

Data management in a project combining local and traditional knowledge and “western” science to identify Important Ecological Areas in U.S. Arctic waters.

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Oceana is working with regional entities and local communities in the Arctic to identify Important Ecological Areas (IEAs) in U.S. Arctic waters. IEAs are geographically delineated areas which by themselves or in a network have distinguishing ecological characteristics, are important for maintaining habitat heterogeneity or the viability of a species, or contribute disproportionately to an ecosystem's health, including its productivity, biodiversity, functioning, structure, or resilience. The identification of IEAs will be based upon the best available information, which encompasses both local and traditional knowledge (LTK) and “western” science. Although the International Polar Year and research associated with potential expansion of industrial activities in the U.S. Arctic has recently expanded the “western” science available for the region, that science remains patchy in space, time, and topical coverage. Incorporating LTK into the identification of IEAs is critical in the Arctic. This project combines different types of knowledge into a common platform for analyses. Combining LTK and “western” science present methodological and data management challenges to ensure analyses and other products are both respectful of LTK holders and scientifically credible.

Local and traditional knowledge is incorporated into the spatial information used to identify IEAs in four ways. (1) Previously documented LTK, including documentation of subsistence use areas and spatial information about species, is gathered and included with “western” science in a GIS database. (2) Targeted LTK is documented and included in the GIS database to fill large information gaps. (3) Peer reviews of “western” scientific spatial information are conducted by local community experts (e.g., to correct the size and location of walrus haul outs). And (4) semi-directed interviews of local community experts are conducted to identify IEAs and help validate and determine the robustness of analyses.

Data management of LTK in this project addresses several traditional issues as well as more novel issues that arise from combining and analyzing information from multiple sources. Similar to many other projects LTK data management in this project includes taking and organizing appropriate metadata, following informed consent agreements, ensuring accurate representation of information, and protecting the cultural integrity and rights of participants. In addition through review of “western” information by local community experts and analyses containing both LTK and “western” science, this project combines LTK with “western” science into new products. Data management is complicated by the need to keep track of and organize information in such a way that combined products and meta-analyses include appropriate source data information. As the use of LTK in research and management continues to expand, data management systems should take into consideration the potential for LTK information to be combined with other information and used in meta-analysis. This forethought will help ensure that LTK information continues to be used respectfully and appropriately long after it is documented.

Oceana is an international, non-profit ocean conservation organization, dedicated to protecting the world's oceans. We have an Arctic program focused on addressing the rapidly changing conditions in the Arctic, of which the IEA project is a critical component of our work.