

# Innovations in Small-scale fisheries & Aquaculture

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Two parts

**Part 1: My approach to solving environmental problems**

**Part 2: My take on the prompt**

# My approach

## Design and evaluation of policy interventions and technology adoptions in the marine realm

| How do these **shape human behavior** and environmental and economic **outcomes**?

I think about:

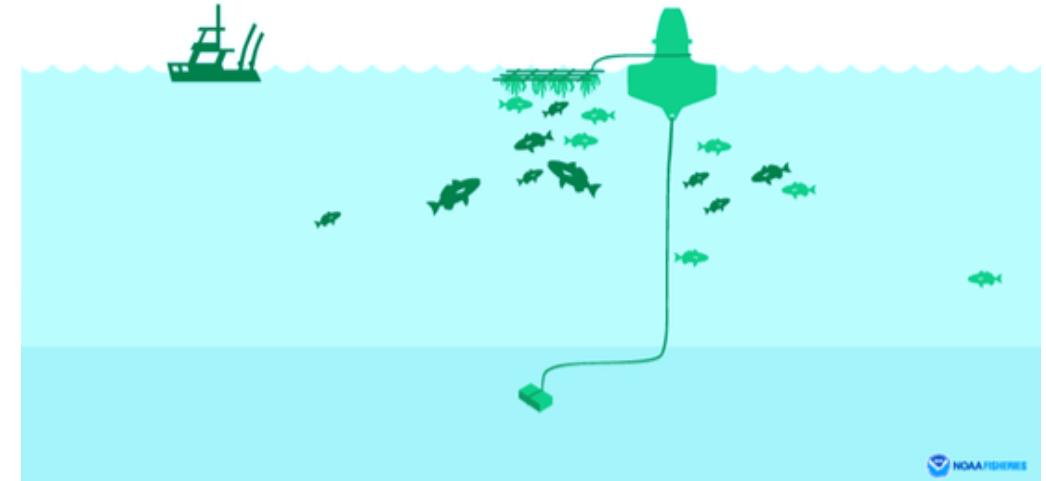
- Incentives (and unintended consequences)
- Markets
- Institutions
- Endogeneity and Scalability

Why might these matter?

# Example: Technological adoption in the Caribbean

## Moored Fish Aggregating devices

- Transfer fishing pressure from coastal to pelagic resources
- Reduce costs and risks of fishing for pelagic species
- With proper institutions, mFADs increase profitability of the activity
- Without proper institutions and access to markets, mFADs can exacerbate the problem



Credit: noaa.gov

## The prompt

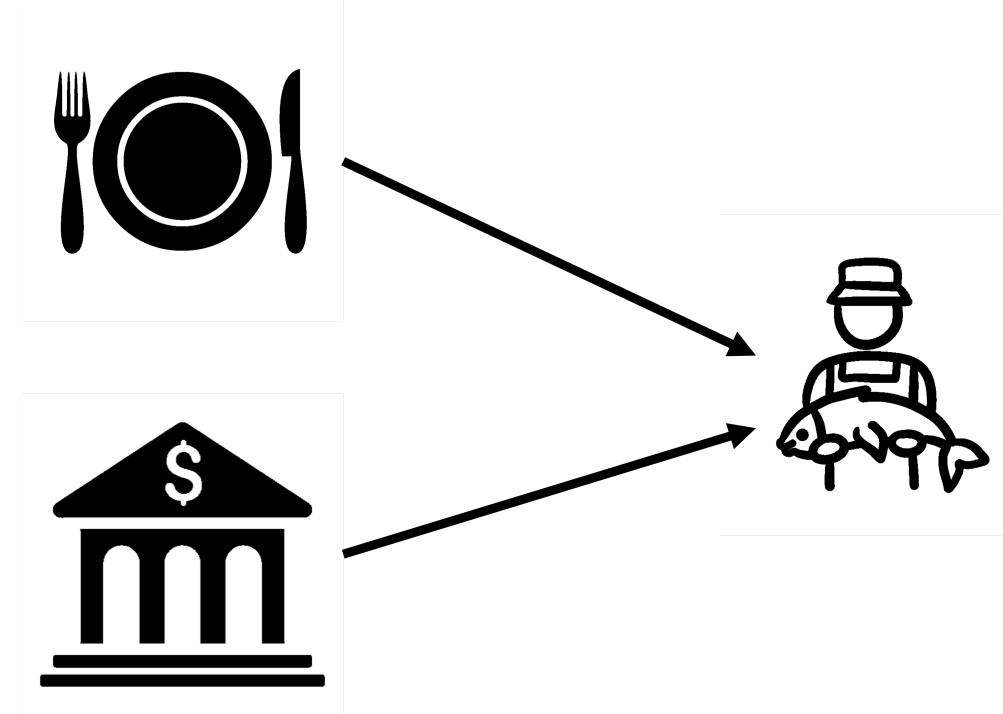
How can *emerging data and technology* help actors in the small-scale fishery and aquaculture sectors equitably *improve their livelihoods and sustainably manage* their resources?

