AFSC/ABL: Chinook allozyme baseline 2004-2008

Theme keywords: Biota, 002, Allozyme, postglacial colonization, stock identification

Abstract: Allozyme variation was used to examine population genetic structure of adult chinook salmon, Oncorhynchus tshawytscha, collected between 1988 and 1993 from 22 spawning locations in Southeast Alaska and northern British Columbia. Thirty-five loci and two pairs of isoloci were variable, and of these, 25 loci and one pair of isoloci expressed the most abundant allele with a frequency of less than or equal to 0.95 in at least one collection. Aneighbor-joining (NJ) tree of genetic distances defined five regional groups: (1) King Salmon River (the only island collection), which has large allelic frequency differences from other populations in this study; (2) heterogeneous coastal populations from southern southeast Alaska; (3) transmountain collections from the Taku and Stikine Rivers on the eastern side of the coastal mountain range; (4) Chilkat River in northern Southeast Alaska; and (5) northern coastal Southeast Alaska, which consists of the Situk River and the Klukshu River, a tributary of the Alsek River. A second NJ tree that included collections from the Yukon River and British Columbia did not reveal any strong genetic similarity between Southeast Alaska and the Yukon River. The data suggest that Southeast Alaska may have been colonized from both northern and southern refugia following the last glaciation – a period of sufficient time to allow for isolation by distance to occur.

FGDC, ESRI, and Biological Profile Metadata:

Metadata elements shown with **blue** text are defined in the Federal Geographic Data Committee's (FGDC) *Content Standard for Digital Geospatial Metadata (CSDGM)*. Elements shown with **green** text are defined in the *ESRI Profile of the CSDGM*. Elements shown with **brown** text are defined in the *NBII Biological Profile of the CSDGM*. Elements shown with a green asterisk (*****) will be automatically updated by ArcCatalog. ArcCatalog adds hints indicating which FGDC elements are mandatory; these are shown with gray text.

Identification Information:

Citation:

Citation information:

Originators: Chuck Guthrie, AFSC

Title:
AFSC/ABL: Chinook allozyme baseline 2004-2008

Publication date: 2004
Geospatial data presentation form: maps and data

Other citation details:
Gurthrie, C. M. III and R. L. Wilmot. 2004. Genetic structure of wild chinook salmon populations of Southeast Alaska and northern British Columbia. Environmental Biology of Fishes 69(1-4):81–93.

Description:

Abstract:
Allozyme variation was used to examine population genetic structure of adult chinook salmon, Oncorhynchus tshawytscha, collected between 1988 and 1993 from 22 spawning locations in Southeast Alaska and northern British Columbia. Thirty-five loci and two pairs of isoloci were variable, and of these, 25 loci and one pair of isoloci expressed the most abundant allele with a frequency of less than or equal to 0.95 in at least one collection. Aneighbor-joining (NJ) tree of genetic distances defined five regional groups: (1) King Salmon River (the only island collection), which has large allelic frequency differences from other populations in this study; (2) heterogeneous coastal populations from southern southeast Alaska; (3) transmountain collections from the Taku and Stikine Rivers on the eastern side of the coastal mountain range; (4) Chilkat River in northern Southeast Alaska; and (5) northern coastal Southeast Alaska, which consists of the Situk River and the Klukshu River, a tributary of the Alsek River. A second NJ tree that included collections from the Yukon River and British Columbia did not reveal any strong genetic similarity between Southeast Alaska and the Yukon River. The data suggest that Southeast Alaska may have been colonized from both northern and southern refugia following the last glaciation – a period of sufficient time to allow for isolation by distance to occur.

Purpose:
The objectives of this study were to use allozyme variation to describe the genetic structure of chinook salmon populations in Southeast Alaska and the transboundary rivers flowing out of northern British Columbia, and to investigate possible historic relationships among some Alaskan populations and chinook salmon from other areas.

Time period of content:

Time period information:

Range of dates/times:

Beginning date: 1988
Ending date: 1993

Currentness reference:
ground condition

Status:

Progress: Complete
Maintenance and update frequency: None planned

Spatial domain:
Description of geographic extent:
Alaska, Keta River, Klukshu River, Situk River

Bounding coordinates:
West bounding coordinate: -139.41055
East bounding coordinate: -130.3211
North bounding coordinate: 60.20
South bounding coordinate: 55.33750

Keywords:
Theme:
Theme keywords: Biota, 002
Theme keyword thesaurus: ISO 19115 Topic Categories

Theme:
Theme keywords: Allozyme, postglacial colonization, stock identification
Theme keyword thesaurus: None

Place:
Place keywords: Alaska
Place keyword thesaurus: Geographic Names Information System

Taxonomy:
Keywords/taxon:
Taxonomic keywords: collection, multiple species, vertebrates
Taxonomic keyword thesaurus: None

Taxonomic classification:
Taxon rank name: Empire
Taxon rank value: Biovitae
Applicable common names: Carbon-based lifeforms

Taxonomic classification:
Taxon rank name: Phylum
Taxon rank value: Chordata

Taxonomic classification:

Taxon rank name: Subphylum
Taxon rank value: Vertebrata

Taxonomic classification:
Taxon rank name: Superclass
Taxon rank value: Osteichthyes

Taxonomic classification:
Taxon rank name: Class
Taxon rank value: Actinopterygii

Taxonomic classification:
Taxon rank name: Subclass
Taxon rank value: Neopterygii

Taxonomic classification:
Taxon rank name: Infraclass
Taxon rank value: Teleostei

Taxonomic classification:
Taxon rank name: Superorder
Taxon rank value: Protacanthopterygii

Taxonomic classification:
Taxon rank name: Order
Taxon rank value: Salmoniformes

Taxonomic classification:
Taxon rank name: Family
Taxon rank value: Salmonidae

Taxonomic classification:
Taxon rank name: Subfamily
Taxon rank value: Salmoninae

Taxonomic classification:
Taxon rank name: Genus
Taxon rank value: Oncorhynchus

Taxonomic classification:
Taxon rank name: Species

Taxon rank value: tshawytscha
Applicable common names: king salmon

Access constraints: There are no legal restrictions on access to the data. They reside in public domain and can be freely distributed.

Use constraints:

User must read and fully comprehend the metadata prior to use. Data should not be used beyond the limits of the source scale. Acknowledgement of NOAA, as the source from which these data were obtained, in any publications and/or other representations of these data is suggested.

Point of contact:

Contact information:

Contact person primary:

Contact person: Chuck Guthrie
Contact organization: National Oceanic and Atmospheric Administration (NOAA) Alaska Fisheries Science Center (AFSC) Auke Bay Laboratories (ABL)

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Contact instructions:

The e-mail address directs you to the person most knowledgeable about this data. If an alternative contact person becomes necessary, use the voice phone number for referral.

Native data set environment:

Microsoft Excel Spreadsheet

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Data Quality Information:

Logical consistency report:
No logical consistency test were run.

Completeness report:
None

Lineage:
Process step:
Process description:
No process steps have been described for this data set

Process date: Unknown

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Distribution Information:

Distributor:
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Distribution liability:
The user is responsible for the results of any application of this data for other than its intended purpose.

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Metadata Reference Information:

Metadata date: 20081203
Metadata review date: 20100122

Metadata contact:
Contact information:
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Contact person: Emily Fergusson
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Contact position: Metadata coordinator

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Metadata standard name: FGDC Biological Data Profile of the Content Standard for Digital Geospatial Metadata
Metadata standard version: FGDC-STD-001.1-1999

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