An Overview of Research on Venting and Recompression Techniques

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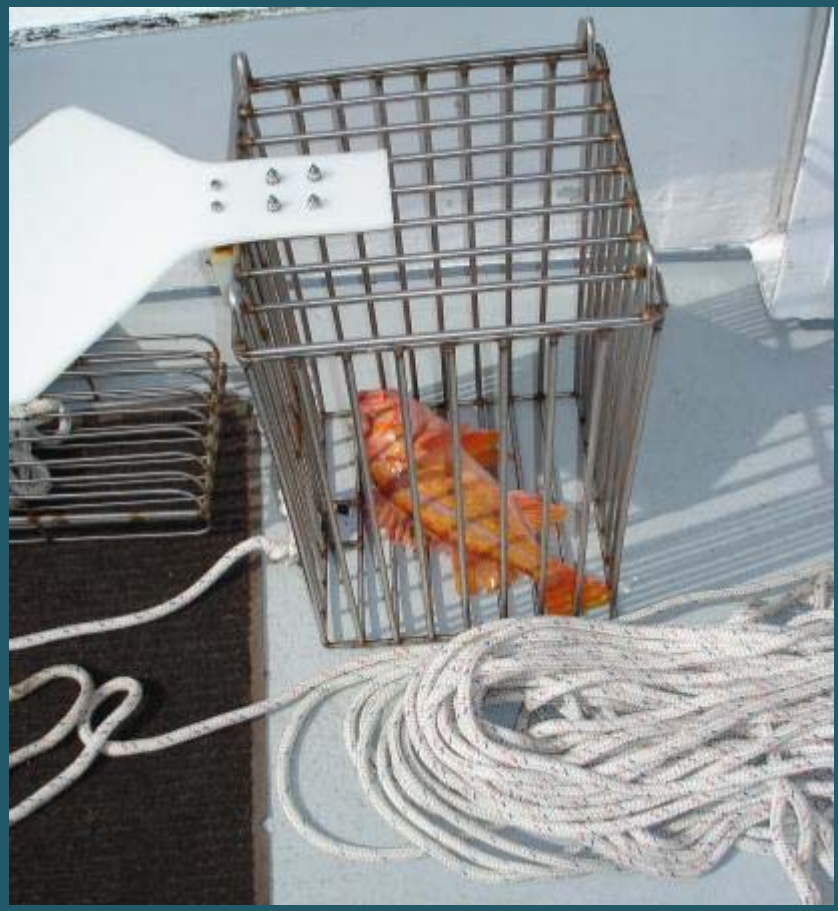
A. Pribyl

Two Primary Release Techniques

Venting



Recompression with weights/cages

Venting Techniques

- Hold fish gently, but firmly on side
- Insert venting tool at 45˚ angle, 1”-2” behind base of pectoral fin
- Only insert tool deep enough to release gases

Marine species where venting appears to work

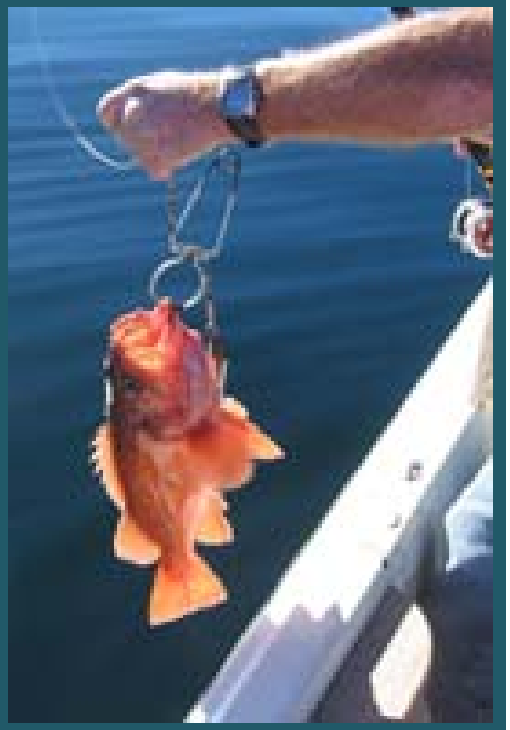
- Black sea bass, *Centropristis striata* (Collins et al. 1999)
- Gag, *Mycteroperca microlepis* (< 40 ft) (Burns et al. 2002)
- Mangrove snapper, *Lutjanus griseus* (< 100 ft) (Burns et al. 2002)
- Saddletail snapper, *Lutjanus malabaricus* (Sumpton et al. 2010, Brown et al. 2008)

