

AFSC/ABL: Rockfish allozyme species identification (*Sebastes aleutianus* and *borealis*)

Theme keywords: Biota, 002

Abstract: Rougheye rockfish (*Sebastes aleutianus*) and shortraker rockfish (*Sebastes borealis*) were collected from the Washington coast, the Gulf of Alaska, the southern Bering Sea, and the eastern Kamchatka coast of Russia (areas encompassing most of their geographic distribution) for population genetic analyses. Using starch gel electrophoresis, we analyzed 1027 rougheye rockfish and 615 shortraker rockfish for variation at 29 protein-coding loci. No genetic heterogeneity was found among shortraker rockfish throughout the sampled regions, although shortraker in the Aleutian Islands region, captured at deeper depths, were found to be significantly smaller in size than the shortraker caught in shallower waters from Southeast Alaska. Genetic analysis of the rougheye rockfish revealed two evolutionary lineages that exist in sympatry with little or no gene flow between them. When analyzed as two distinct species, neither lineage exhibited heterogeneity among regions. *Sebastes aleutianus* seems to inhabit waters throughout the Gulf of Alaska and more southern waters, whereas *S. sp. cf. aleutianus* inhabits waters throughout the Gulf of Alaska, Aleutian Islands, and Asia. The distribution of the two rougheye rockfish lineages may be related to depth where they are sympatric. The paler color morph, *S. aleutianus*, is found more abundantly in shallower waters and the darker color morph, *Sebastes sp. cf. aleutianus*, inhabits deeper waters. *Sebastes sp. cf. aleutianus*, also exhibited a significantly higher prevalence of two parasites, *N. robusta* and *T. trituba*, than did *Sebastes aleutianus*, in the 2001 samples, indicating a possible difference in habitat and (or) resource use between the two lineages.

FGDC, ESRI, and Biological Profile Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

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: Sharon Wildes, AFSC

Title:

AFSC/ABL: Rockfish allozyme species identification (Sebastes aleutianus and borealis)

Publication date: 2005

Geospatial data presentation form: maps and data

Other citation details:

Hawkins, S. L., J. Heifetz, C. M. Kondzela, J. E. Pohl, R. L. Wilmot, O. N. Katugin, V. N. Tuponogov. 2005. Genetic variation of rougheye rockfish (*Sebastes aleutianus*) and shortraker rockfish (*S. borealis*) inferred from allozymes. *Fishery Bulletin* 103(3):524-535.

Description:

Abstract:

Rougheye rockfish (*Sebastes aleutianus*) and shortraker rockfish (*Sebastes borealis*) were collected from the Washington coast, the Gulf of Alaska, the southern Bering Sea, and the eastern Kamchatka coast of Russia (areas encompassing most of their geographic distribution) for population genetic analyses. Using starch gel electrophoresis, we analyzed 1027 rougheye rockfish and 615 shortraker rockfish for variation at 29 protein-coding loci. No genetic heterogeneity was found among shortraker rockfish throughout the sampled regions, although shortraker in the Aleutian Islands region, captured at deeper depths, were found to be significantly smaller in size than the shortraker caught in shallower waters from Southeast Alaska. Genetic analysis of the rougheye rockfish revealed two evolutionary lineages that exist in sympatry with little or no gene flow between them. When analyzed as two distinct species, neither lineage exhibited heterogeneity among regions. *Sebastes aleutianus* seems to inhabit waters throughout the Gulf of Alaska and more southern waters, whereas *S. sp. cf. aleutianus* inhabits waters throughout the Gulf of Alaska, Aleutian Islands, and Asia. The distribution of the two rougheye rockfish lineages may be related to depth where they are sympatric. The paler color morph, *S. aleutianus*, is found more abundantly in shallower waters and the darker color morph, *Sebastes sp. cf. aleutianus*, inhabits deeper waters. *Sebastes sp. cf. aleutianus*, also exhibited a significantly higher prevalence of two parasites, *N. robusta* and *T. trituba*, than did *Sebastes aleutianus*, in the 2001 samples, indicating a possible difference in habitat and (or) resource use between the two lineages.

Purpose:

The objective of this study is to examine the population structure of rougheye and shortraker rockfish by using allozyme variation.

Time period of content:

Time period information:

Range of dates/times:

Beginning date: 1993

Ending date: 2001

Currentness reference:

ground condition

Status:**Progress:** Complete**Maintenance and update frequency:** None planned**Spatial domain:****Description of geographic extent:**

Gulf of Alaska; Bering Sea; Washington coast; Unalaska Island

Bounding coordinates:**West bounding coordinate:** 171.4**East bounding coordinate:** -125.2**North bounding coordinate:** 60.5**South bounding coordinate:** 47.6**Keywords:****Theme:****Theme keywords:** Biota, 002**Theme keyword thesaurus:** ISO 19115 Topic Categories**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:** Kingdom**Taxon rank value:** Animalia

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: Acanthopterygii

Taxonomic classification:

Taxon rank name: Order
Taxon rank value: Scorpaeniformes

Taxonomic classification:

Taxon rank name: Suborder
Taxon rank value: Scorpaenoidei

Taxonomic classification:

Taxon rank name: Family
Taxon rank value: Scorpaenidae

Taxonomic classification:

Taxon rank name: Genus
Taxon rank value: Sebastes

Taxonomic classification:
Taxon rank name: Species
Taxon rank value: aleutianus
Applicable common names:
roughey rockfish

Taxonomic classification:
Taxon rank name: Species
Taxon rank value: borealis
Applicable common names:
shortraker rockfish

Access constraints: Contact the Point of Contact for data request form.

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: Sharon Wildes

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

Contact address:

Address type: mailing and physical

Address:

17109 Point Lena Loop Road

City: Juneau

State or province: AK

Postal code: 99801

Country: USA

Contact voice telephone: 907-789-6000

Contact facsimile telephone: 907-789-6094

Contact electronic mail address: sharon.wildes@noaa.gov

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:

Contact information:

Contact person primary:

Contact person: Sharon Wildes

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

Contact address:

Address type: mailing and physical

Address:

17109 Point Lena Loop Road

City: Juneau

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Contact electronic mail address: sharon.wildes@noaa.gov

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.

Resource description: Offline data

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: 20081205

Metadata review date: 20100129

Metadata contact:

Contact information:

Contact person primary:

Contact person: Emily Fergusson

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

Contact position: Metadata coordinator

Contact address:

Address type: mailing and physical

Address:

17109 Point Lena Loop Road

City: Juneau

State or province: AK

Postal code: 99801

Country: USA

Contact voice telephone: Use e-mail to contact the metadata coordinator.

Contact facsimile telephone: 907-789-6094

Contact electronic mail address: AFSC.metadata@noaa.gov

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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