Emerging Technologies for Stock Assessment, Monitoring and Enforcement

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EDF
ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

Outline

- Introduction
- Accounting for catch and effort
- Stock abundance and productivity estimation
- Compliance monitoring


We are riding a tech wave.

New fishery technologies can generate benefits for users

- Stock and habitat assessments
- Regulatory compliance
- Bycatch avoidance
- Generating value for fishers

A grand opportunity for Japan fisheries

Accounting for fisheries catch and effort

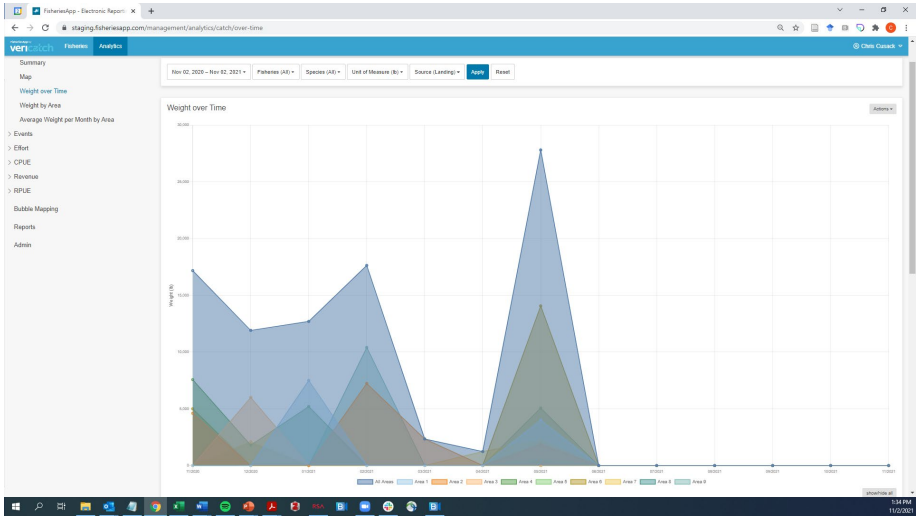
- Electronic monitoring
- Electronic reporting
- SmartPass

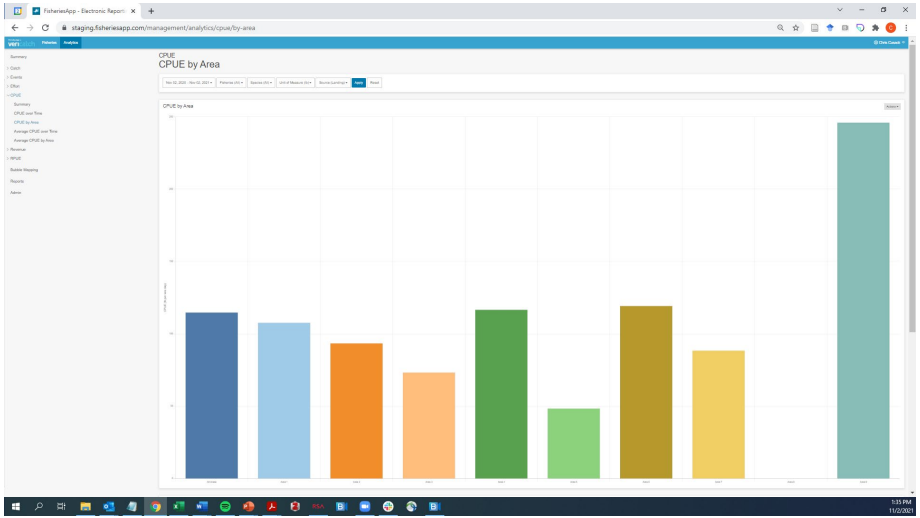
Electronic Monitoring

- Close to 1000 vessels worldwide.
- EM as validation for fisher-reported data
- Costs are decreasing while capabilities are increasing:
  - AI for data review
  - Wireless data transmission