# My take

1. Access to markets and credit
2. (Re)Designing institutions

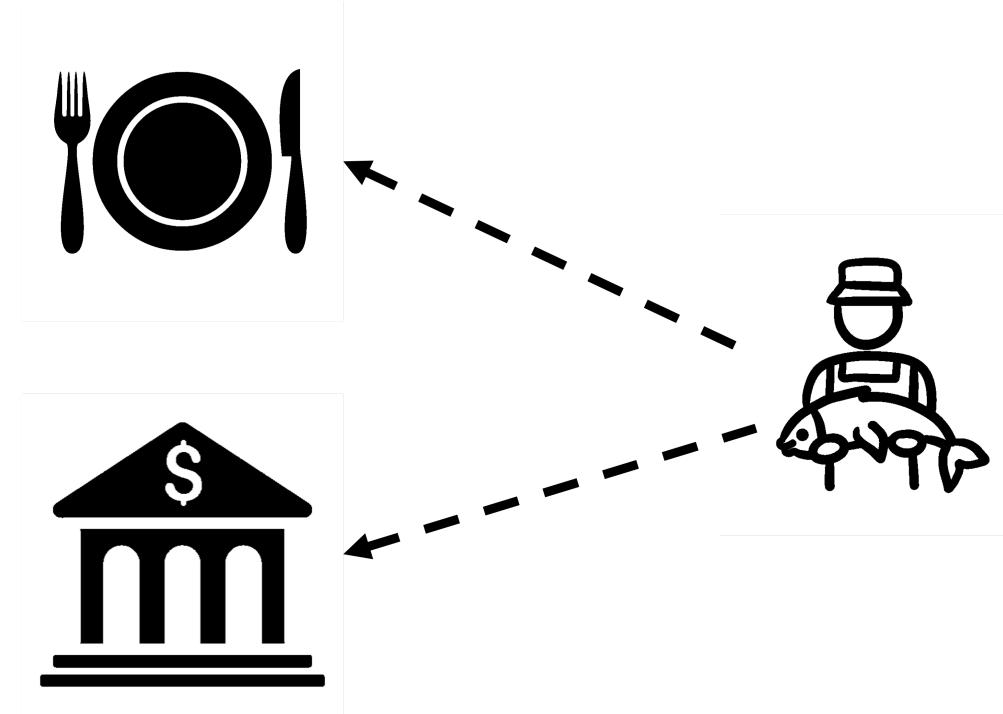
# 1 - Access to markets & credit: The challenges

- Consistently identified as a constraint in SSFA
  - Promotes "thin" markets
  - Perpetuates dependencies
- Inherently different, but similar limitations and implications



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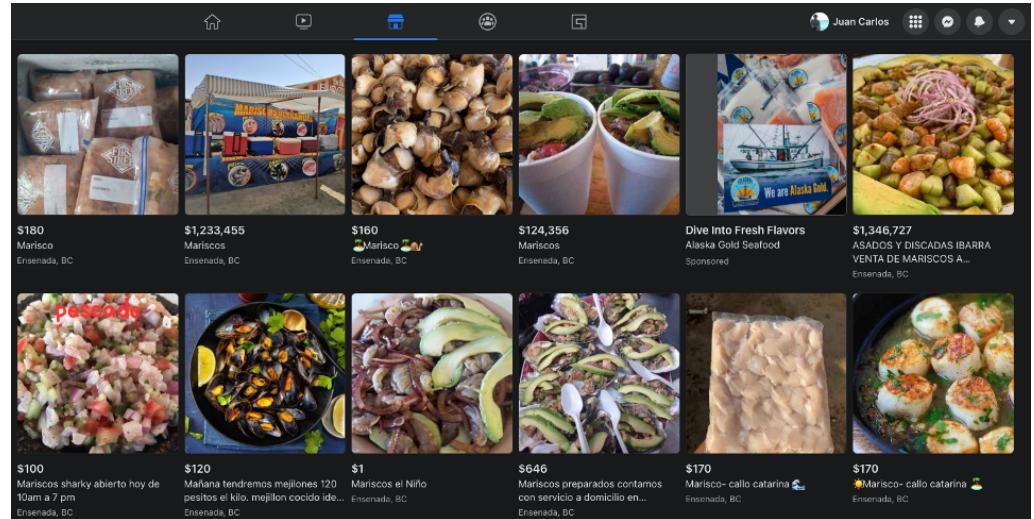
- Consistently identified as a constraint in SSFA
  - Promotes "thin" markets
  - Perpetuates dependencies
- Inherently different, but similar limitations and implications
  - SSFA need to be able to reach consumers
  - SSFA need to be able to prove creditworthiness



