**ARCTIC-COLORS - COASTAL LAND OCEAN INTERACTIONS IN THE ARCTIC**

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Arctic-COLORS is a Field Campaign Scoping Study funded by NASA's Ocean Biology and

Biogeochemistry Program that aims to improve understanding and prediction of land-ocean interactions in a rapidly changing Arctic coastal zone, and assess vulnerability, response, feedbacks and resilience of coastal ecosystems, communities and natural resources to current and future pressures. Our project goal is to develop a report for NASA that describes and justifies the design of an integrative, interdisciplinary oceanographic field campaign program that addresses high priority science questions related to land-ocean interactions in the Arctic, and assess the impacts of natural and anthropogenic changes on coastal ocean biology, biogeochemistry and biodiversity. This field campaign will be composed of multiple research cruises with sufficient seasonal and spatial coverage to resolve the science questions proposed by the Arctic-COLORS team. The science in our field campaign will be focused on five overarching questions:

1. How do coastal Arctic biogeochemical transformation zones impact terrestrial, riverine, atmospheric, and coastal materials across the continuum of Arctic rivers, estuaries and the continental shelf?
2. How do Arctic riverine, atmospheric, and other fluxes of constituents effect changes in coastal ecology?
3. How does thawing of Arctic permafrost—either directly through coastal erosion or indirectly through changing freshwater loads—translate to quantitative changes in coastal ecology and biogeochemistry?
4. How do changing snow and ice conditions and coastal circulation effect changes in estuarine and coastal ecology and biogeochemistry?
5. How do changing environmental (short-term) and climate (long-term) conditions alter the region’s availability and use of ecosystem services?

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