Electronic Reporting

- Enables adaptive management
- Increases management capacity





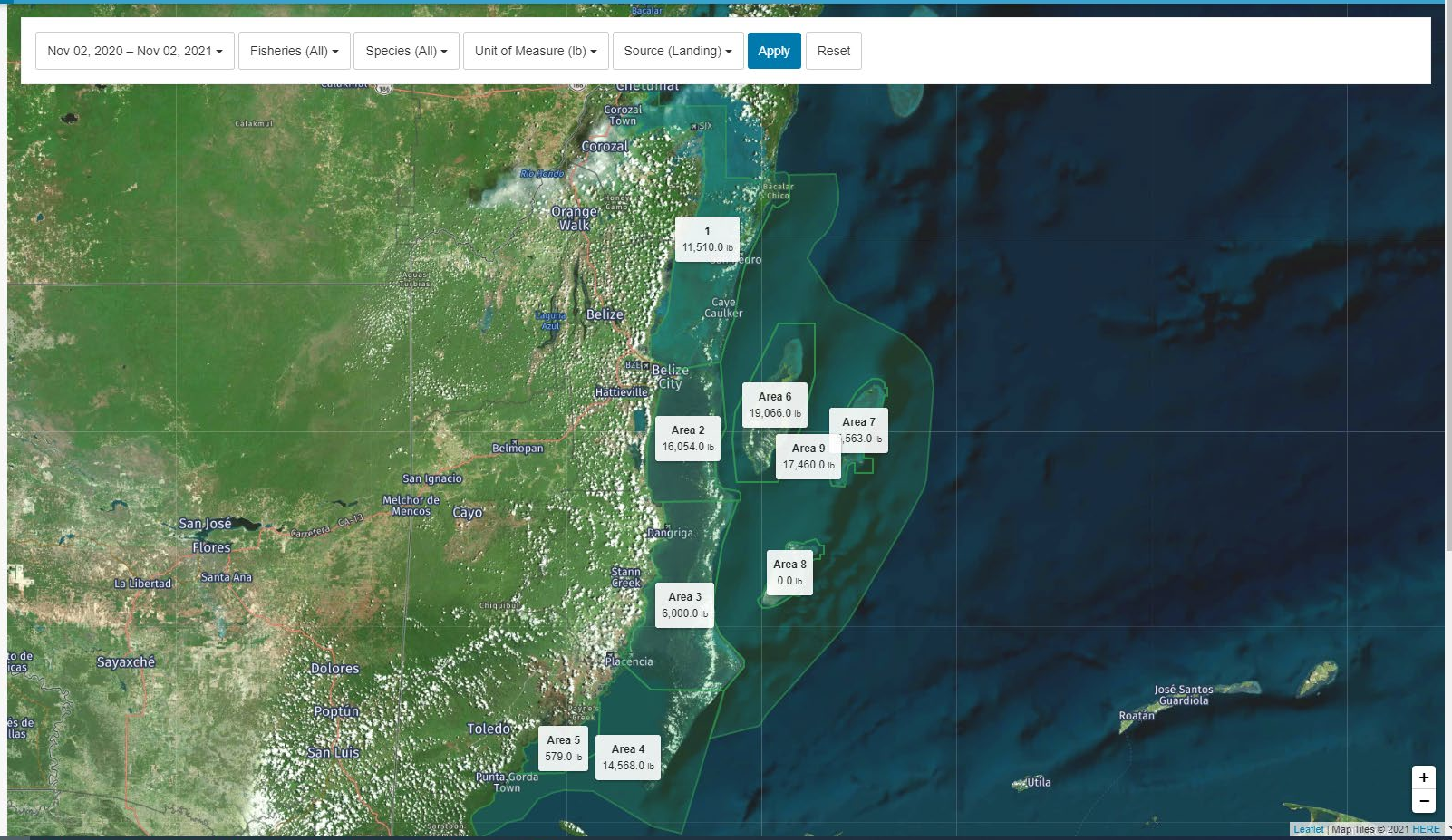
FisheriesApp - Electronic Reporti

staging.fisheriesapp.com/management/analytics/catch/map

FisheriesApp by vericatch | Fisheries | Analytics | Chris Cusack

- Summary
- Catch
  - Summary
  - Map
  - Weight over Time
  - Weight by Area
  - Average Weight per Month by Area
- Events
- Effort
- CPUE
- Revenue
- RPUE
- Bubble Mapping
- Reports
- Admin

Nov 02, 2020 – Nov 02, 2021 | Fisheries (All) | Species (All) | Unit of Measure (lb) | Source (Landing) | Apply | Reset