# 1 - Access to markets & credit: Digital platforms

Ahead of us

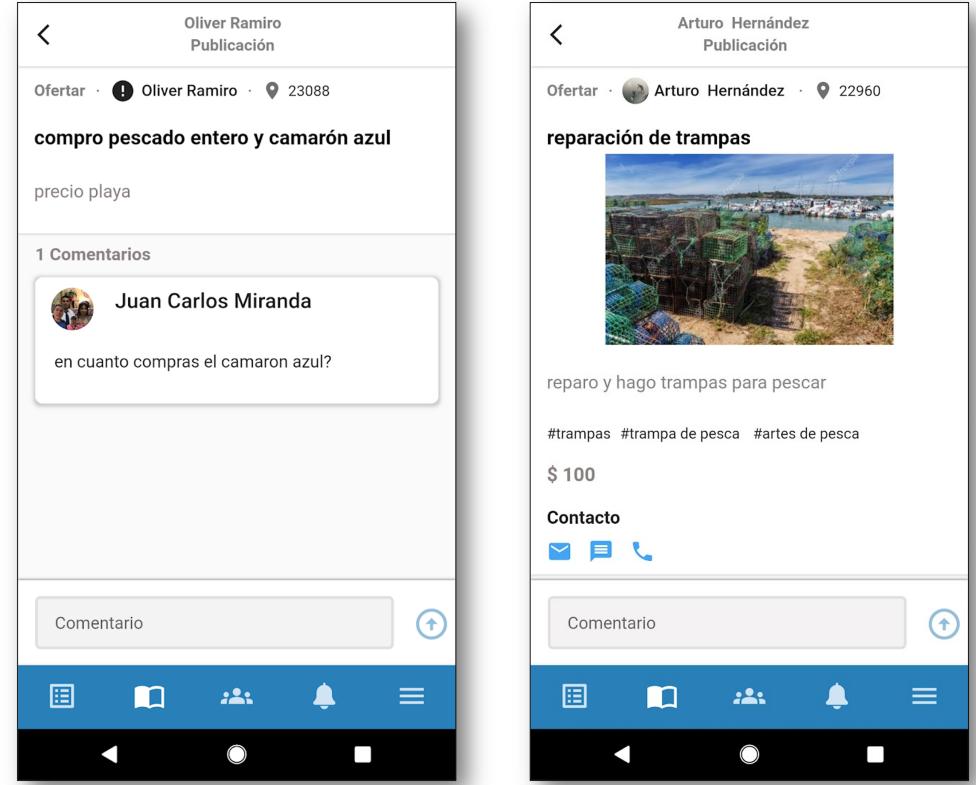
- Connect producers with consumers at various stages



# 1 - Access to markets & credit: Digital platforms

Ahead of us

- Connect producers with consumers at various stages
- Enable diversification of livelihoods



# 1 - Access to markets & credit: Digital platforms

Ahead of us

- Connect producers with consumers at various stages
- Enable diversification of livelihoods
- Facilitate transactions
- Help build a data-backed financial history (micro-loans)

