

Title: **Bio-Economic Modelling of the Red King Crab Invasion in the Barents Sea**

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Abstract: The red king crab (*Paralithodes camtschaticus*) is an alien invasive species in the Barents Sea representing a value as well as a potential pest. A bio-economic model is applied analysing the costs that traditional fisheries incur as a result of the king crab invasion, as well as the income from king crab harvest. Since the impact of the king crab on the native species is not known, bycatch costs in traditional fisheries were used as a proxy for cost related to the invasion. The model suggests that the king crab stock should be reduced in order to optimize the profit of the total fishery. The model is robust to changes in input parameters. Large uncertainties related to the costs of the king crab invasion, however, illustrate the need to improve our knowledge with regards to the effect of the king crab on the traditional fishery as well as the native ecosystem.