

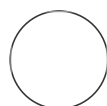


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Measuring Turbidity and Fish Populations around Mo'orea

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ABSTRACT

The ocean is often viewed as a fridge or pantry for many island communities, especially that of Mo'orea, French Polynesia. But, it's known that sedimentation can cause coral death, and corals are vital places for reef fish around the island, including species consumed daily such as parrot fish. With the rapidly increasing population and amount of agriculture on the island, there's a possibility that levels of sediment in the water are increasing. If turbidity affects fish populations, there could be a problem. For this reason, I will be conducting an experiment designed to answer the question: **Does turbidity affect fish populations?**

GUIDELINES

- wear protection on feet while conducting experiment
- avoid stepping on or interfering with sea life
- to accurately count fish populations and measure turbidity, the researchers must be cautious and minimize noise and movement

MATERIALS

- 36 small buoys
- 70 or more m of rope (60 necessary, excess for tying off)
- 6 1L bottles (ideally recycled)
- underwater video camera
- field measuring tape
- nephelometer

SAFETY WARNINGS



- you are entering parts of the ocean where you will need to swim and tread water
- proceed with caution in each and every marine life encounter

OPEN ACCESS

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We are still developing and optimizing this protocol

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BEFORE START INSTRUCTIONS

- Construct buoy (see steps) and gather materials
- Determine 6 locations each 10 km apart the team will be visiting and mark with GPS

GRID CONSTRUCTION

- 1 lay out buoys in a 6x6 grid each a meter apart (5 meters squared)
- 2 cut rope into 12 pieces of equal length
- 3 tie rope to each buoy in every row of buoys vertically
- 4 repeat for each row of buoy horizontally

FIELD

- 5 arrive to sample site 1 and identify shoreline (defined as the point where the sea water meets bare sand)
- 6 use measuring tape to measure 25 meters straight out
- 7 place 5x5 meter grid on top of ocean (centered around 25m point)

- 8 wait 5 minutes (to allow fish to return)
- 9 one researcher holds grid in place
- 10 another researcher conducts a visual count of fish and notes species observed
- 11 researcher takes video where fish and grid are visible
- 12 researcher goes about 1 meter below surface and fills 1 L bottle
- 13 repeat steps for sites 2-6

POST-FIELD

- 14 for each site, observe video to count the number of fish visible and separate into species if possible
- 15 for each site, measure turbidity of 1L bottle with a nephelometer