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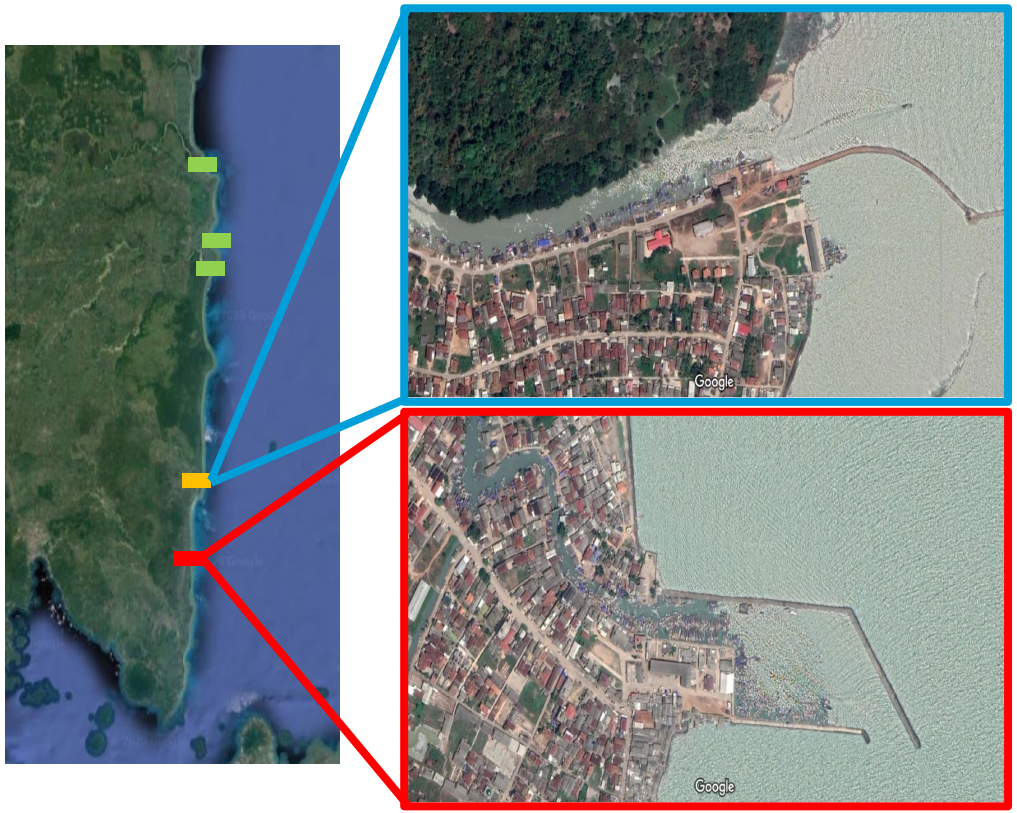
SmartPass

1. Cameras situated at a coastal pass, port, or river mouth

2. Video review platform to assist with video review and AI training

3. AI to **classify** types of vessels (e.g., recreational or small-scale fishers) and **count** the number of trips (measure effort)