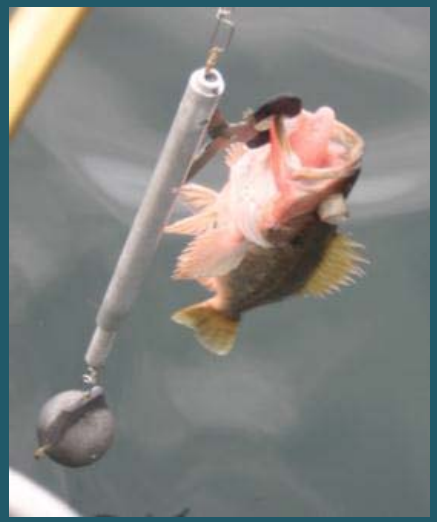
*Out of 18 marine species

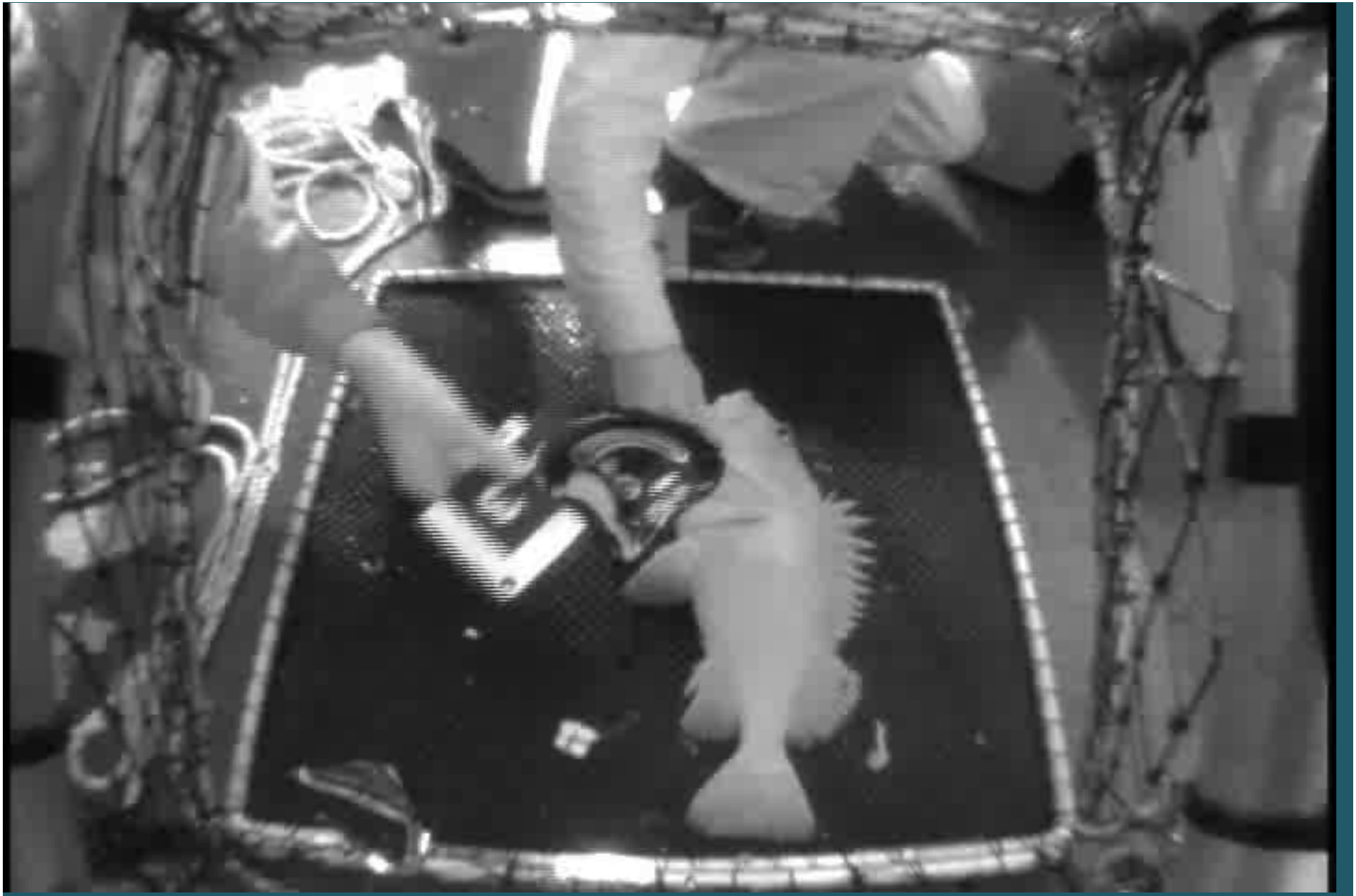
Where Venting is Beneficial

- Limited species where it is shown to work
- When a fish is unable to submerge and no other option is available to overcome buoyancy
- Non-catch and release purposes
  - aquariums, laboratory use, aquaculture, live fish markets, etc.

