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GENETIC STOCK IDENTIFICATION OF JUVENILE CHINOOK AND COHO SALMON IN THE NORTHERN CALIFORNIA CURRENT

PRINCIPAL INVESTIGATORS: David Teel
Manchester Field Station
Northwest Fisheries Science Center
P.O. Box 130
Manchester, WA 98353
E-mail: David.Teel@noaa.gov

Dr. Jim Myers
Northwest Fisheries Science Center
2725 Montlake Blvd E.
Seattle, WA 98112
E-mail: Jim.Myers@noaa.gov

OTHER INVESTIGATORS: Dr. Laurie Weitkamp (Northwest Fisheries Science Center, Hatfield Marine Science Center Newport, OR 97365) and Don Van Doornik (Northwest Fisheries Science Center, Manchester Field Station, Manchester, WA 98353)

PROJECT SUMMARY

One of the core hypotheses of the Northeast Pacific GLOBEC project is that events in coastal regions during the early stages of migration and maturation largely influence the survivals of chinook and coho salmon. To test this hypothesis, juvenile salmon are being sampled at several nearshore localities in the Northern California Current in related GLOBEC projects to study feeding ecology and growth. Chinook and coho salmon express complex life history patterns, and this variability can influence the interactions between coastal variability and juvenile salmon survival. Collections of juveniles in coastal waters generally include individuals from a heterogeneous mix of populations with, often genetically influenced, life-history differences that affect growth and migration. An understanding of the vital features of juveniles in coastal waters requires the identification of the life-history types being studied. One approach is to use Genetic Stock Identification (GSI) to identify the populations of origin.

We are analyzing samples of juvenile chinook and coho (when available in sufficient numbers) salmon for genetic variability and to provide estimates of population origin with proven GSI methods. Characterization of the space-time variability in stock compositions is used to describe shifts in abundances and differences in migration patterns of genetically distinct populations. Annual patterns of variability are used to understand the relationship between environmental fluctuations and juvenile salmon abundance.
1) Key major objectives to our proposed study (from proposal):

(1) to provide estimates of population origin, and life-history type, to refine estimates of growth and survival being made in other studies.

(2) Search for seasonal and annual patterns of variability in the juvenile ocean migration of naturally spawned fish.

2) Papers or presentations that discuss the above objectives (in parentheses):

Presentations:


Teel, D., D. Van Doornik, and D. Kuligowski. “Genetic mixed stock analysis of juvenile chinook salmon in coastal areas of the Pacific Northwest.” Annual Meeting of the Western Division American Fisheries Society, San Diego, CA, April 2003. (2)

Weitkamp, L. “Differences in early ocean ecology of chinook and coho salmon in SE Alaska: Possible cause for differential survival?” Annual Meeting of the Western Division American Fisheries Society, San Diego, CA, April 2003. (1)


Jacobson, K., R. Baldwin, and D. Teel. “Parasite community composition: Insights on the ecology and migration of juvenile salmon.” NPAFC Stock Identification Workshop, Honolulu, HI, November 2003. (1,2)

Teel, D. “Genetic Mixed Stock Analysis of Juvenile Chinook Salmon in Coastal Areas of Western North America.” NPAFC Stock Identification Workshop, Honolulu, HI, November 2003. (2)


Van Doornik, D., D. Teel, and D. Kuligowski. “Creation of a microsatellite baseline for southern coho salmon populations.” Coastwide Salmonid Genetics Meeting, Newport OR, June 2004. Poster presentation. (2)

**Publications:**


3) Online status of data.

At present, only baseline genetic (allozyme) data are available online (http://www.nwfsc.noaa.gov/publications/displayallinfo.cfm?docmetadataid=3555). By the end of 2005, stock composition estimates will be made available on a NWFSC server, with links from GLOBEC websites.

4) Papers to be submitted by the Fall of 2005.
