

EGU21-15481

<https://doi.org/10.5194/egusphere-egu21-15481>

EGU General Assembly 2021

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Combining current velocity data from different sources as input to coastal zone management

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Sustainable development of the aquaculture industry depends on wise coastal zone management. Aquaculture in Norway is typically found in small, rural municipalities that may lack expertise in marine ecology. In the project "Precise coastal zone planning with focus on aquaculture" we combine marine maps with in situ data and model results to produce a management tool for easier and more efficient aquaculture planning.

Our study area comprises five municipalities in Western Norway and includes both fjords and open coast. High resolution marine maps exist for the area. We also have access to environmental assessments from aquaculture sites, sediment samples for Total Organic Carbon (TOC), and current velocity time series from oceanographic moorings. We will compare the in situ data with output from two current models (Sinmod and NorKyst-800). The data will be used to produce thematic maps of key characteristics, mainly current and organic carbon content, to help administrators identify areas suitable for different types of aquaculture.

Here, we present results from in situ measurements that will provide the current velocity input to the thematic maps. Data from seven oceanographic moorings placed in the fjord system show the current variability on time scales from hours to years. In addition we have done four 1-month deployments of a current profiler on sites selected to improve the geographical data coverage. We show preliminary results and discuss the challenges in simplifying variable current fields in an area with complex geography into an overall map.