Recompression Devices







Video Courtesy of ODFW – Newport, OR

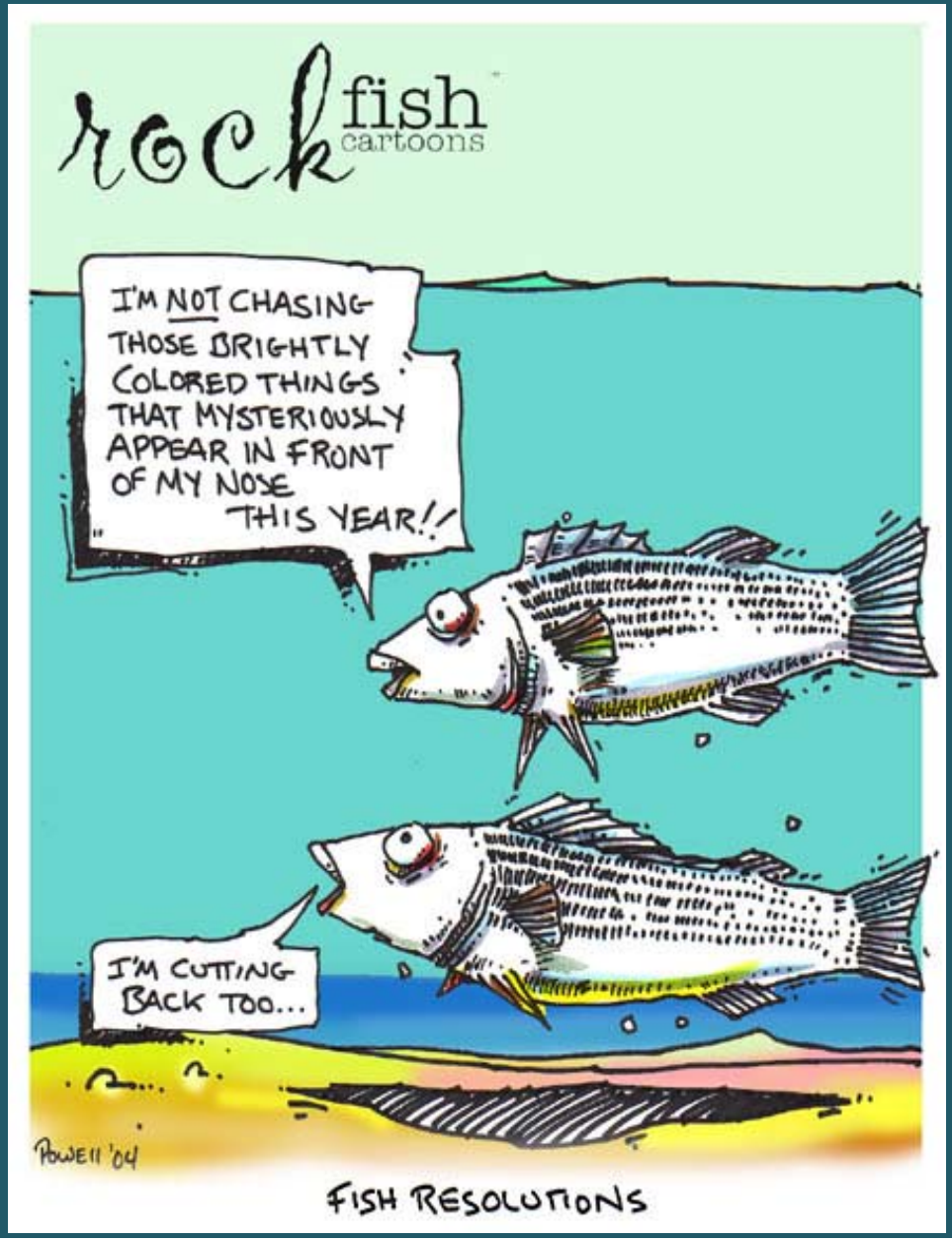
Benefits of Recompression Devices

1) Simple and easy to use
2) Devices can be made cheaply, or purchased
3) Fish can be released quickly
4) No risk of infection from unsterile needles
5) No risk of puncturing internal organs
6) Release cages can protect fish from predation

