

Marine Scotland Science – SUPER DTP PhD ideas

Evaluating potential solutions for stock recovery in a mixed fishery

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The Scottish demersal fishing fleet operates in a “mixed fishery” where distinct species are often caught together in a mixed assemblage. However, these species are managed on a single stock basis which, given the mixed fishery context, frequently results in conflicting management objectives. This in turn, often leads to unwanted practices such as discarding over-quota catches or foregone catch when fishing ceases once quota for one stock is filled.

This issue is demonstrated on the West Coast of Scotland where the cod stock has had minimal/zero Total Allowable Catches (TACs) for several years due to the poor stock status. However, in this mixed fishery, reducing catches of cod enough to promote the recovery of the stock would require a substantial reduction in the catches of other species such as haddock, anglerfish and whiting.

This project aims to identify possible solutions such as spatial or gear measures for modifying the compositions of catches in this fishery to promote the recovery of stocks of poor biological status. Then, by using a fleet-based bioeconomic model to conduct Management Strategy Evaluations (MSE), the long-term impacts of proposed solutions on the health of the stocks as well as the economic impact on the fishing fleets can be assessed.

Outputs will contribute to the commitments of the Scottish Government on sustainable management of fish stocks as well as informing on policy for local fisheries management and contributing to a sustainable Blue Economy.

Trophic level and diet of Atlantic salmon post smolts in the marine environment

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Offshore renewables increase habitat heterogeneity resulting in possible changes to abundance, biomass and species richness of both fish and benthos. Post-smolt survival has recently been related to reduced consumption of fish prey. Identifying diet selection, feeding behaviour and understanding salmon as a predator in the marine environment during its marine migration are key steps in determining possible affects that offshore renewable developments may have on salmon marine survival either directly, or indirectly as a result from changes in the ecosystem. This work also has the potential to investigate how climate change will affect post smolts within the marine environment in relation to prey distribution shifts with the warming of the seas.