

# Innovations in Small-scale fisheries & Aquaculture

Solutions at the intersection of society, science, and  
technology

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# Outline

- Background
- My take on the prompt:
  - Example
  - Concrete ideas
- My vision as an André Hoffmann Fellow

How can *emerging data and technology* help actors in the small-scale fishery and aquaculture sectors *equitably improve their livelihoods and sustainably manage* their resources?

Institutions

Incentives

Outcomes

# Why might institutions matter?

The same "*intervention*" can have vastly different outcomes, depending on institutional setting

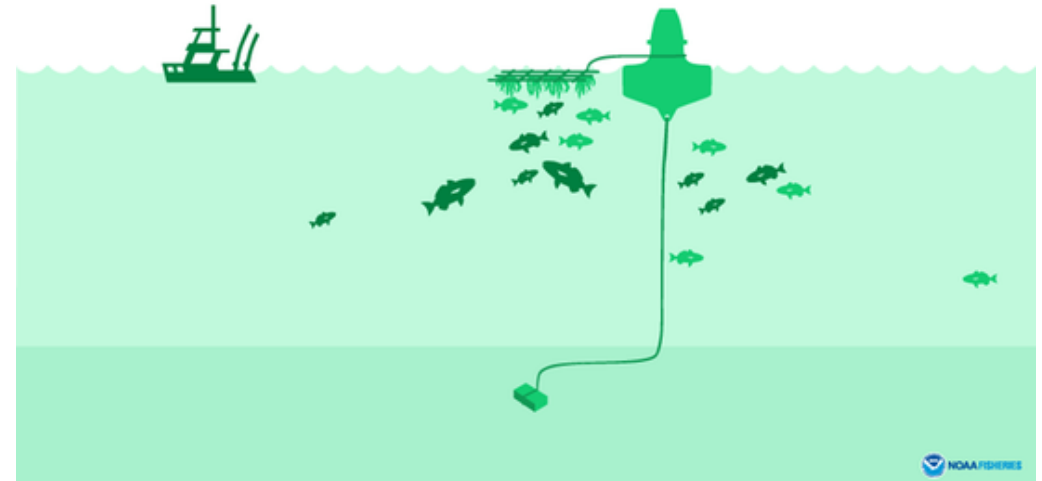
Technology and data are not a replacement of management

# Example: Moored Fish Aggregating Devices <sup>1</sup>

- Transfer fishing pressure from coastal to pelagic resources
- Reduce costs of fishing for pelagics
- No management = mFADs exacerbate the issue
- Output control = mFADs increase profitability of the activity

Are institutions prepared for emerging data and technology?

How does the diversity of actors in SSFA interact with these?



[1] Wilson et al., *In Press, Front in Mar Sci*

How can *emerging data and technology* help actors in the small-scale fishery and aquaculture sectors equitably *improve their livelihoods and sustainably manage* their resources?

# Access to markets & access to credit

- Consistently identified as a constraint<sup>2</sup>
  - Inherently difference, but similar limitations
  - What's missing?
    - Buyers
    - Within-app payment methods (PayPal, Venmo)
  - Traceability, ready-supply chain
- Platforms:
    - PescaData
    - Tracey
    - Global Dialogue on Seafood Traceability
  - Access to credit<sup>3</sup>
    - **Increases** resource harvesting under insecure property rights

[2] Kimai et al., 2020, *Mar Pol*; [3] Noack et al., 2020. *Working paper*

# Sustainable intensification of agriculture

- The concept comes from agriculture
- Scoot Science for aquaculture
- Level of investment and technology is highly variable <sup>4</sup>
- Oceanographic monitoring

[4] Short et al., 2021. *Nature*



# New institutions

- Index insurance

# A common thread

I think about:

- Incentives
- Institutions
- Markets
- Endogeneity and Scalability

# Three concrete angles

## Angle 1

**Actors in fisheries and aquaculture: One and the same?**

# Fisheries and aquaculture: One and the same?

## Angle 2

Current uses of technology

# Current uses of technology

- How are they using it?
  - Cost-reduction
  - Value increasing
- What benefits do they perceive?
- What trends do we observe?

**Angle 3**

**Future uses of technology**



# Future use of technology

- Given observed trends, what sectors are most ripe for assimilation?
- What are the clear needs?
- Where is the market saturated

# My vision as a fellow

Thanks