Marine species where recompression has been successful

- Many from *Sebastes spp*: canary*, yelloweye*, quillback, copper, black, cowcod*, bocaccio*, flag, vermilion, rosy, rougheye (Hannah et al. 2012, Pribyl et al. 2012, Hochhalter et al. 2011, Rogers et al. 2011, Jarvis et al. 2008, Hannah and Matteson 2007, Smiley and Drawbridge 2007, Parker et al. 2006, P. Rankin pers. comm.)
- Red grouper, *Epinephelus morio* (<44 m) (Wilson and Burns 1996)
- Saddletail snapper, *Lutjanus malabaricus* (Sumpton et al. 2010)
- Australasian snapper, *Pagrus auratus* (<30 m) (Stewart 2008)

WHAT WE KNOW


rock fish cartoons
I'M NOT CHASING THOSE BRIGHTLY COLORED THINGS THAT MYSTERIOUSLY APPEAR IN FRONT OF MY NOSE THIS YEAR!!
I'M CUTTING BACK TOO...
POWELL '04
FISH RESOLUTIONS

High short-term survival rates for benthic RF captured < 65 m depth

-Hannah et al. 2012, Hochhalter and Reed 2011, Jarvis and Lowe 2008

Copper Rockfish

Vermilion rockfish

Yelloweye rockfish*

Flag rockfish

Bocaccio*

Quillback rockfish

Canary rockfish*

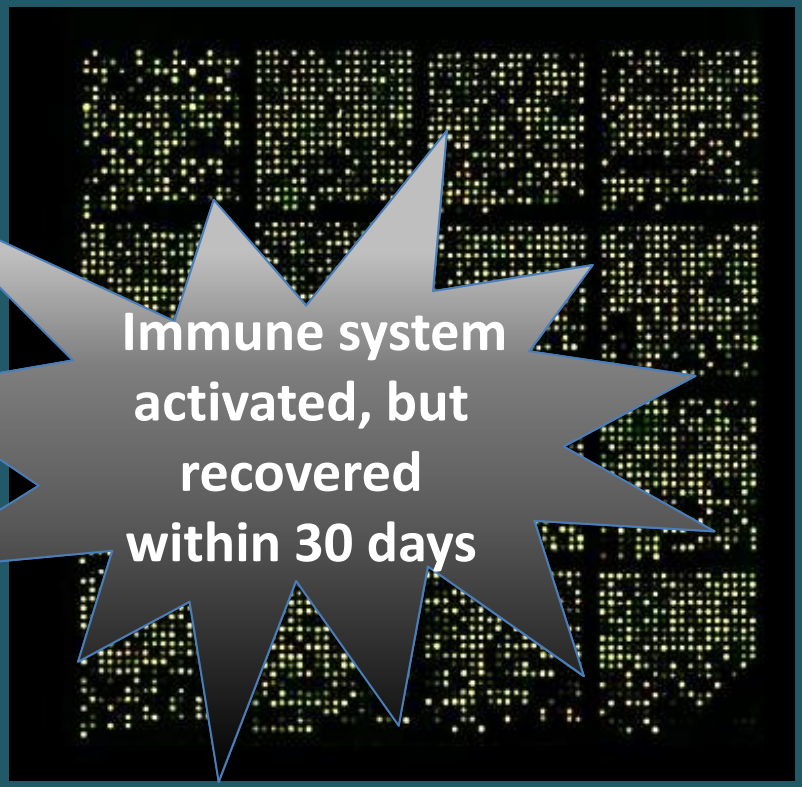
Recovery potential of black rockfish following recompression

Pribyl, A. L., C. B. Schreck, M. L. Kent, K. Kelley and S. J. Parker. 2012 . *Journal of Fish Diseases* 35 (4): 275-286.

