

Abstract: Interactions between seals and fisheries are complex and multifaceted and conflicts can occur both at the ecosystem level and at the level of individual interactions. Direct effects include seal-inflicted damage to fishing gear, competition for resources and losses of seals due to by-catch. Damage to static fishing gear and loss of catch to seals from such gear is a major source of concern and a serious economic loss in Swedish waters. A solution to the problems faced by the Baltic salmonid fishery in this regard is demonstrated in the form of successful technical modifications to the traditional fish traps, including the use of larger mesh sizes. This modification was founded on an accurate understanding of both seal and fish behavioural patterns. The idea was to use a form of fishing gear which would deprive the seals of any reward, rather than offering them ready caught fish in the net. Investigations into fishes' reactions to large-mesh nets indicate that the losses through the mesh should be more than compensated for by a net increase in undamaged catches. The development of similar approaches is recommended for other Swedish fisheries in conflict with seals.

Fishermen have blamed competition from seals for their declining catches, but we need to learn much more about marine food webs before we can make such a simple connection. Investigations into feeding preferences by harbour seals provide the background for an understanding of an individual foraging behaviour among the seals. Studies to date suggest that many seals do show individual preferences for certain prey species. The idea is presented that in situations where a seal cull is recommended in order to reduce the conflict with fisheries, it may be most effective to target individual 'problem seals', rather than treating the population as homogenous and culling animals in a random fashion.

Indirect effects of seal activity on commercial fisheries are examined in a series of studies of parasitic infections by nematode worms which affect both seals and fish. Relationships between the parasites and their various hosts give valuable clues about diverse aspects of the seals' feeding and population ecology. Most significantly it is shown in the case of harbour seals in the Skagerrak that levels of sealworm infestation in fish inhabiting the same local environment, far from being closely correlated to the density of the seal population, as one might have expected, actually remained stable while the seal population grew dramatically. Threats to seals from fisheries activities in Swedish waters, such as the depletion of food resources and losses as by-catches, are considered but are not suggested to be significant in terms of the overall health of the populations.

Key words: harbour, *Phoca vitulina*, grey, *Halichoerus grypus*, *Coregonus*, salmon, trap, gear development, behaviour, detection, sealworm, *Pseudoterranova decipiens*, cottid, density-dependence, life-cycle

Department of Marine Ecology, Göteborg University
Tjärnö Marine Biological Laboratory
SE-452 96 Strömstad
Sweden

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