



PAPA HĀNAUMOKUĀKEA  
Marine National Monument & World Heritage Site

# PMNM 2017 INTERTIDAL MONITORING CRUISE

Presentation to NWHI CRER Advisory Council  
October 12, 2017

Randy Kosaki  
NOAA PMNM



# R/V *Searcher*



# 2017 Intertidal Monitoring Expedition

- USFWS field team (Nihoa)
- Intertidal monitoring
  - ‘opihi
  - Invertebrates (primarily mollusks)
- ‘Opihi biology
  - Genetics
  - Reproductive seasonality
- Intertidal algae checklist
- Intertidal/shallow subtidal fish surveys



# USFWS Bird, Insect, Plant Surveys



La Perouse Pinnacle  
French Frigate Shoals



Mokumanamana



Nihoa



# 'Opihi Surveys



# 'Opihi Specimen Processing









# Intertidal Algae Surveys

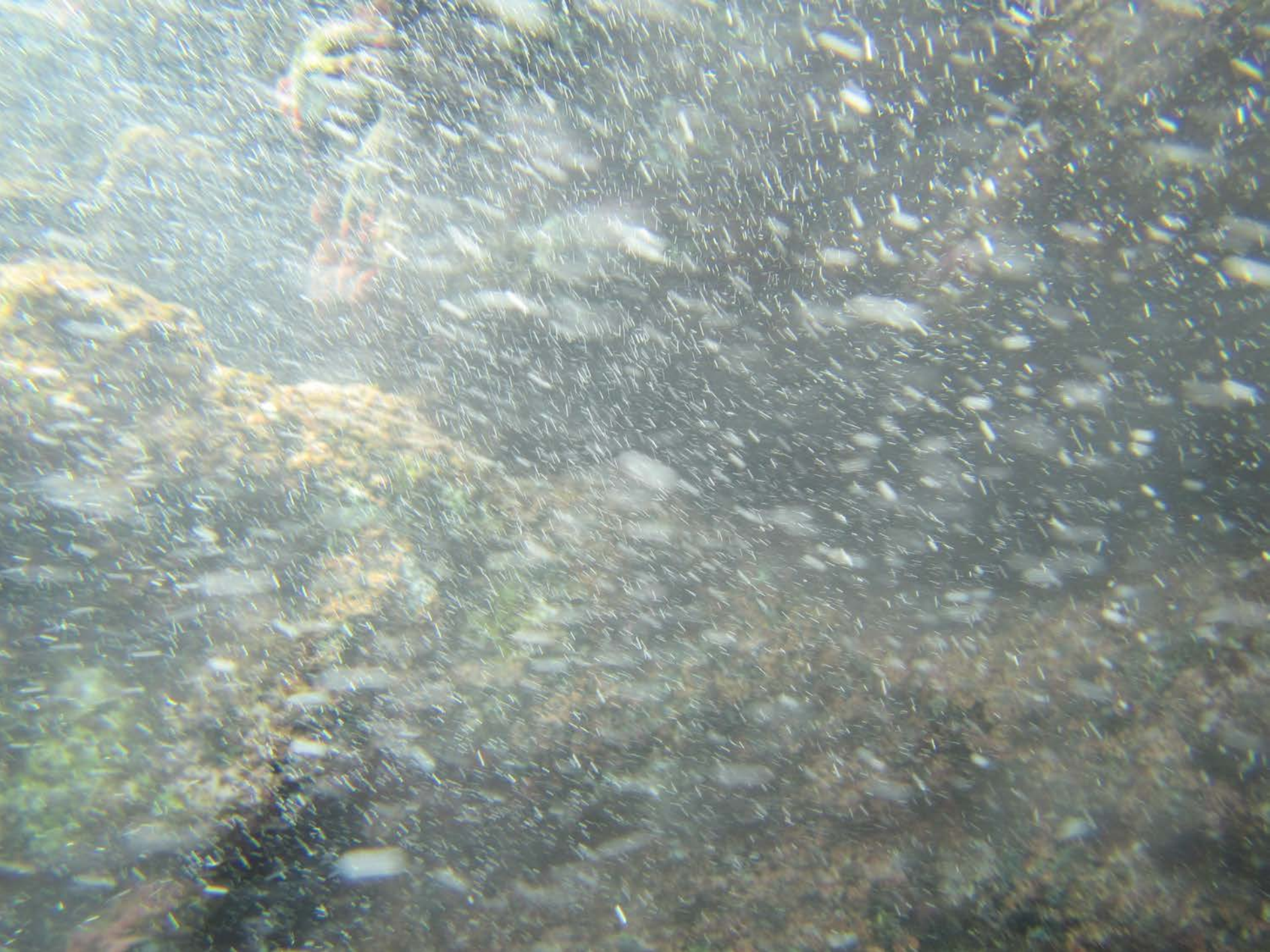




# Intertidal/Shallow Subtidal Fish Surveys







*Plectroglyphidodon phoenixensis* Schultz 1953



# Two New Freshwater Seeps





