

Marco Flagg & Jacob Wolf

WHOI Ropeless Fishing Workshop

01-Feb-2018

Preventing Whale Entanglements while Improving the Pot Fisher's Business:

ARC-1XD
A Rope-less Fishing Method

#### ARC-1XD

#### Environmental Benefits

- Effective Prevention of Marine Mammal Entanglements
- Ghost Fishing Mitigation (increase in CPUE)

#### Benefits to Fishers

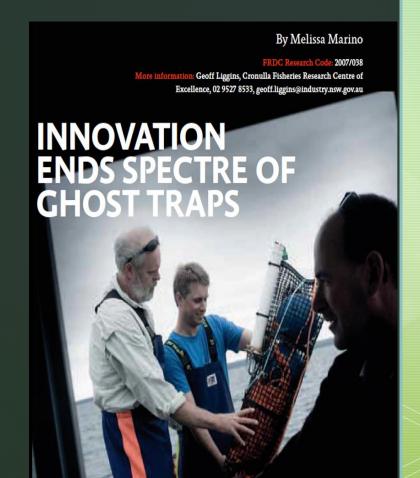
- Releases for peak market price (lobster and crab)
- Easier fishing in high currents (.75 now 2 knots)
- Gear theft and ship strike protection
- Better time management (fishing, boat maintenance, day off)

## ARC-1XD Field Demo (Video)

https://youtu.be/WeeieRr7sTw

## Fishermen's Experience

- New South Whales Rock Lobster Fishery
- Continuous use since 2013
- 300+ traps, ~1000 years in water
- Some fishers invest heavily & transform their business
- Others try & struggle
- Many more are watching and waiting



## Fishermen's Experience

- The ARC-1XD Release is ~99% Effective (Scott Westley)
  - About 97%-98% recovered by remote release, rest talking and grappled with 2% gear snags and 1% release failures.
  - About 1% not talking. Mostly trap moved by bottom trawlers. But release failures such as flooding, battery connector fail, component fail also observed.

## Fishermen's Experience

- Getting operations right is the challenge
  - Well serviced acoustics, ropes, floats, bags, boat equipment
  - Well thought out trap deployment & recovery procedure
  - Understanding environment & boat impact on performance

#### Problem:

After years of good performance, suddenly couldn't talk to most releases.

#### Solution:

Dive check found boat transducer barnacle coated despite recent haul-out. Transducer is now regularly inspected.

#### Problem:

Fishing in more <u>shallow</u> water than normal, sometimes it was hard to link to releases.

#### Solution:

There were also strong winds and currents. In shallow water, transducer coverage cone is smaller, and boat drifted past trap too fast. Steaming against the current/seas solved it.

#### Problem:

After months of continuing use, almost half of releases reported trigger but floats didn't surface.

#### Solution:

Barnacles had grown all over releases and bags. Gear is now cleaned between deployments to stop the growth cycle.

#### Conclusion:

- Experienced support of new fishers is essential to teach
- Be aware of regional differences in conditions and their impact on the system

