MARINE TECHNOLOGIES APPLIED TO DISCARD MITIGATION AND MANAGEMENT
2 – 4 MAY 2018
VIGO, GALICIA, SPAIN

Ref. A

Evaluation of survival capacity and physiological recovery after longline capture of the blackspot seabream (*Pagellus bogaraveo*)



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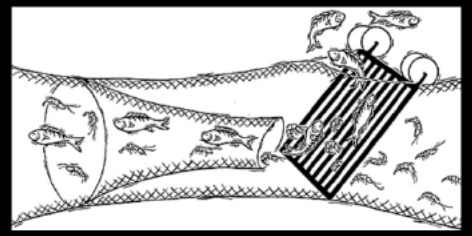
INTRODUCTION

REDUCTION OF DISCARDS
(in relation to the time of capture)

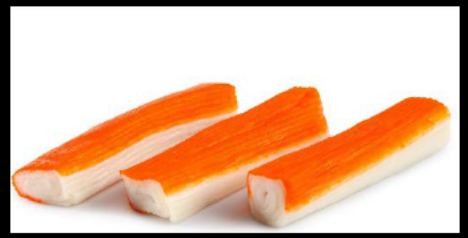
Before

Selectivity improvements



After

Establish market outlets for bycatches



During

Survival (and recovery) after capture

WHAT DETERMINES SURVIVAL?
(fishing as a stressor)

