



How to "Catch" a Dying Stock

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Background

Over the last decade, the Atlantic Mackerel fishery has been plagued with many shutdowns due to concerns over overfishing. Overfishing has increased, and there have been attempts by the **Mid Atlantic Fisheries Management Council (MAFMC)** and the **National Oceanic and Atmospheric Administration (NOAA)** to address this problem. Recently, the MAFMC adopted an **Ecosystem Approach to Fisheries Management (EAFM)** in attempt to incorporate ecosystem considerations into marine fisheries management. A point for concern is that the stock is simultaneously monitored and shared international with Canada, and both departments are failing to maintain this stock adequately. The increased closure over recent decades is a strong indicator of the need to manage these stocks differently.

Ecosystem Based Management

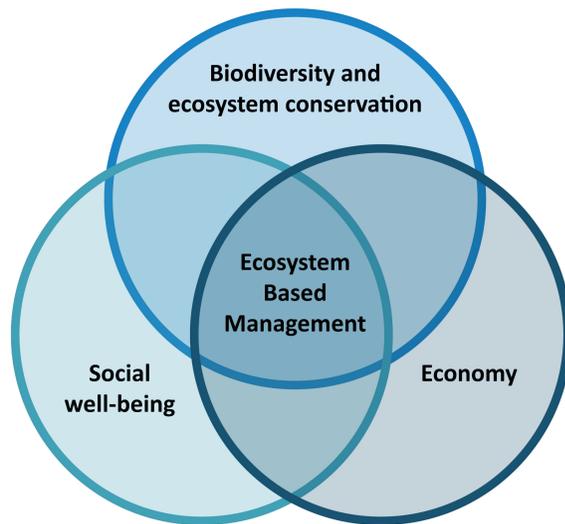


Diagram of the basic principles of ecosystem-based management

Problem Statement

The MAFMC struggles to manage the Atlantic Mackerel stock under their current plan based on **Maximum Sustainable Yield (MSY)**. Recently, they proposed an alternative approach to managing the stock to rebuild the fishery in five years, but previous plans were inadequate in successfully rebuilding the fishery in the allotted timeframe.

Policy Goal

The Council's stated goal for an EAFM is: "To manage for ecologically sustainable utilization of living marine resources that supports human activities, including resource extraction by both recreational and commercial fishermen, as part of the natural balance."

Methods

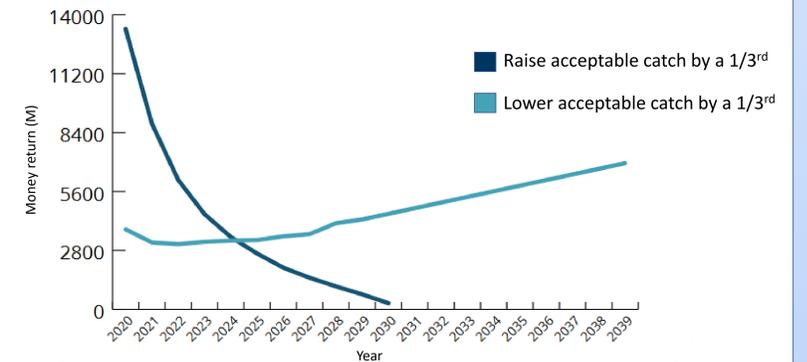
The basic framework of this capstone project is a problem orientation. This policy analysis aims to analyze the presented alternatives and use socio-economic and environmental criteria to figure out which alternative suggests the best course of action to aide in management of the Atlantic Mackerel fishery. Long-term socio-economic benefits and ecosystem health from fishing pressure on Mackerel were used as metrics to determine the success of the alternatives. However, to determine if the proposed management alternatives can be successful, historical data needed to be gathered from official assessment reports, articles, and economic reports on previous fishery management attempts.

Discussion

The current fishery management plan attempts to rebuild the stock in as short as time as possible, taking into environmental considerations. Traditional mortality stock assessments have overlooked the unfavorable environmental changes that may have added to the problems coupled by fishing pressure. Usually, the mortality rate of a stock is determined by fish that are removed by fishing, as opposed to predation or natural causes. This has allowed anglers to fish at the MSY, which attempts to exploit natural resources at the maximum level without long term depletion, not taking in account long term socio-economic and ecosystem conservation. Rebuilding plans that focus on meeting mortality targets may be more effective than a plan with an exact period for rebuilding.

References

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Gardner-Pinfold Consulting cost-benefit analysis for decreasing and increasing fishing scenarios

Alternatives

Although the council just switch to an Ecosystem Based Management style and recently proposed a new plan, there was just a slight decrease in allowable catch of Mackerel per metric ton. For this, I suggest three alternatives that the council could potentially adopt to better manage the Atlantic Mackerel stock.

- ✓ **Alternative A: Decrease acceptable biological catch of the Atlantic Mackerel by 1/3rd lower than current rate.**
- Alternative B: Slightly decrease the acceptable biological catch rate of the Atlantic Mackerel and continue practices.**
- Alternative C: Increase acceptable biological catch of the Atlantic Mackerel by 1/3rd higher than current rate.**

Conclusion

Due to variation in catch and effort in the fishery each year, it is difficult to quantify the best alternative. However, the best alternative suggested from this analysis is to decrease fishing pressure by a third. The subsequent socio-economic impacts from this alternative should lead to sustainable fishing at an optimum yield, which benefits fishery participants, associated support industries, and associated fishing communities. Further, this alternative creates job opportunities and helps an overexploited stock recover. A stricter approach to catch levels maybe the best course of action to reduce the overexploitation of this stock. If this recommendation is put in place, it will immediately impact the stock and ultimately lead to safer practices.