### Common Concerns

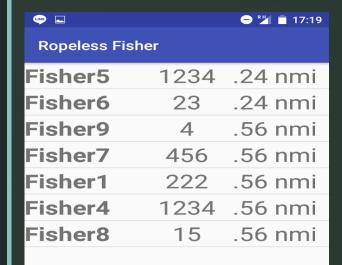


Gear overlay without surface buoy

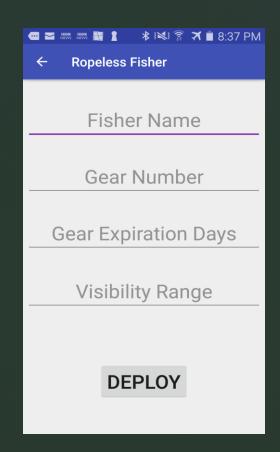
### **Solution**

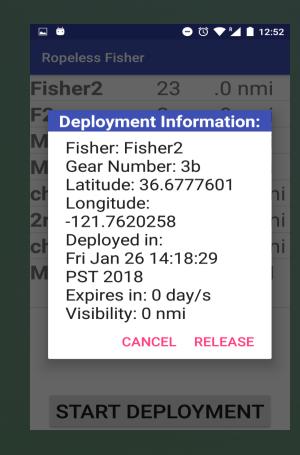
Not with the Rope-less Fisher App

## Rope-less Fisher App



START DEPLOYMENT





### Common Concerns

### **Concern**

Added handling time

## **Solution**

No added handling time per trap with boat optimized fishing strategy

New broadcast release mode; buoy automatically surfaces as boat approaches

# Example of 3 man system: F/V-Seeking (NSW)

- Avoid increased handling time per trap
- 3 man system
  - Captain Release, Range, and Trigger
  - Crew 1 Bag stuffing and arming, catch tagging and boxing
  - Crew 2 Trap and bait







### Common Concerns

Concern

**Cost and maintenance** 

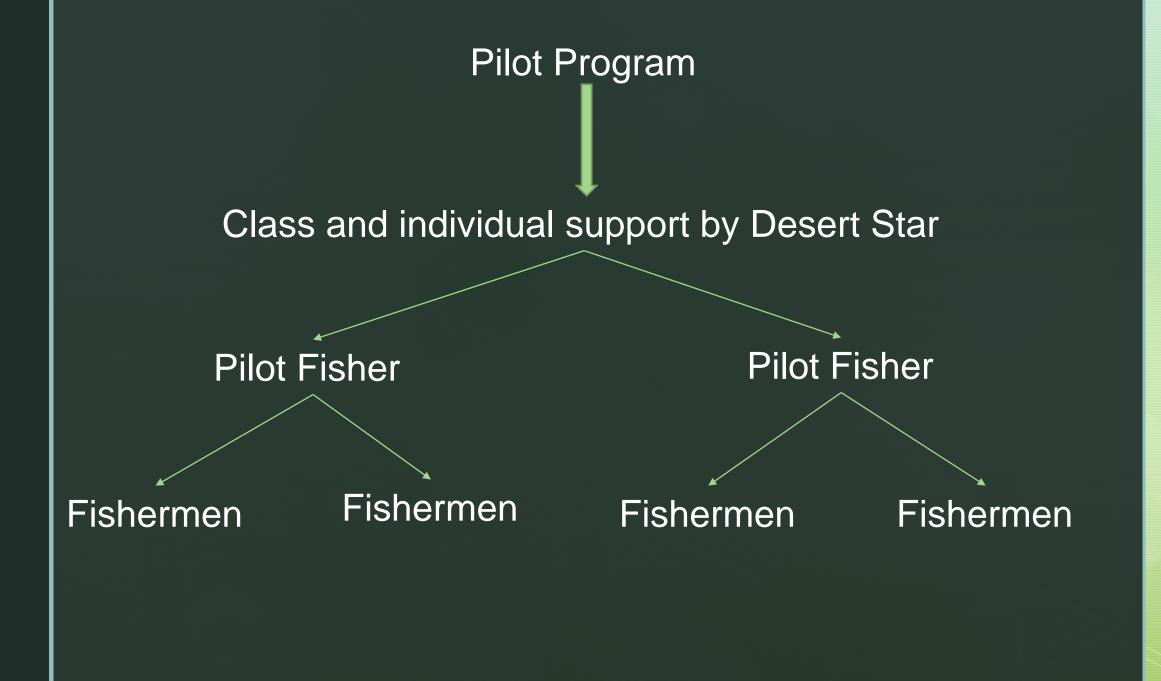
**Solution** 

Cost offset by business operational advantages

Lower cost version in testing (ARC-2)

## Fishery Integration

- Pilot program recommended
  - 3 day class for fishers by Marco Flagg
  - Individual boat integration support
  - Individual training and fine-tuning at sea
- Fishery Association should spearhead pilot program. Community purchasing for lowest cost



## A brighter future for fishers and whales

- Live Demonstrations
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