30-day lab survival, minimal organ injury, slow-healing SwB

Identification of biomarkers indicative of barotrauma and recovery in Pacific rockfish.

Pribyl, A. L., C. B. Schreck, M. L., S. J. Parker and V. Weis. 2012. *Journal of Fish Biology* 81 (1): 181-196.



Recovery of visual performance in rosy rockfish following exopthalmia resulting from barotrauma

B.L. Rogers, C.G. Lowe, E. Fernandez-Juricic. 2011. *Fisheries Research 112: 1-7*

No vision impairment 4 days after recompression

Reproductive viability of yelloweye rockfish

Blain, B., T. Sutton, and S. Hochhalter. Master's research . University of Alaska-Fairbanks.

Capable of reproduction after barotrauma

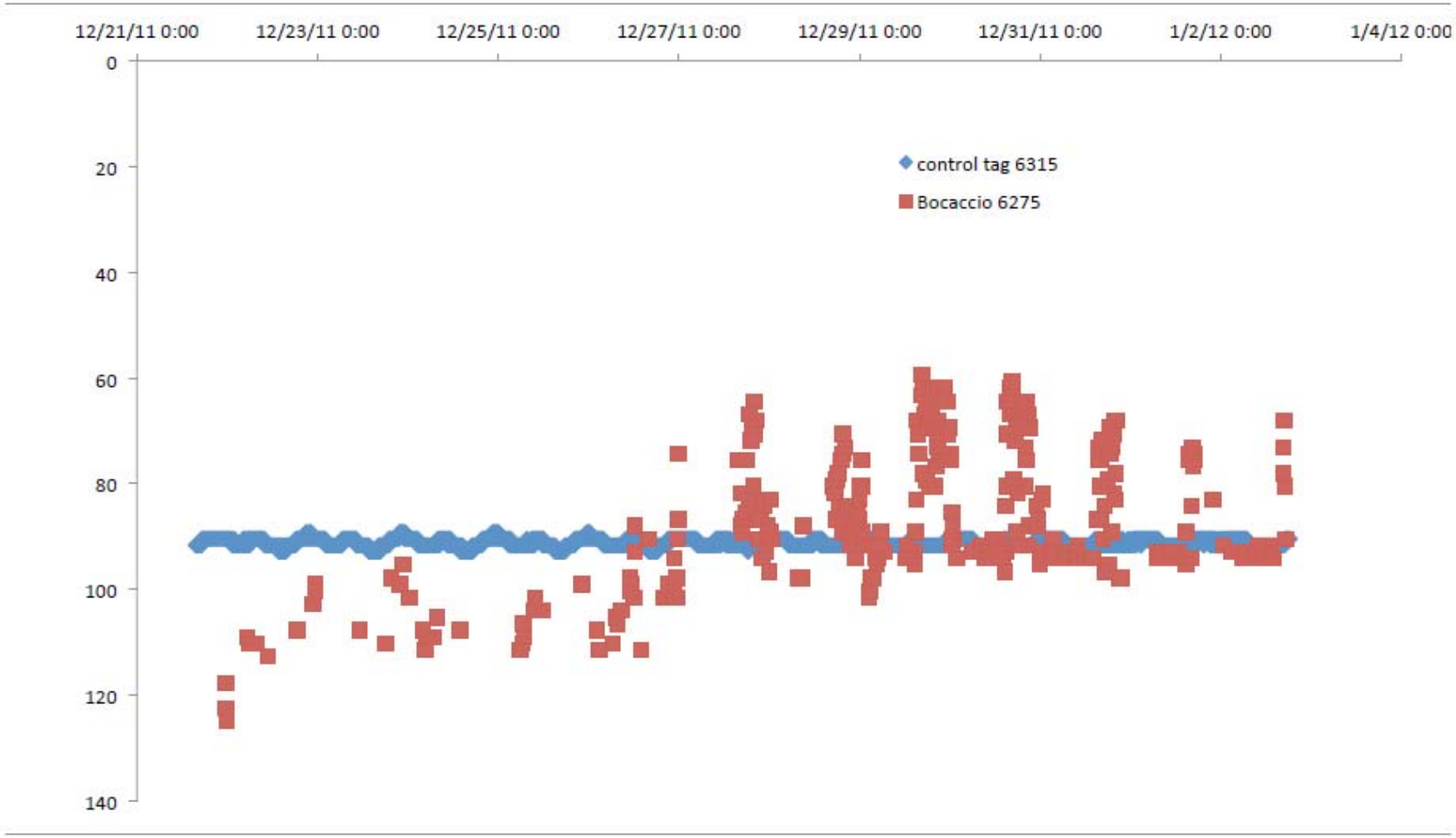
WHAT WE DON'T KNOW

- Survival rates for rockfish captured >65 m
- Survival rates for shelf rockfish (> 100 m)
- Long-term survival rates (> 1 month)
- Impact of low oxygen levels on survival
- Impact of a ruptured swimbladder on survival