STRESS

PRIMARY responses → **Hormones (CORTISOL)**

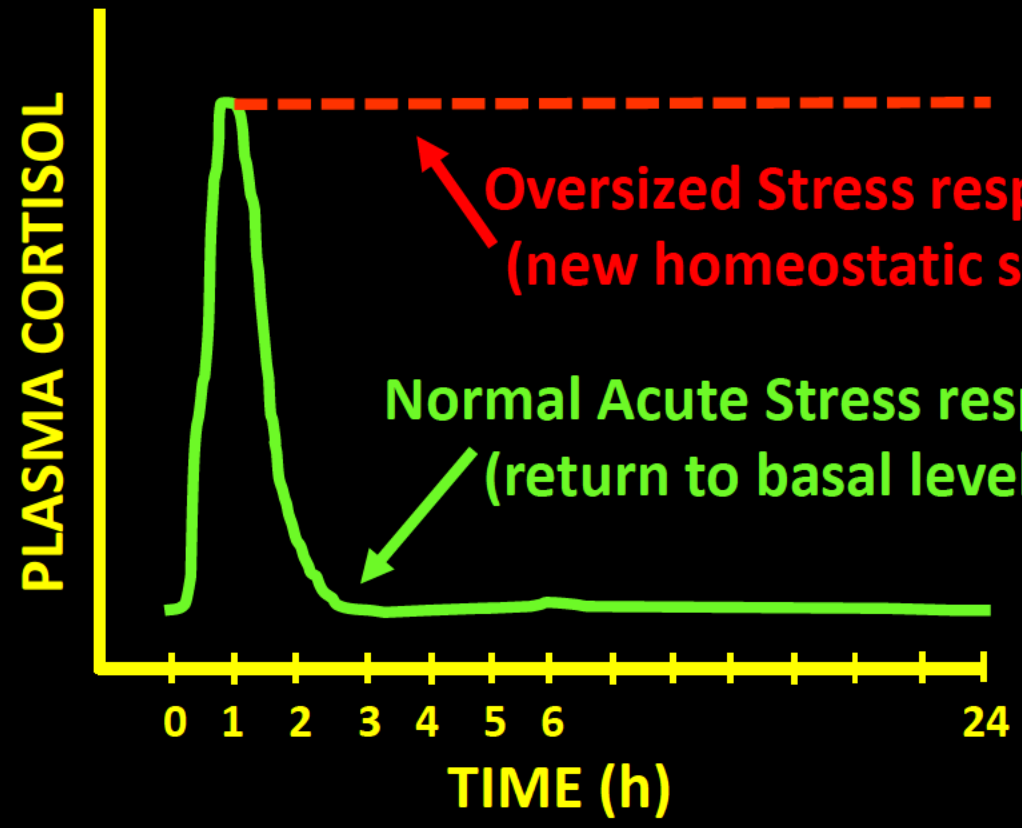
↓

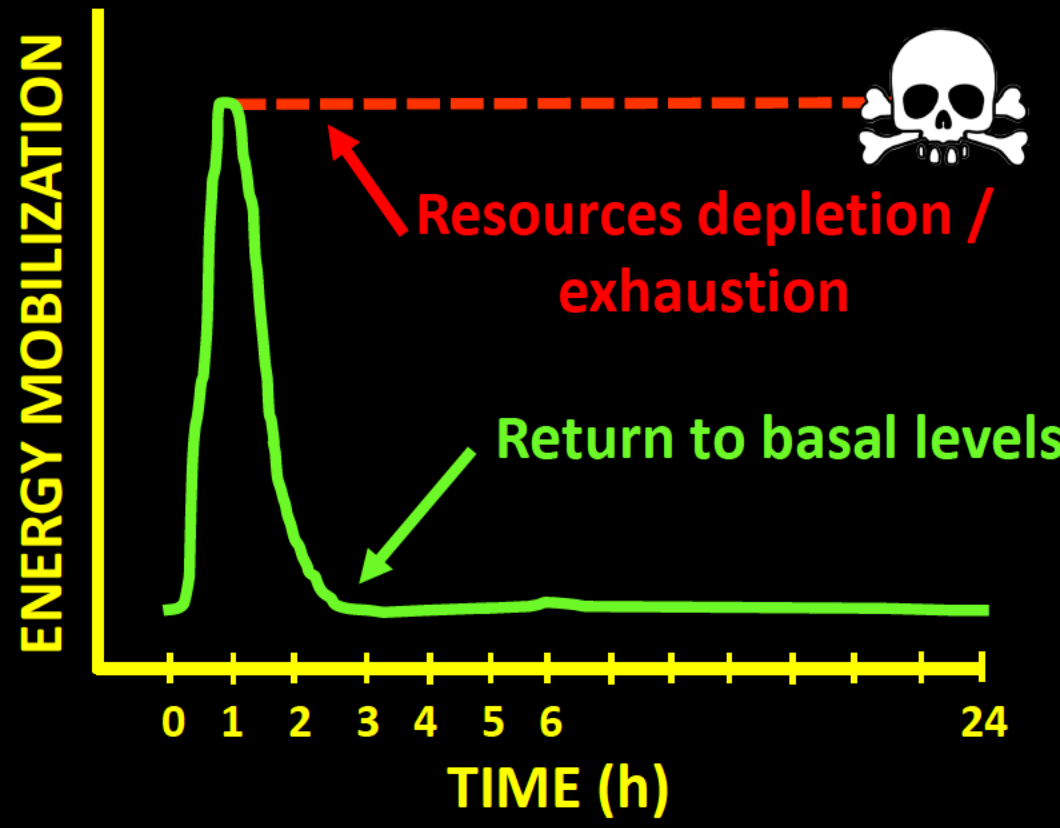
SECONDARY responses → **Energy mobilization and consumption (LACTATE)**

↓

TERTIARY responses → **If the stressor is maintained over time (DEATH)**

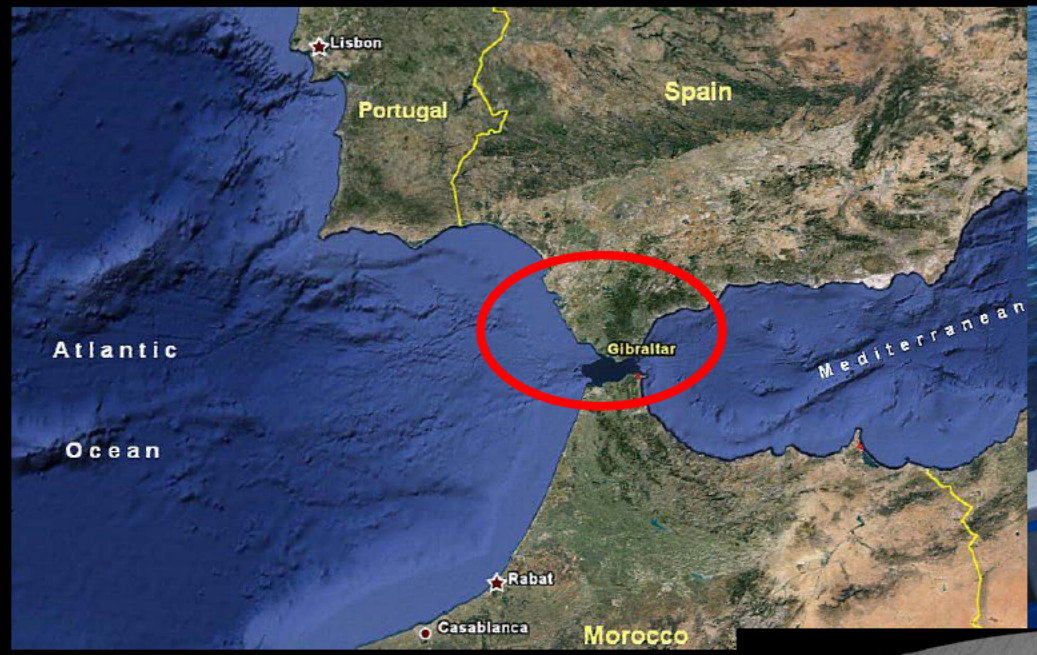
WHY IS IMPORTANT TO EVALUATE THE PHYSIOLOGICAL RECOVERY? (acute stress responses)





