

Reviewer 2

Dempster T, Sanchez-Jerez P, Fernandez-Jover D, Bayle-Sempere J, Nilsen R, Bjorn PA, Uglem I (2011). **Proxy Measures of Fitness Suggest Coastal Fish Farms Can Act as Population Sources and Not Ecological Traps for Wild Gadoid Fish.** Plos One 6

The main objectives of this report were to evaluate the methods and references in relationship to the conclusions in the above paper.

Relationship between methods and conclusions

In general the methods used in the paper are appropriate to test the hypothesis, this goes for the studies of size, diet and condition indices, and parasite load. Also the use of statistical methods seems appropriate.

However, the presentations of the main findings in paper are not 100% consistent, and the conclusions could be misunderstood if you only read the Abstract, as illustrated by the citations below:

Main objectives (from **Introduction**)

“Here, we tested the hypotheses that the diets, indices of condition and parasite loads of cod and saithe associated with salmon farms differed from those of fish present at locations distant from salmon farms. To ensure broad generality of the results, we sampled fish in three intensive fish farming areas along the latitudinal extent of salmon farming in Norway (59°N to 70°N).”

Main conclusions (from **Discussion**)

“The results provide no evidence that salmon farms act as ecological traps for wild cod and saithe that aggregate in their vicinity, provided that: 1) the modified fatty acid distributions and elevated organohalogen levels in fat stores in livers that results from a fish farm modified diet [35,36] does not negatively affect physiological processes, vitellogenesis or egg and larval quality; 2) salmon farms do not amplify any of the numerous pathogens not investigated here that salmonids and gadoids share [27]; and 3) that attraction to farms does not disrupt natural spawning migrations or behavior. Future research should seek to discern the effects of both salmon and cod farms during the spawning season for cod resident in fjords containing farms, as a range of different effects are possible during this period, including mass spawning of farmed cod in cod farms [37] and possible avoidance of fjords containing salmon farms by spawning cod [38].”

Conclusions and Significance of the findings in Abstract:

“Proxy measures of fitness provided no evidence that salmon farms function as ecological traps for wild fish. We suggest fish farms may act as population sources for wild fish, provided they are protected from fishing while resident at farms to allow their increased condition to manifest as greater reproductive output.”

In the Abstract, the conclusions are stretched too far in relation to the data. Further, “proxy measures of fitness” is not defined in the Material and Method, but appears the first time in the Discussion. Since proxy measures of fitness is included in the title of the manuscript, and also a central part in the Abstract, this terms should have been defined in the Material and Methods.

Are relevant references used?

The paper cites 41 papers, mainly from primary journals, and are overall well balanced. Citation from the end of the Discussion:

“Therefore, to ensure farms do not act as ecological traps for cod via increased fishing mortality alone, restrictions on the fishing of cod in the vicinity of farms could be introduced.”.

Today, at least in Norway, you must keep a distance of more than 100 meters from the closest fish farm when fishing, (www.fiskeridir.no), and restriction on fishing in the vicinity of farms are already implemented.

Conclusions

This is a well written paper, mainly based on sound scientific principles. My main criticisms are related to the presentations of the main findings in the Abstract. However, a paper has to be evaluated in total, and not by the Abstract alone.