Ongoing Studies

Nicholas Wegner, John Hyde and Alena Pribyl
NOAA SW Fisheries Science Center, La Jolla, CA.

Tagging study:
Ability of deepwater RF to recover from barotrauma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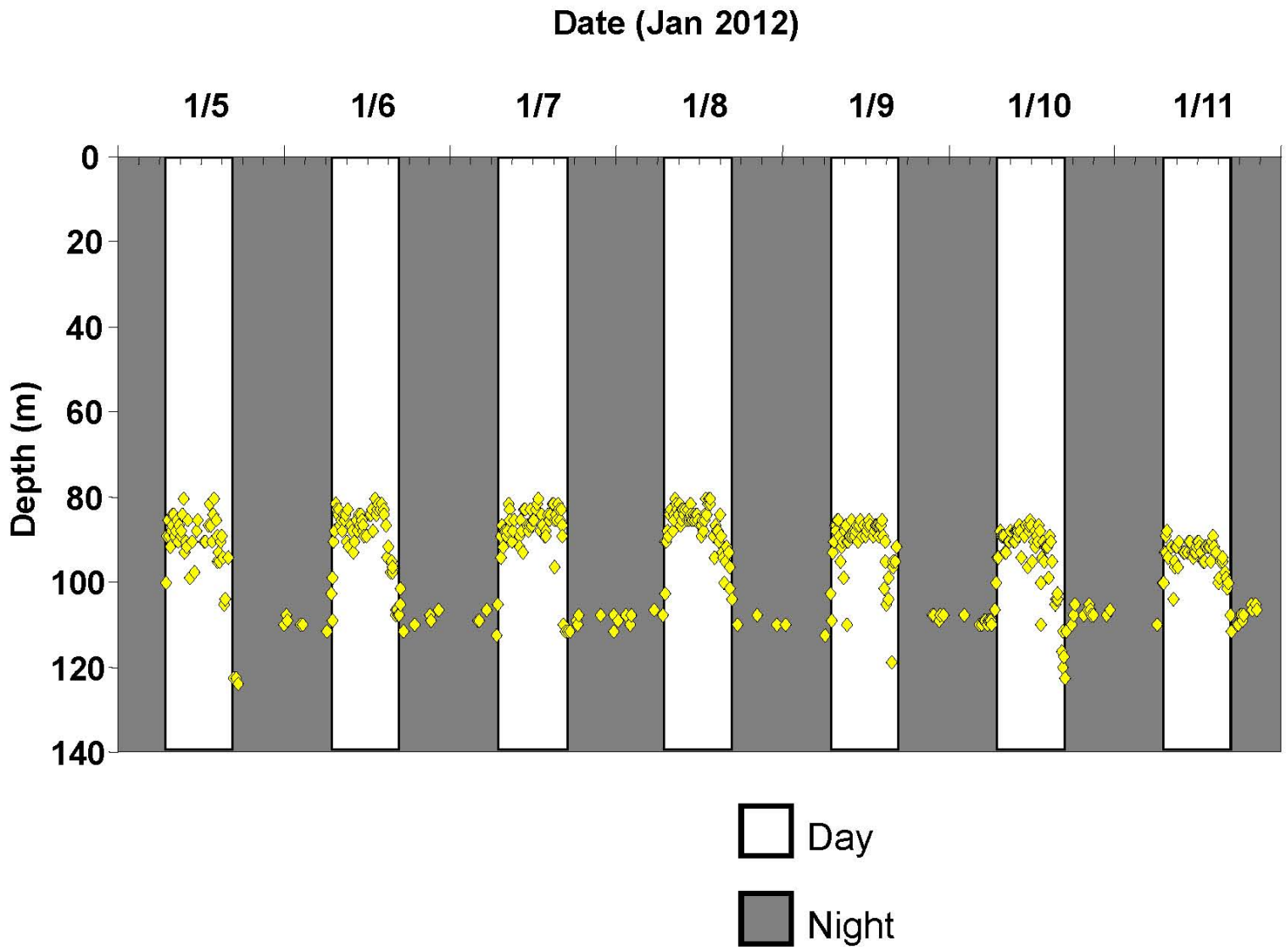