AIM OF THE STUDY

Evaluate { SURVIVAL RATES / PHYSIOLOGICAL RECOVERY } of the blackspot seabream (captured by longline in the Strait of Gibraltar)



Fish < 33 cm

EXPERIMENTS

Ground facilities

Fishing vessel

EXPERIMENT IN GROUND FACILITIES
(time-course of physiological recovery)

N = 54 fish
(25.3 ± 0.2 cm)

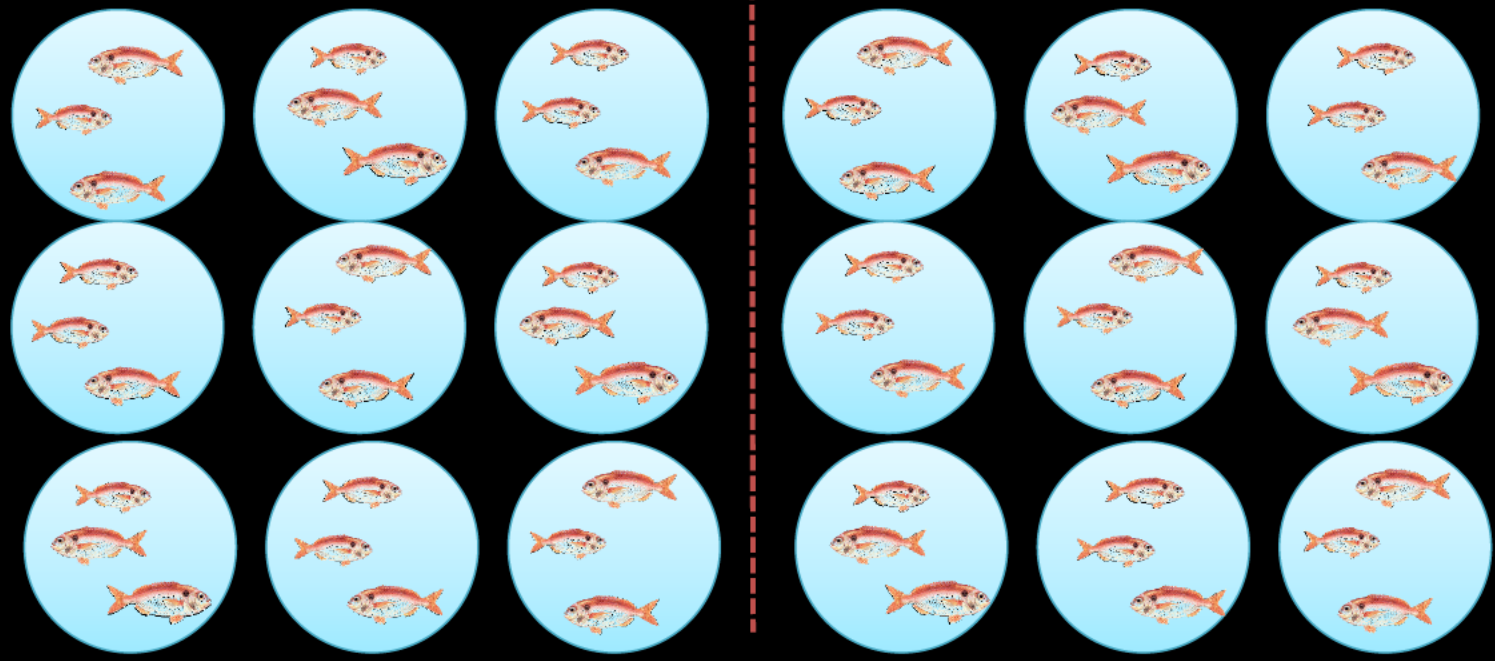
CENTRO OCEANOGRÁFICO DE VIGO
100 años en Vigo una vida en el mar
FECYT

