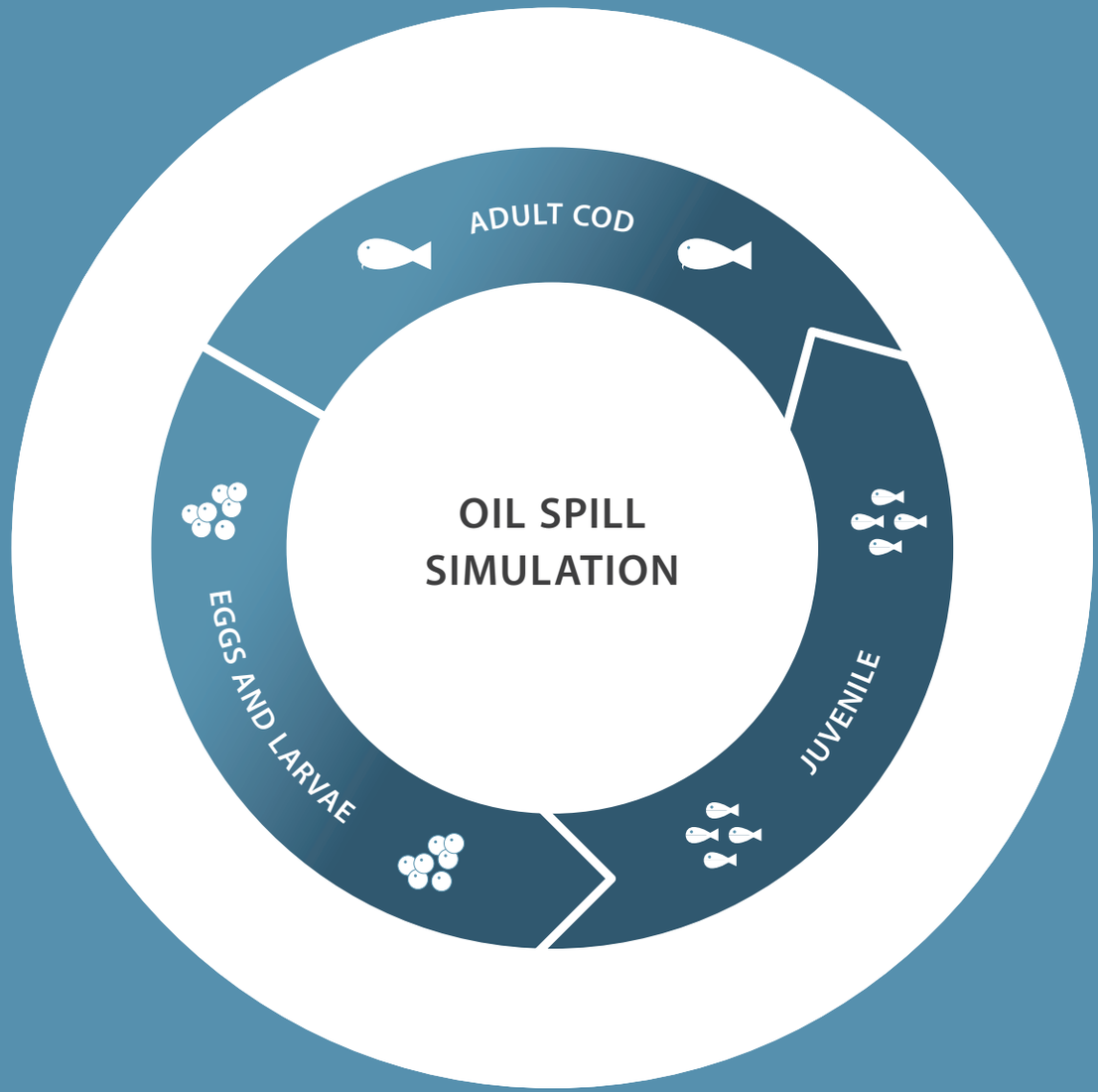
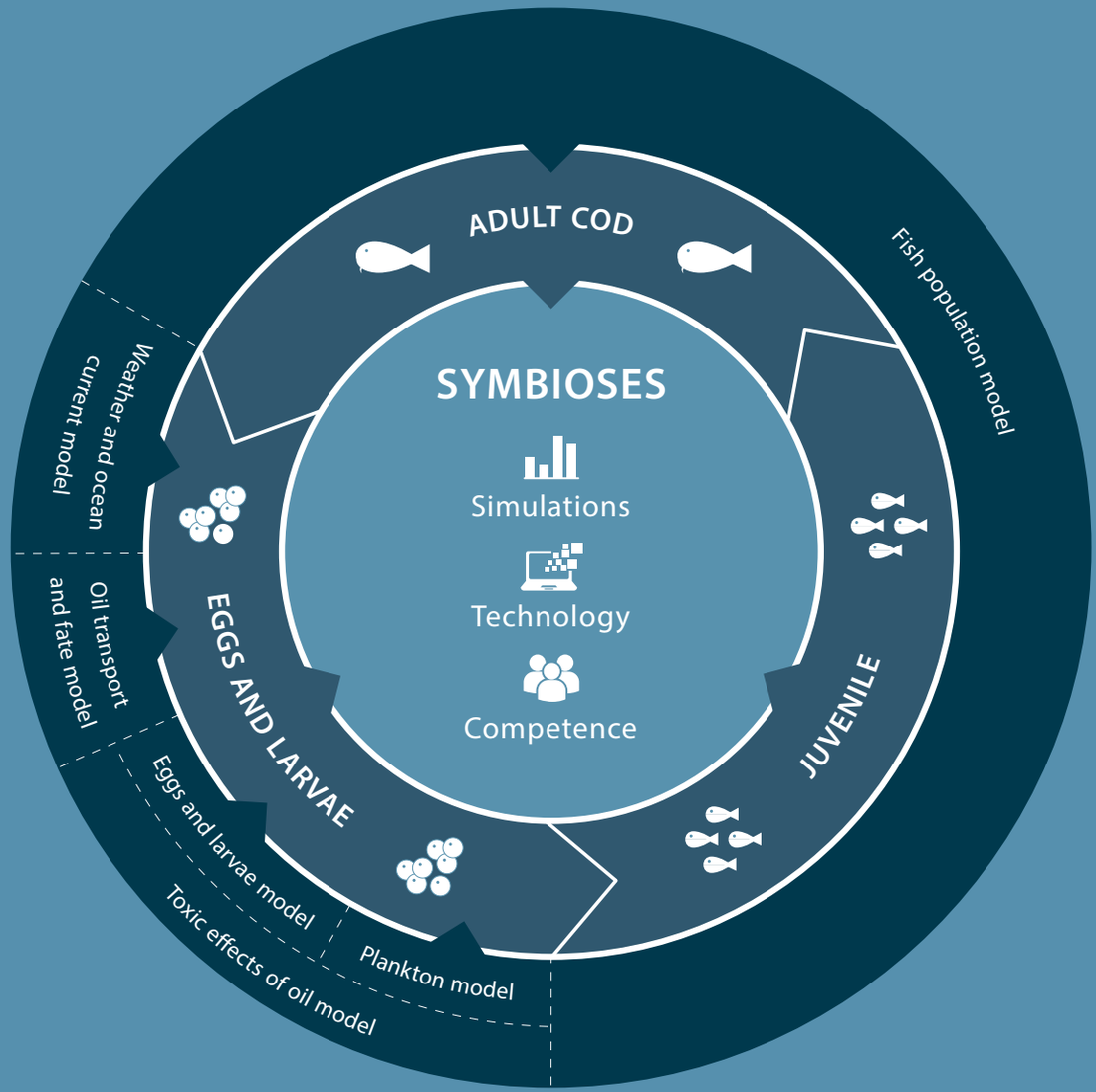


