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GOFORIT: IntelliGent Oceanographically – based short-term fishery FORecastIng applicaTions

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Abstract

Fisheries for short-lived species are highly variable because they primarily target irregularly recruiting year-classes. As a result, environmental fluctuations (e. g., temperature, food abundance) which cause major changes in fish productivity can lead to rapid fluctuations in fishing opportunities. Such fluctuations are not foreseen or accommodated by most management advisory frameworks for short-lived species, which generally assume environmental stability and constant productivity. We have started a new 3-year COFASP ERA-net project (GOFORIT) which intends to use climatic and oceanographic process knowledge to improve short-term fishery forecasts. Candidate biological responses are recruitment, growth or condition of spawners, mortality, and distribution. The project will identify links between the ecology of four short-lived fish species (North Sea sandeel Ammodytes marinus, Icelandic capelin Mallotus villosus, Black Sea anchovy Engraulis encrasicolus and Black Sea sprat Sprattus sprattus) and climatic and oceanographic conditions at time scales relevant to annual stock assessment and advisory cycles, and use this new knowledge in forecasts.. The project will also investigate ways to extend forecast horizons (i. e., time period between when a forecast is made and when year-classes enter the fishery). This project will facilitate ecosystem-based adaptive management under environmentally-induced fluctuations, Furthermore, improvement of operational forecasts of upcoming year classes of short lived pelagic species could enable better planning and produce stability at all stages in the operation of fisheries and industries depending on these stocks.

These stocks are ideal candidates for this investigation: they show wide environmentally- and fishery - driven variability in productivity and fishery yields.

Keywords: forecast, fishery, zooplankton, climate, ecosystem approach

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