Control (undisturbed)

Stress (chased for 10 minutes)

(Gesto *et al.*, 2005)

Sampling times after acute stress:



0 h

5 h (Laiz-Carrión *et al.*, 2005)

24 h

EXPERIMENT IN GROUND FACILITIES
(sampling and analysis)

Collection of blood plasma

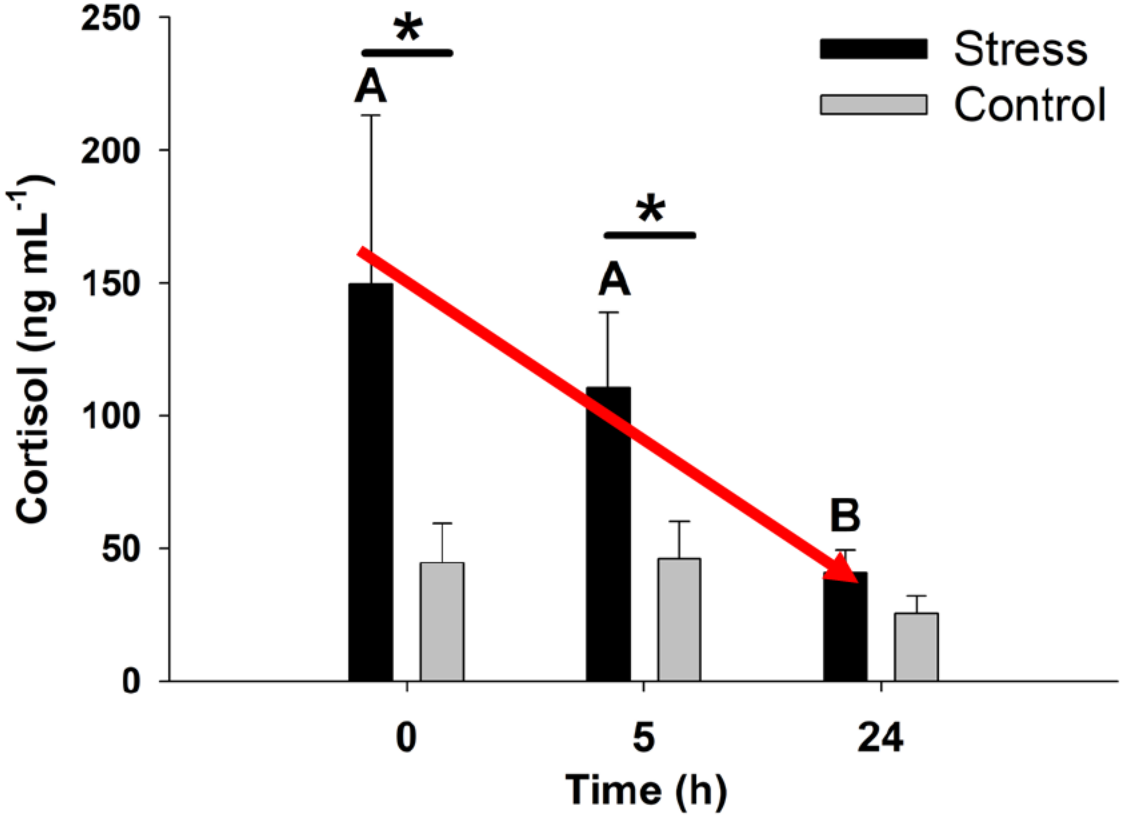
Analysis

CORTISOL
(primary stress response)

