EVOS GEM Project Number: 040726

Presence and Effects of Marine Derived Nutrients (MDN) in Stream, Riparian and Nearshore Ecosystems on Southern Kenai Peninsula, Alaska: Developing Monitoring Tools for Tracking MDN in Alaska Watersheds.

Principal Investigators:

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Time Period Covered by Report: July – September 2004

Date of Report: October 28, 2004

1. **Work Performed:**

- **Weir operation**. The weir on the North Fork of the Anchor River was removed on September 15 with assistance from the ADFG Division of Sport Fish. The weir enabled us to sample the chinook and coho runs on the North Fork of the Anchor River. A total of 1919 chinook and 677 coho were sampled (Figure 1). We were able to obtain length, girth and weight data on a subsample of fish, and use this information to develop a model for predicting fish weight, based on length and girth. We will use this to model cumulative chinook and coho biomass in the North Fork system. The biomass estimations will provide important information for the consideration of future study design decisions, and for data analysis.

- **Stream invertebrate, fish and riparian vegetation sampling**. In August, we completed the second round of food web sampling, intended to assess the marine derived nutrient inputs from the chinook run. Food web samples have been prepped for stable isotope and fatty acid analysis.

- **Water chemistry nutrient proxy**. Weekly water chemistry sampling at the weir site (station 5 on the North Fork) and on station 5 of Happy Valley Creek continued until September 15, when the weir was dismantled. The samples have been submitted to the Cook Inlet Keeper for analysis. We expect to receive data from the Keeper at the end of November.

