

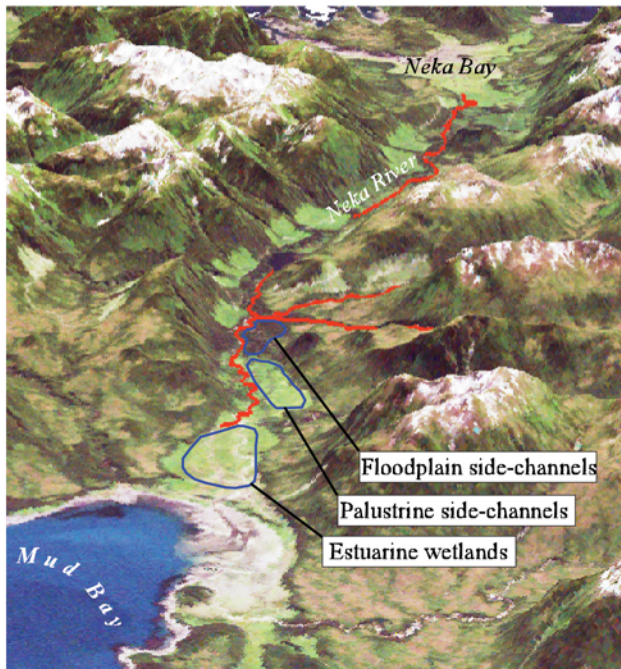
A Landscape-based model of salmon habitat in Southeast Alaska

Example: Coho Salmon in Mud Bay Watershed, Chichagof Island

Summary

The ADF&G Fish Distribution Database contains field-verified information on distribution of anadromous fish, but many streams have not yet been surveyed. The USFS Stream inventory contains better mapping of streams, and includes information on stream habitat, but salmon distribution is not verified and many smaller streams remain unmapped. We adopted a landscape-modeling approach to identify potential salmon habitat based on the ADF&G database and adjacent floodplain areas. Class 1 streams in the USFS inventory within anadromous floodplains also were considered likely habitat for anadromous fish. We believe this provides a better estimate of relative watershed values for salmon than one based on the ADF&G database alone.

Existing Data and Data Gaps



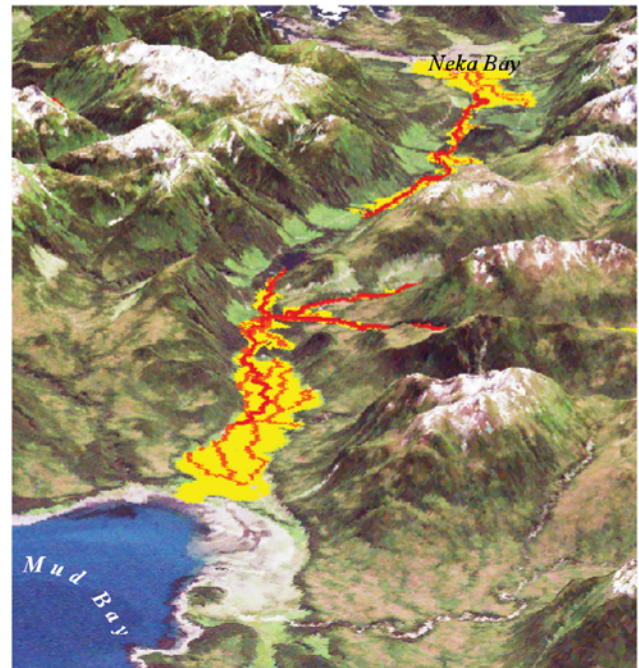
- Coho distribution based on the ADF&G Fish Distribution Database
- Data Gaps: Adjacent areas with high probability of salmon habitat

Watershed Values

Our objective is to rank watersheds by their relative value as salmon habitat. We considered species richness as well as habitat capability. In this context, watersheds with extensive estuarine, palustrine and floodplain habitats are more valuable than narrow valleys with contained channels, but this difference would not be reflected using a simple linear estimator of salmon habitat. We believe that this landscape-based approach provides a better method for evaluation these important wetland features when used in combination with existing data on salmon distribution.



Salmon Habitat - Floodplain Model



- Coho distribution based on the ADF&G Fish Distribution Database
- Floodplain Model
- USFS Class 1 Streams (within anadromous floodplain)

Floodplain Model

The floodplain model was developed using the PATHDISTANCE method (ESRI, ArcInfo GIS). Each cell is given a score or "cost" based on slope and distance to streams that represents the declining likelihood of salmon-associated wetlands or side-channels. Thresholds were set based on examination of existing stream data and satellite imagery. Class 1 streams from the USFS inventory within floodplain buffers were included as potential habitat for spawning and rearing of anadromous fish.