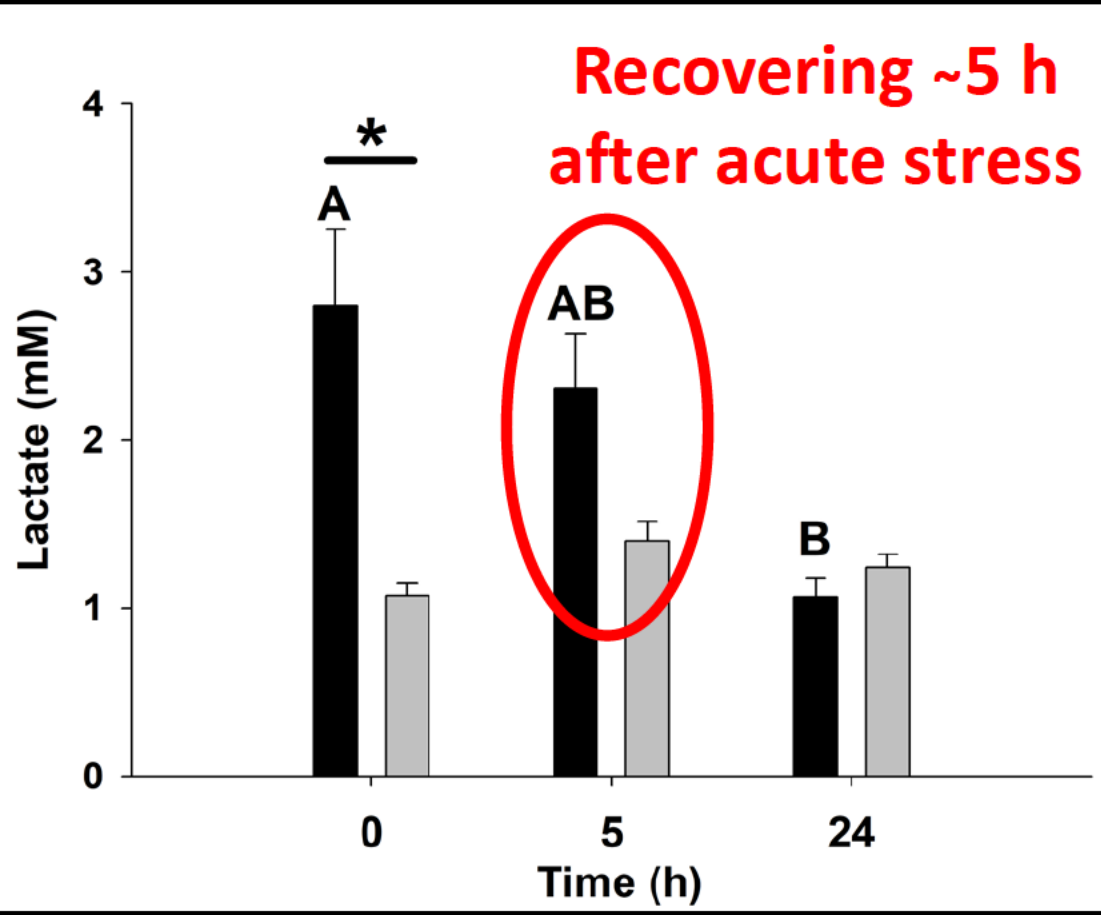
LACTATE
(secondary stress response)

EXPERIMENT IN GROUND FACILITIES (results)