Additionally

- Reward sustainable practices
- Better-suited for traceability protocols

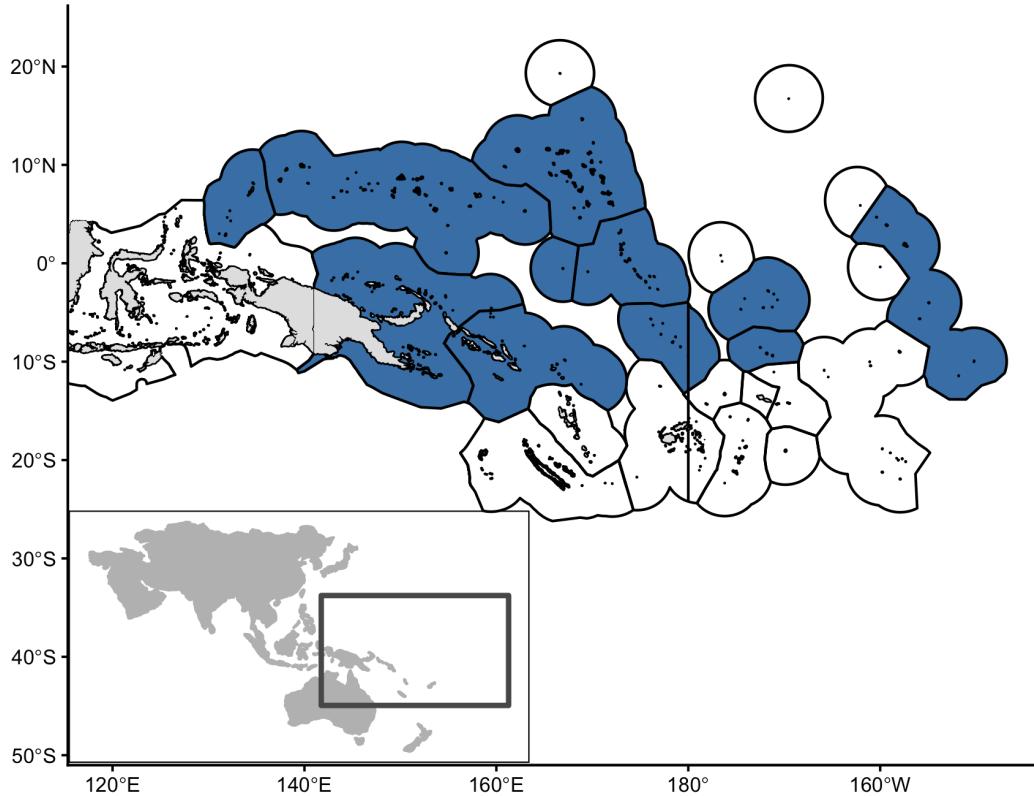


Credit: Bloomberg

# 1 - Access to markets & credit: Takeaways

- SSFA actors are ahead of us
- Digital platforms provide:
  - Access to markets
  - Financial history
  - Access to credit
- Are institutions ready?
  - **Weak institutions** + capital or credit = **Over-harvesting**
  - **Strong institutions** + capital or credit = **Under-harvesting**

## 2 - (Re)Designing institutions: Example



Vessel-tracking **enabled** vessel-day scheme in the PNA

## 2 - (Re)Designing institutions

We can now observe **inputs & outputs** like never before

### Supply chain

- Increase traceability (e.g. GDST)



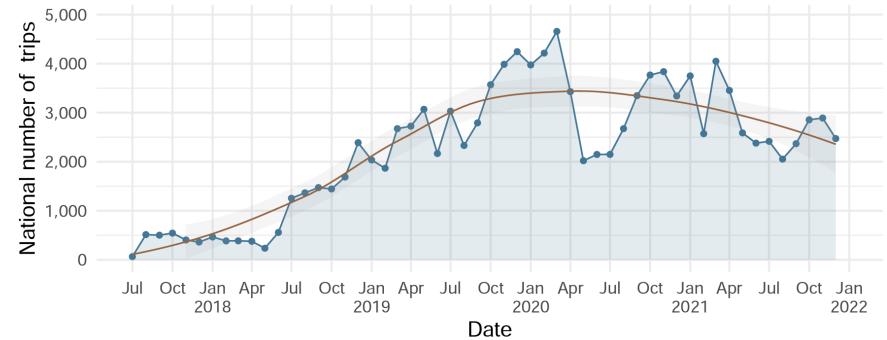
- Proof of product provenance
  - Harmful algal blooms
  - Environmental variation

### Management

- Real time monitoring

#### Fishing trips

The Peskas platform recorded a total of 128996 fishing trips. Trips increased considerably until 2020 then undergo a slight decrease.



- Distributional impacts and retrospective evaluations

# Other pathways

Emerging **data** and **technology** can also:

- Improve environmental monitoring
- Surveillance and enforcement
- Sustainable intensification
- Inform insurance mechanisms and limit moral hazard

# My approach

- Markets
- Incentives (and unintended consequences)
- Endogeneity and Scalability
- Institutions

Thanks



# mFADs in the Caribbean