Northeast Arctic cod stock is more robust against oil spill impacts than assumed

- Our simulations of major oil spills suggest that recruitment of juveniles into the adult stock is sufficient to maintain the reproductive health of Northeast Arctic cod
- Most oil spill scenarios reduce the biomass of the adult stock by less than 3%. A worst case scenario leads to a 12% reduction in the adult stock biomass
- The North Arctic cod stock remains at a sustainable level

For more information about SYMBIOSES and the impact simulation results contact head of project, JoLynn Carroll, jc@akvaplan.niva.no



SYMBIOSES – An ecosystem-based modeling system for predicting potential impact on the Northeast Arctic cod fishery from petroleum accidents

As a substitute for real-life experimentation, combining proven scientific models allowed us to examine how an oil spill would impact on cod stock within relevant space and time-based scales;

- To simulate the effects on fish eggs and larvae an oil fate and transport model was combined with a model simulating plankton growth and the development of eggs and larvae in the environment.
- For juvenile and adult cod a well-established model for predicting the development of the fish population – also used to calculate fishing quotas – was utilized to simulate effects, with and without an oil spill scenario.

152 oil spill simulations, with a wide range of data, were performed on the nursing grounds of the Northeast Arctic cod, focusing on

- how oil is transported
- the biological effects of oil compounds
- the behavior and interaction of biological material in the environment.

The simulations focus on the toxic sensitivity of fish eggs and larvae to oil, addressing both immediate and long-term effects of an oil spill.

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