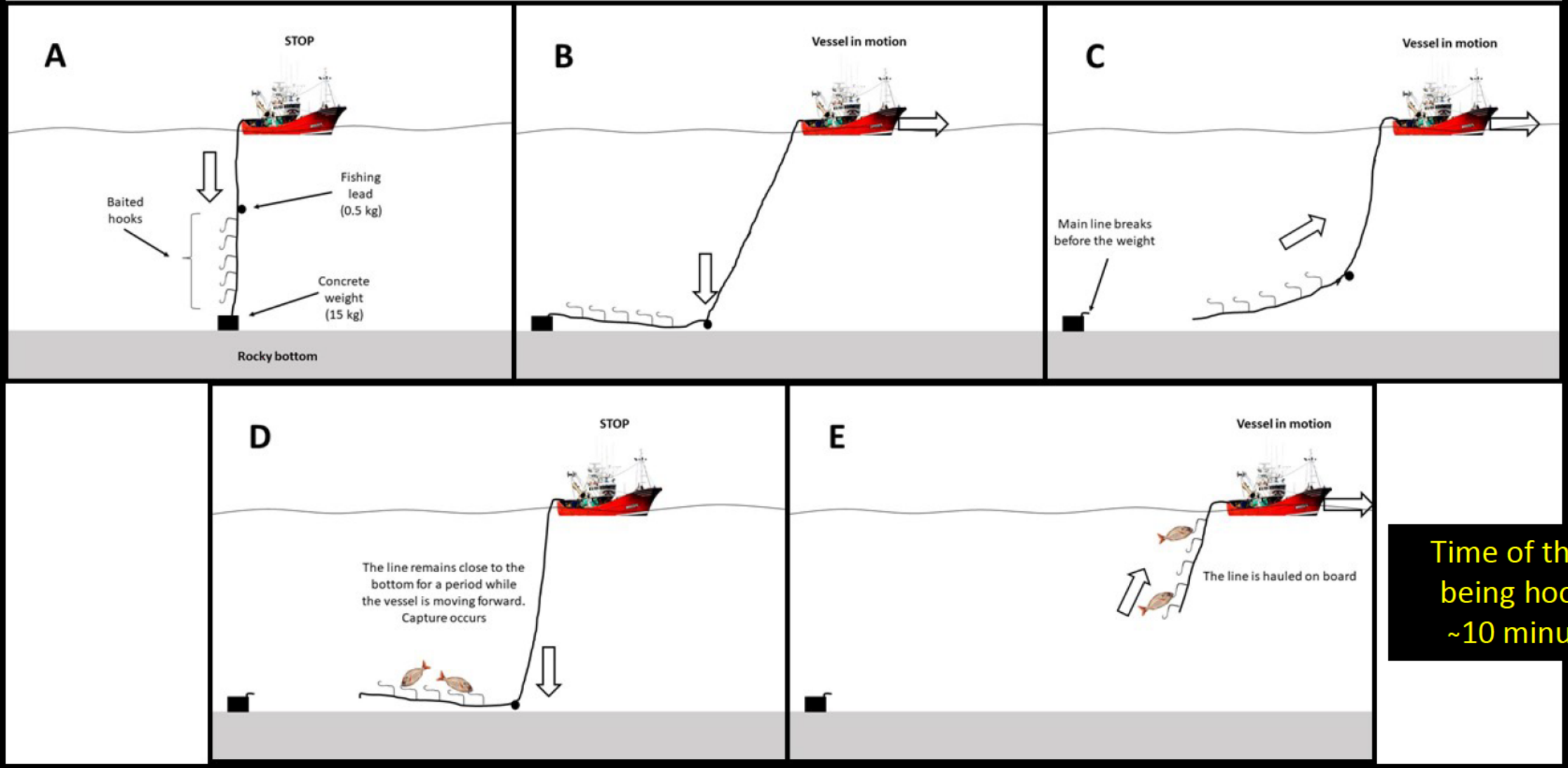
CORTISOL



LACTATE



EXPERIMENTS ABOARD A FISHING VESSEL
(local longline gear “voracera”)



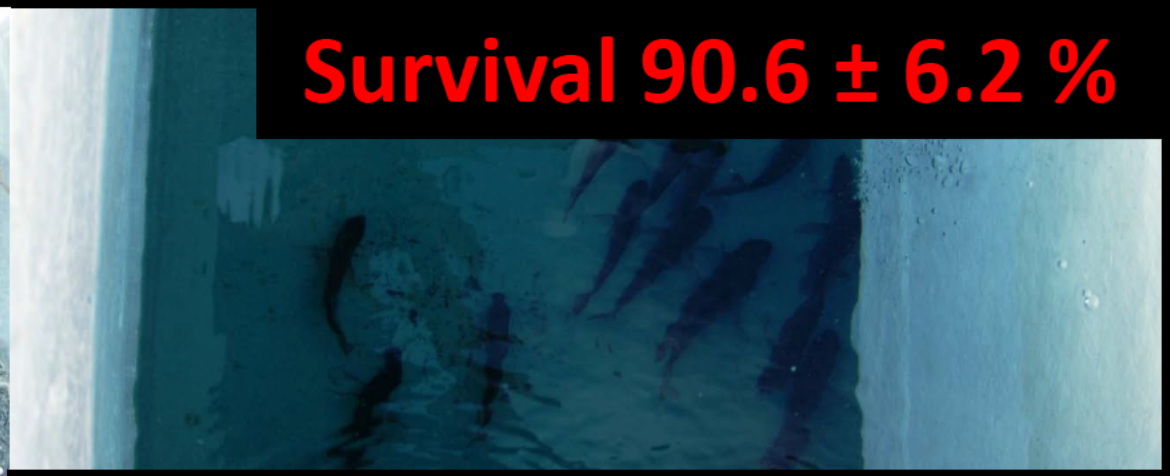
Time of the fish being hooked: ~10 minutes

