HOW ALTERING TRAWL DURATIONS CAN SAVE NONTARGET SPECIES

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BACKGROUND

- Trawling is used due to its high catch efficiency
- Trawl nets are nonselective and can catch large quantities of nontarget species
  - Causing:
    - Population declines/mortality
    - Reduced fishery and ecosystem productivity
- Changing trawl durations can prevent nontarget species catch
- Objective: assess different trawl durations to protect vulnerable nontarget species

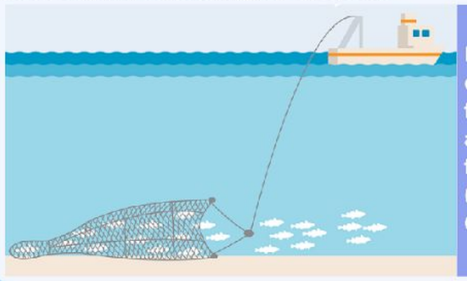

Figure 1: Trawl net catching a school of fish when moving across the ocean floor (Marine Stewardship Council)

RESEARCH QUESTION

How does altering trawl duration affect the quantity of nontarget species encounters?

INTERNSHIP AND METHODS

I interned with the National Oceanic and Atmospheric Administration (NOAA) Fisheries. I addressed the question by:

- Conducting literature reviews
- Using video analysis data to examine nontarget and target species net encounters during 30, 60, and 90 minute trawl durations

Figure 2: Screenshot of starry flounder (target species) from video analysis (NOAA Fisheries)

RESULTS

% Large percentage of encounters are nontarget species (Figure 3)
- 30 minutes: 97.03%
- 60 minutes: 97.23%
- 90 minutes: 97.53%

\+ Greatest encounter increase (Figure 4):
- nontarget species = 627.5 encounters
- target species = 29.6 encounters

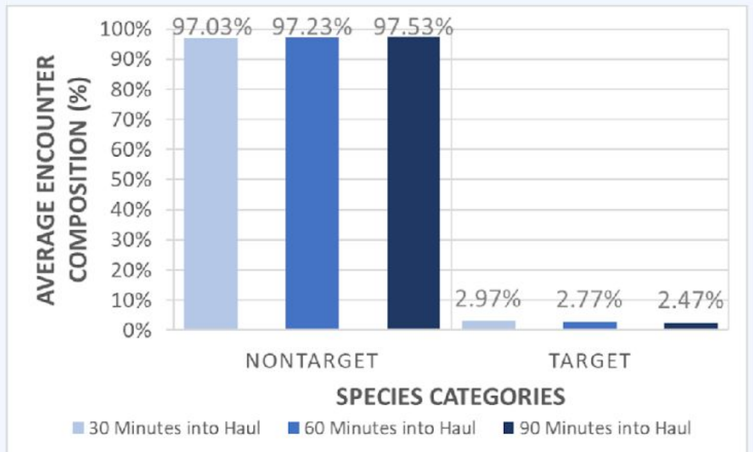

Figure 3 (Above): Average encounter composition (%) for nontarget and target species at 30, 60, and 90 minutes

Figure 4 (Above): Average number of nontarget and target species encounters at 30, 60, and 90 minutes. Values in parentheses represent encounter increases between the durations

TAKEAWAYS

% Encounter composition % does not change much, regardless of duration (Figure 3)

\+ Substantial increases in nontarget species encounters within the first 30 minutes compared to target species (Figure 4)

★ **As durations increase, encounters increase, but nontarget species have more substantial encounter increases than target species in the short term**
- **30 minute durations are ideal in reducing nontarget species encounters**

BROADER SIGNIFICANCE

- These results are important because encounter composition and increases over time can be used to optimize the duration of trawls
- As global hunger grows, trawling use will increase to meet food demand, threatening nontarget species
- By shortening durations, less nontarget species are encountered, which promotes population recovery and decreased mortality
- But, this happens at the expense of reducing target species, which decreases fishery yield and productivity

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