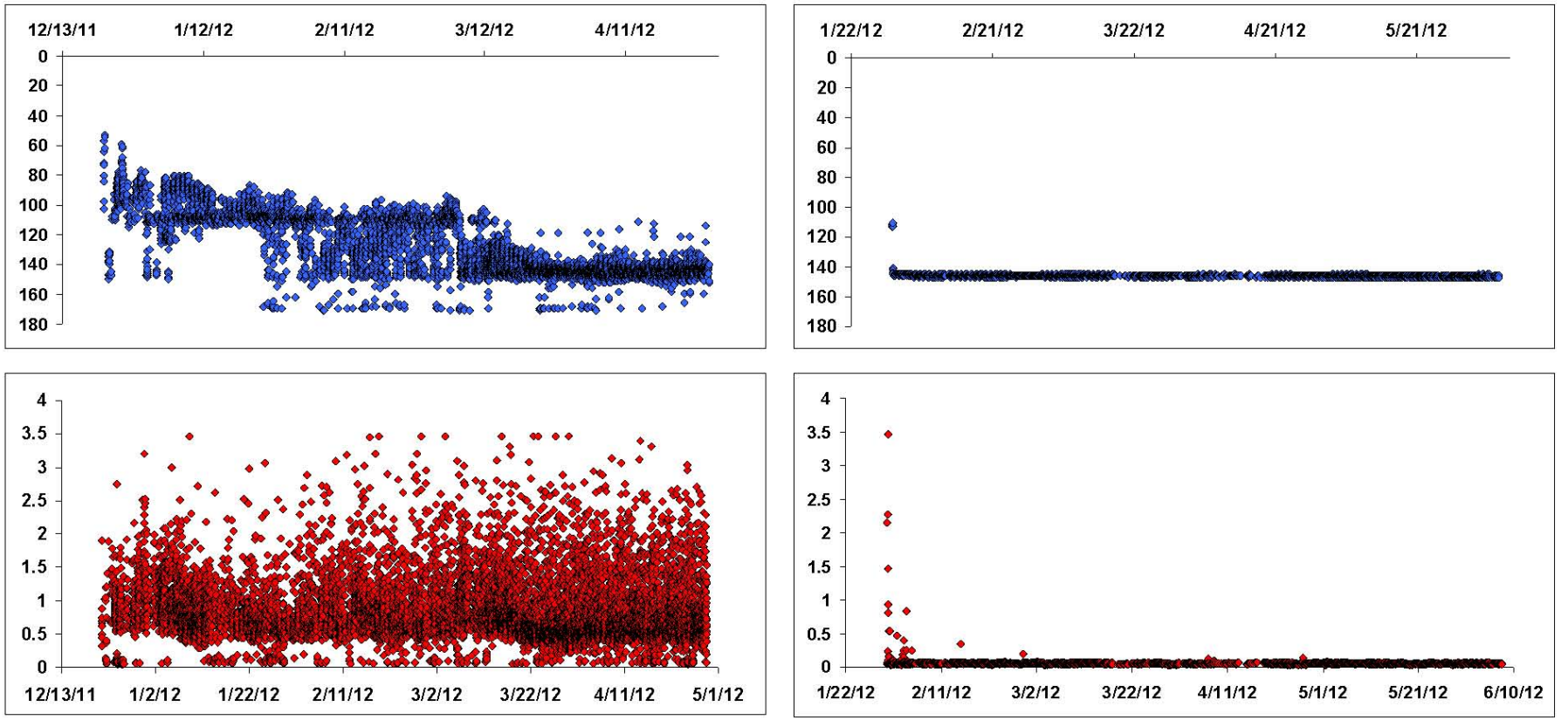
Bocaccio 6275

Diel Vertical Movements of a 47.5 cm Bocaccio



Tag data showing post-release survival for a bocaccio (47.5 cm)

Tag data showing post-release mortality for a bank rockfish 41.5 cm)