EXPERIMENTS ABOARD A FISHING VESSEL (Survival rates)

N = 102 fish
(29.4 ± 0.2 cm)
From 12 fishing hauls

Each haul was divided into 2 tanks of 2000 L just after capture

Survival was calculated after 5 h recovery



Survival 90.6 ± 6.2 %

But, were survivors recovered?

EXPERIMENTS ABOARD A FISHING VESSEL (Physiological recovery)

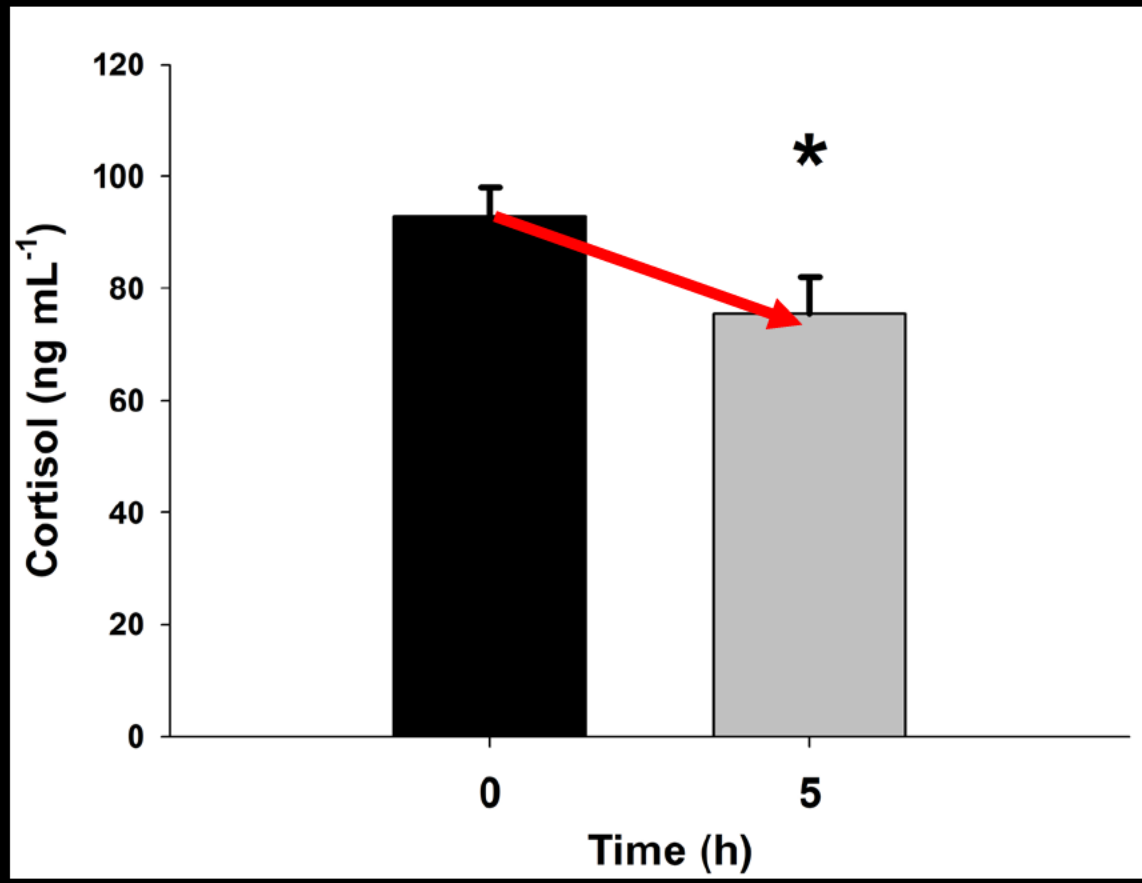
N = 36 fish
From 7 fishing hauls

Blood was collected.
Fish were individually labelled.
Recovery in 2000-L tanks.