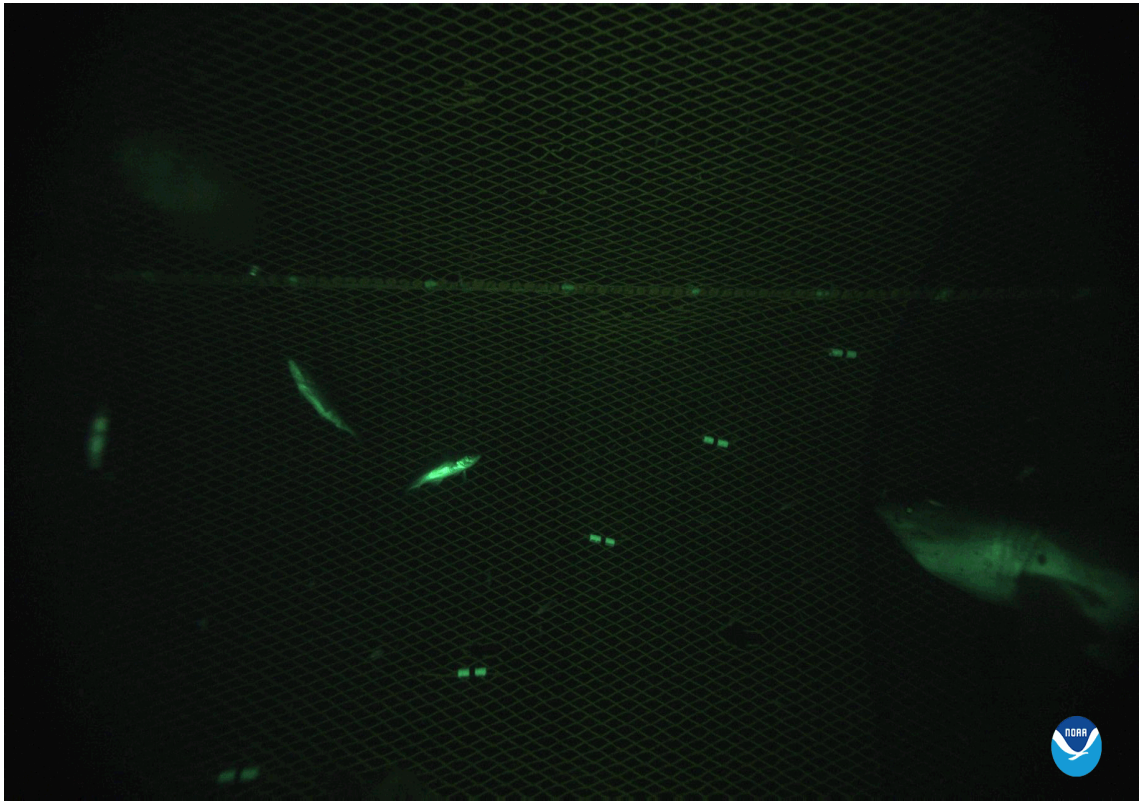
SmartPass: Indonesia



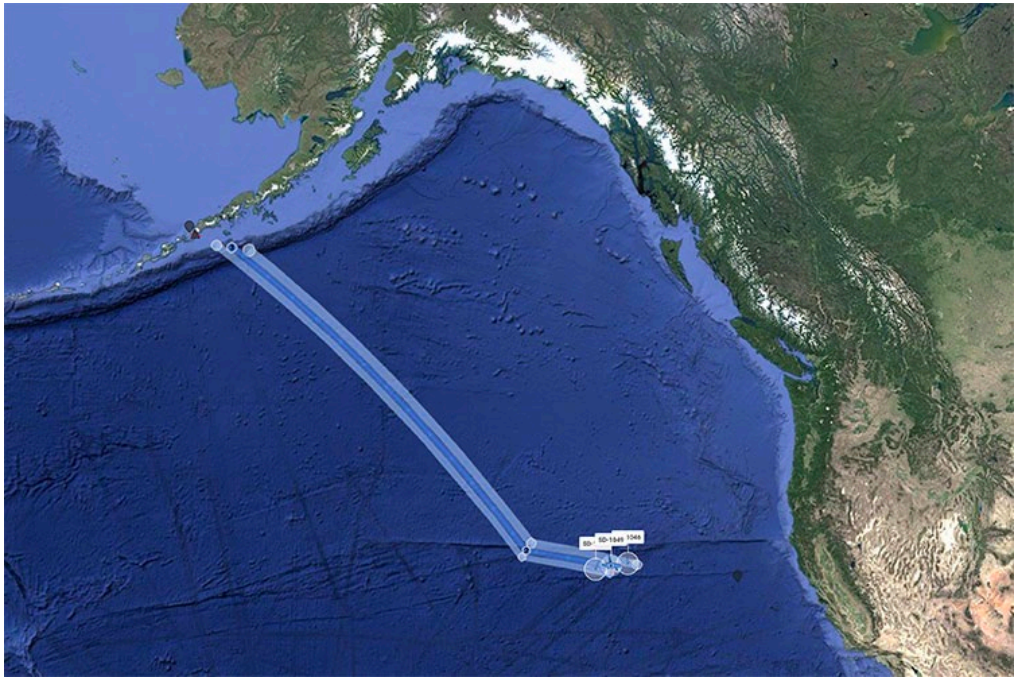
Stock abundance and productivity estimation