Ongoing Studies

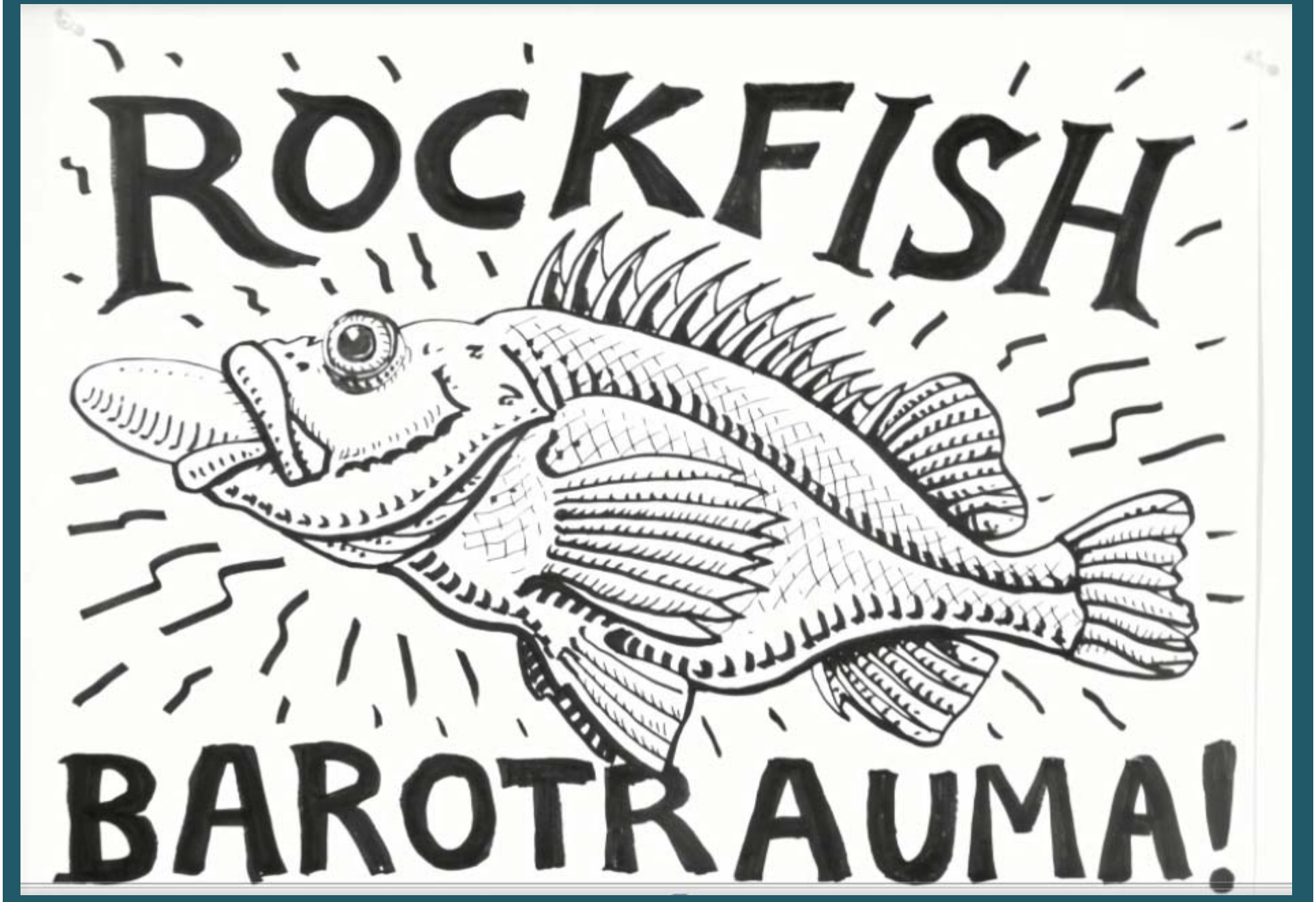
Bob Hannah and Polly Rankin
Oregon Department of Fish and Wildlife, Newport, OR.

5 day cage survival of yelloweye and canary captured from three depth zones:

- 45-54 m
- 55-65 m
- 66-74 m

Recap

- Recompression is effective for many RF species captured < 65 m depth
- Physiological recovery is possible
- Several factors can reduce the effectiveness of recompression (i.e.: depth, temp difference, time on deck)
- More research is needed


ROCKFISH
BAROTRAUMA!