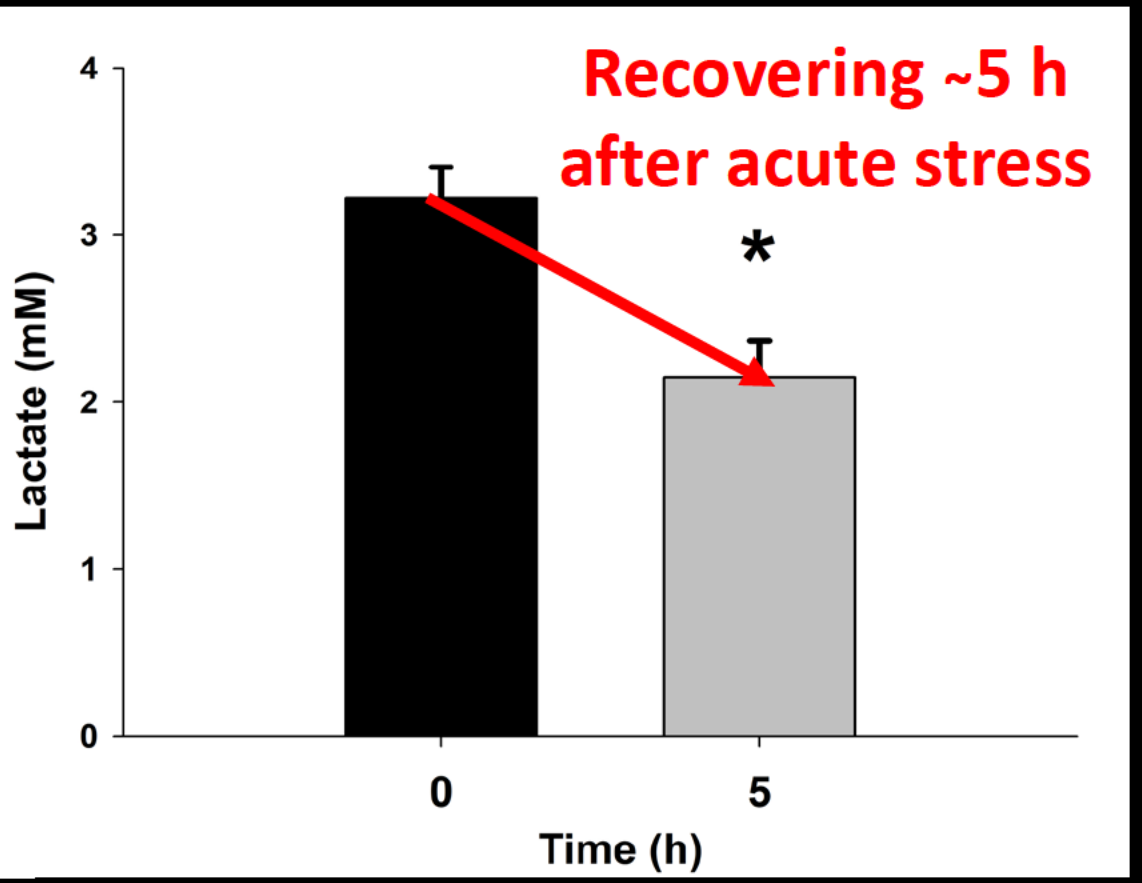
Blood was collected
again 5 h after recovery

EXPERIMENTS ABOARD A FISHING VESSEL
(Physiological recovery - Results)

CORTISOL



LACTATE



CONCLUSIONS

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1.- Blackspot seabream (*Pagellus bogaraveo*) below 33 cm length, captured in the Strait of Gibraltar by the local longline gear called "voracera", shows SURVIVAL RATES of 90.6 ± 6.2 %

2.- Surviving fish managed to RECOVER their PHYSIOLOGICAL homeostasis between 5 to 24 h after capture.

3.- More studies are necessary to evaluate survival rates along the year, as well as to analyze their recovery behavior after capture.


Thank you!!!