

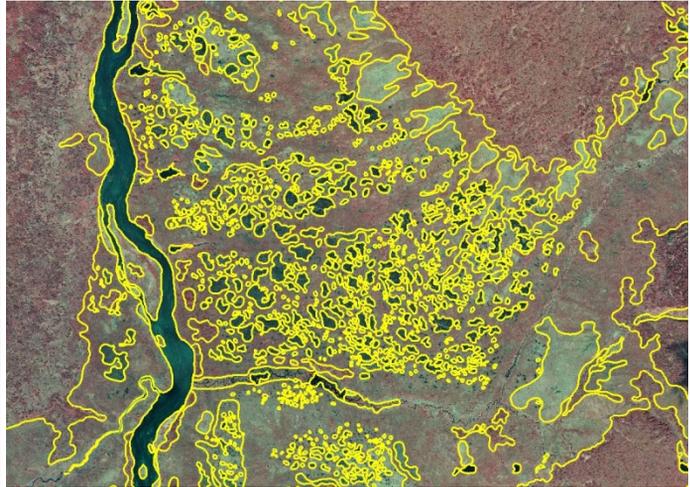
Alaska National Wetland Inventory: Enhanced Mapping and Wetland Functional Assessment

One of the perennial challenges with original National Wetland Inventory (NWI) data in Alaska is utilizing the product for site specific management planning including habitat preservation, enhancement, and restoration. The utility of existing NWI data for site and species-specific decision support was limited by the methods, technology, and funding available for original data creation.

Advancements in methods and technology have significantly improved data resolution and utility while preserving data creation costs at manageable levels. Wetland classification confidence is also increased due to the resolution of the mapping. That is to say, there is far less “lumping” of wetland features into broad (combined) habitat categories because the wetland boundaries are more discretely defined (See figures below to note differences).



National Wetland Inventory (circa 1984) with a nominal minimum mapping unit of 5 -10 acres and an average polygon size of 70 acres.



National Wetland Inventory (circa 2010) with a nominal minimum mapping unit of 0.5 acres.

Finally, through the mapping and correlation of additional wetland descriptive metrics within the NWI database to a list of common ecological services, each wetland is now tagged with a list of function attributes that define the services a particular wetland is performing along with its importance relative to other wetlands in the surrounding area.

It is important to note that these significant improvements to the National Wetland Inventory **do not** require significant increases in the project budget. Technology and process improvements, as well as the availability and quality of collateral spatial datasets, offset much of the data development costs.

The functions that are currently being assessed include the following:

Wetland Functional Correlation

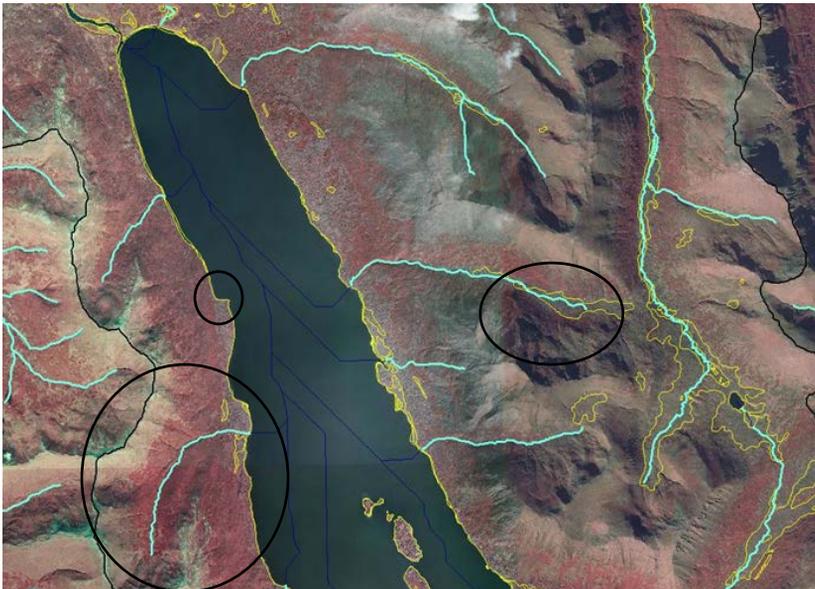
Potential Wetland Functions for Assessment

Physical and Biogeochemical Functions	Habitat Functions
<ul style="list-style-type: none"> Surface Water Detention Streamflow Maintenance Energy Dissipation Groundwater Recharge Shoreline Stabilization Nutrient Transformation Carbon Sequestration Sediment or Particulate Retention 	<ul style="list-style-type: none"> Fish Habitat Aquatic Invertebrate Habitat Waterfowl Habitat Water Bird Habitat Amphibian Habitat Other Wildlife Habitat Conservation of Biodiversity

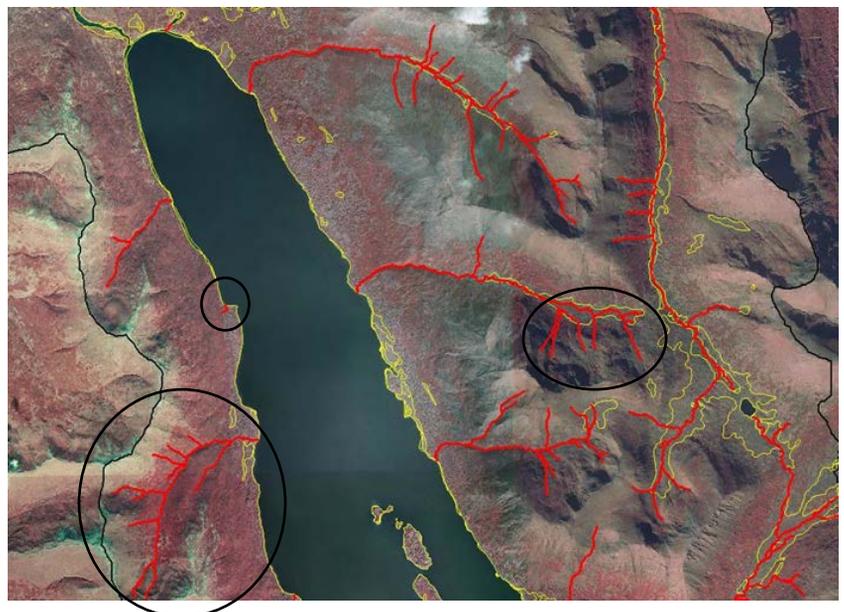


Specific improvements in the resolution of the wetland data are only one aspect of the enhanced utility of these updated NWI products. This new mapping approach is no longer focused just on wetland inventory but also on wetland functional assessment and the provision of data for site level planning and management activities. As a result, through the consideration of additional collateral datasets during the mapping process [e.g. LiDAR, NHD, derived elevation products (CTI, ORI, and curvature), NRCS soil (SSURGO) and vegetation inventories, other remotely sensed imagery, etc.], wetland datasets are now being populated with additional descriptive metrics related to ecosystem function. These metrics can be customized by project in order to address regional and site specific management priorities.

As an example, a key habitat focus for the Kodiak National Wildlife Refuge is on salmon spawning, rearing, and migration. With this in mind, habitat requirements for salmon were incorporated in the wetland mapping process and additional data such as, connectivity of wetlands to perennial streams, densification of the existing stream network to include intermittent and ephemeral waters, and identification of groundwater sources were collected and stored along with the NWI product (See figures below to note differences).



Original stream network surrounding Karluk Lake in Kodiak National Wildlife Refuge.



Updated stream network surrounding Karluk Lake in Kodiak National Wildlife Refuge.