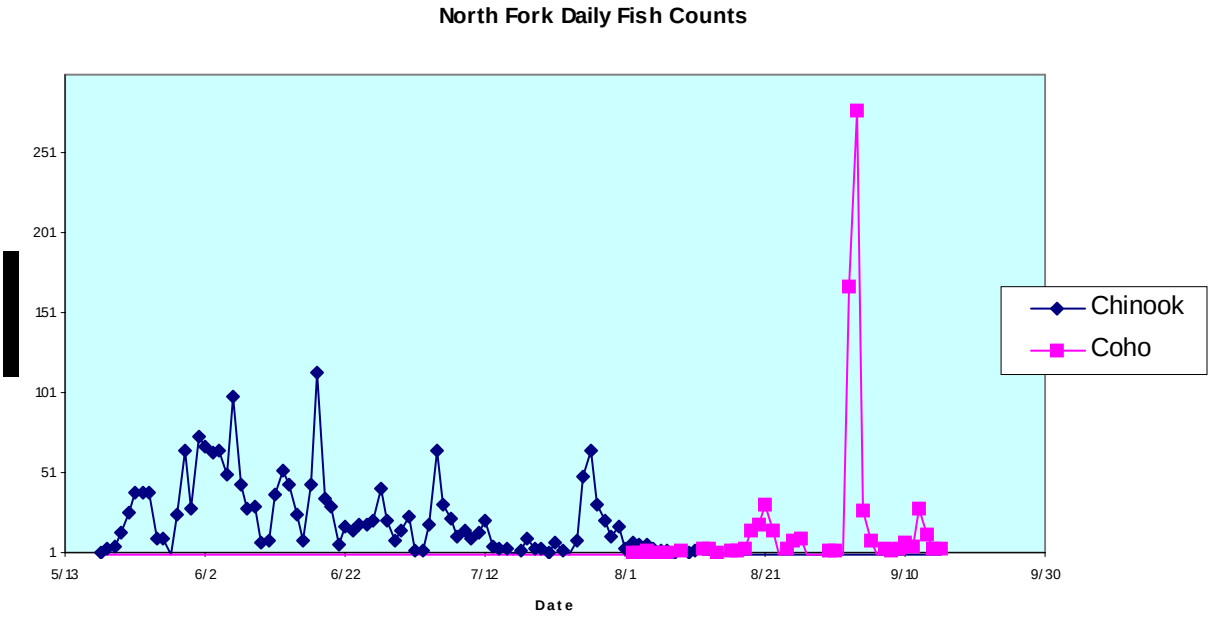

Figure 1. Daily chinook and coho counts for the North Fork of the Anchor River

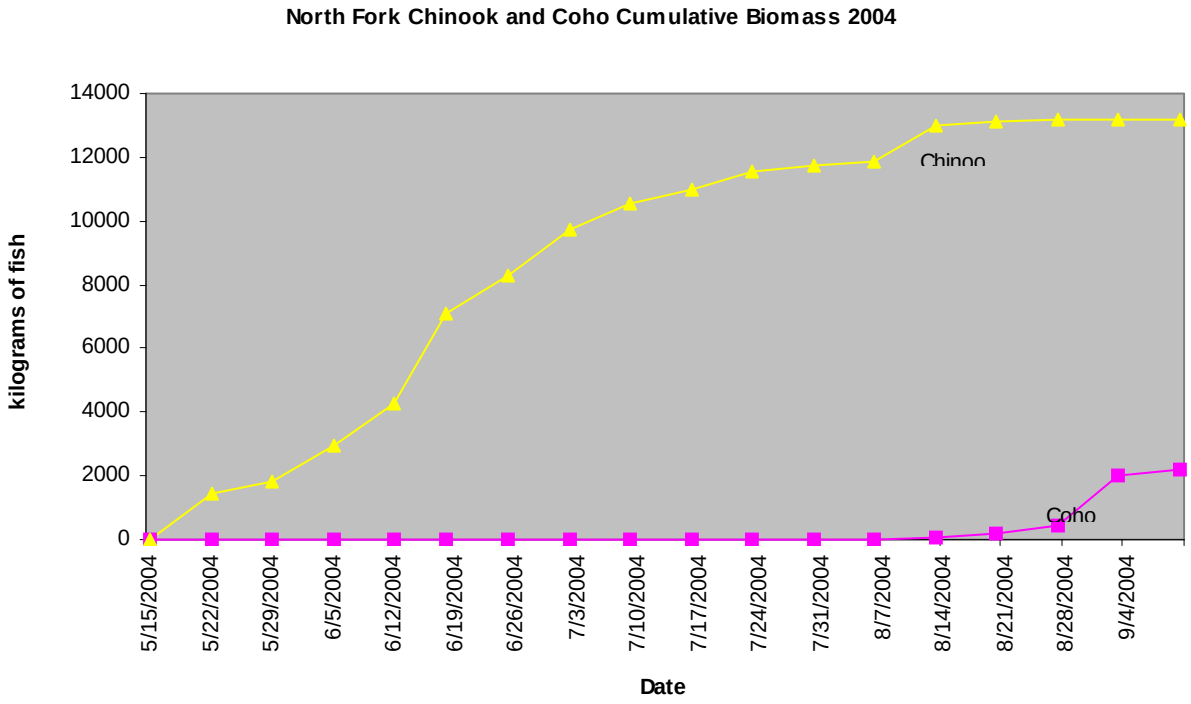

Figure 2. Estimated cumulative biomass of chinook and coho salmon on the North Fork of the Anchor River.

- **Nearshore sampling.** We continued to collect algal growth samples every three weeks in order to analyze chlorophyll production and biomass. Our efforts to capture data from nearshore moorings with larval/algae collection plates failed when the moorings were lost at sea. Next year, we plan to culture barnacles and set them on moored plates to assess growth as a response to nutrient loadings from the river systems.

- **Growth allocation in juvenile fish.** We collected juvenile Dolly Varden from the five upper sampling stations on each stream in August. We arranged with Ron Heintz, who is analyzing these fish for growth allocation, that the same fish could be used for fatty acid analysis, thereby reducing the number of fish that we need to sacrifice. In addition to the juvenile fish, we collected 5 adult female chinook with eggs from the weir and sent these frozen to the Auke Bay lab.

Administration

- The renewed Reimbursable Services Agreement between the University of Alaska, Anchorage and the Research Reserve to transfer funds for the graduate student, travel and fatty acid/lipid analysis is still being processed. We hope to have it completed by the end of October.
- A contract was established between the US Geological Survey and the Research Reserve for stable isotope analysis.

Outreach

We gave a presentation on the project at the Reserve's Advisory Council meeting held in Seldovia on September 14.

For more information on the progress of this project, please see the quarterly progress reports, or contact Coowe Walker, project coordinator.

Signature of PI:

Coowe Walker
KBRR Watershed Specialist
Co-Principal Investor