Optimal Control Strategies for Chub Mackerel (Scomber japonicus) in South Korea

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ABSTRACT

Mackerel fishing is prohibited in Korea about one month between April and June every year. We would like to find the period of closed season for fishermen to maximize the profit of fishing for mackerel. We propose an optimal harvest strategies using a discrete age-structured model with logistic growth function in juvenile age. Pontryagin’s maximum principle is used to solve the optimal harvest problem. The optimal control problem is solved numerically using forward backward sweep method. The simulation results showed that it is a best to have closed season in the spawning season. We have shown that a proper fishing strategy may be more beneficial in order to increase fishing revenue rather than to have an excessive closed season.

REFERENCES