- Visual camera surveys
- Acoustics for stock assessments

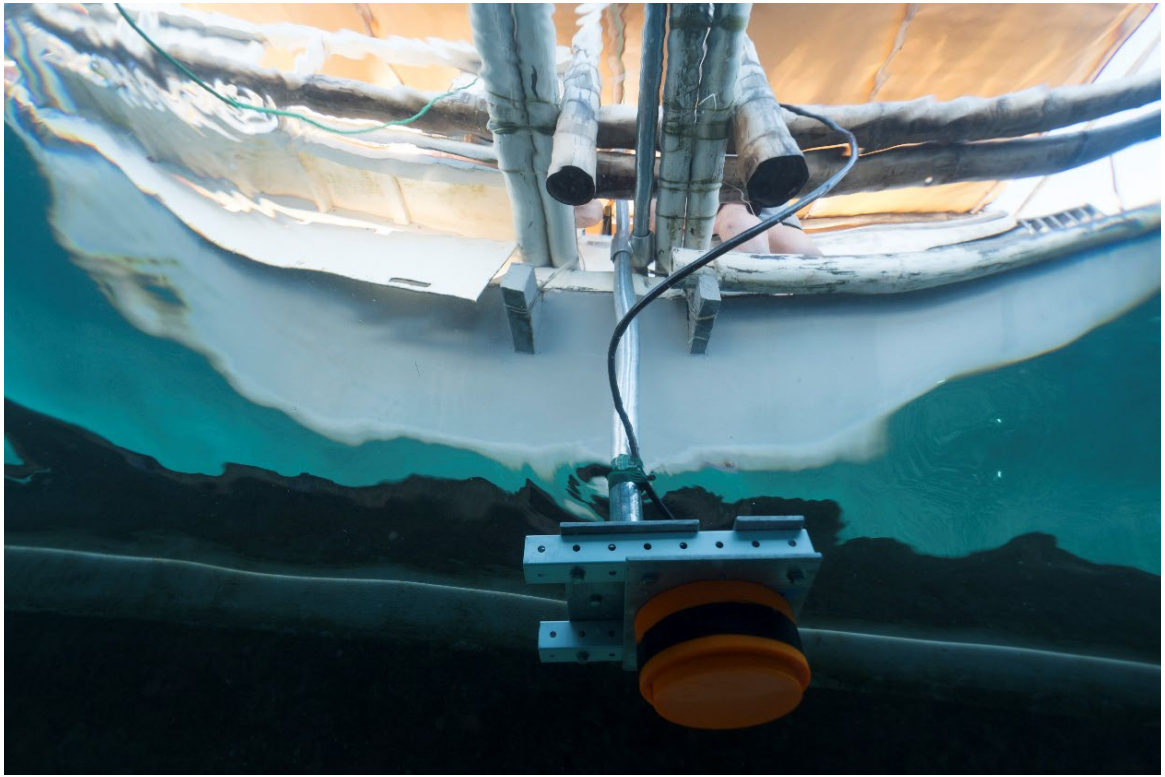
Visual camera surveys

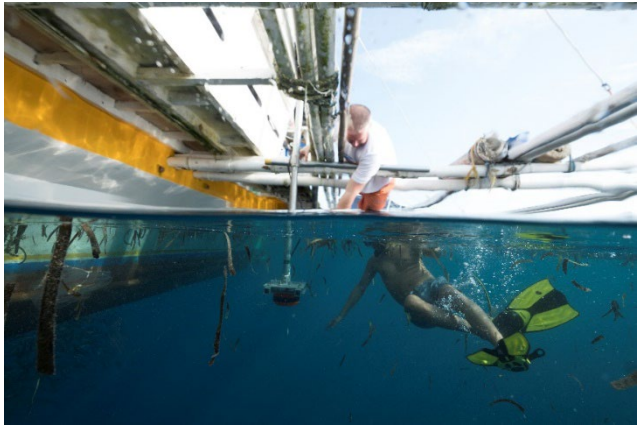


Acoustics for assessments



Acoustics for assessments





Compliance Monitoring

- Vessel tracking devices
- Remote tracking

Vessel tracking devices

- AIS/VMS
- Small scale trackers:
  - Solar powered
  - Install with 4 screws onto vessel hull
  - Cellular or satellite
- Bluetooth, WiFi: the possibilities are endless

Remote tracking

Shore-based radar systems

Unmanned aerial vehicles- drones

Acoustic sensors

THANK-YOU

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