Package: VRData (via r-universe)

November 26, 2024

Type Package

Title NWFSC PNW Salmonid Viability Reports Data Package

Description This R package has the spawner and fraction wild data used
to make the common metrics tables and figures used in the PNW
Salmonid Viability Reports.

Version 2.3

Date 2022-04-21

Depends R (>= 3.5.0)

Imports here, stringr, dplyr, kableExtra, utils, rlang

Suggests rmarkdown, knitr, ggplot2

URL https://nwfsc-math-bio.github.io/VRData,
https://github.com/nwfsc-math-bio/VRData

BugReports https://github.com/nwfsc-math-bio/VRData/issues

Maintainer Elizabeth Holmes - NOAA Federal <eli.holmes@noaa.gov>

License file LICENSE

LazyData false

Roxygen list(markdown = TRUE)

RoxygenNote 7.1.2

VignetteBuilder knitr

Config/pak/sysreqs libfontconfig1-dev libfreetype6-dev make libicu-dev
libpng-dev libxml2-dev

Repository https://nmfs-opensci.r-universe.dev

RemoteUrl https://github.com/nwfsc-math-bio/VRData

RemoteRef HEAD

RemoteSha 1511807c895c5adfd1b146a92023a9f93bffde31

Contents

Hood-Canal-HCchum2020   *Hood-Canal-HCchum2020*

Description

Spawner and fraction wild data. Species: Summer Chum. Method: . View raw data or Download raw data

Spawner and fraction wild data. Species: Summer Chum.

- Strait of Juan de Fuca: Survey. View raw data or Download raw data

Spawner and fraction wild data. Species: Summer Chum.

- Strait of Juan de Fuca: . View raw data or Download raw data

Spawner and fraction wild data. Species: Summer Chum.

- Hood Canal: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

WDFW, Point No Point Treaty Council

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Strait of Juan de Fuca: Hood Canal Summer Chum Natural Origin Spawner Abundance (1971-2019). Spawner abundance data. Point No Point Treaty Council and Washington Department of Fish and Wildlife. Personal Communication with Mindy Rowse, 2020.

- Hood Canal: Hood Canal Summer Chum Natural Origin Spawner Abundance (1968-2019). Spawner abundance data. Point No Point Treaty Council and Washington Department of Fish and Wildlife. Personal Communication with Mindy Rowse, 2020.

Examples

```
data('Hood-Canal-HCchum2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Hood-Canal-HCchum2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Ozette-Lake-Sockeye-Salmon-ESU-OzetteSockeye2020
                    Ozette-Lake-Sockeye-Salmon-ESU-OzetteSockeye2020

Description

Spawner and fraction wild data. Species: Sockeye. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Martin Liermann

CITATION Data citation. Listed under References below.

Source

Makah Fisheries Management, Makah Tribe

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source: Personal communication with Mike Haggerty, Makah Fisheries Management, Makah Tribe.

Examples

```
data('Ozette-Lake-Sockeye-Salmon-ESU-OzetteSockeye2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Ozette-Lake-Sockeye-Salmon-ESU-OzetteSockeye2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

```
Puget-Sound-PSchinook2020
```
                                      Puget-Sound-PSchinook2020

Description

Spawner and fraction wild data. Species: Chinook. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Katie Barnes

CITATION Data citation. Listed under References below.

Source

- North Fork Nooksack Chinook: WDFW, Stillaguamish Tribe
- South Fork Nooksack Chinook: WDFW, Muckleshoot Tribe
- Lower Skagit Chinook: WDFW, Skagit River System Coop
- Upper Skagit Chinook: WDFW, Jamestown S'Klallam Tribe
- Upper Cascade Chinook (Skagit): WDFW, Nooksack Tribe, Lummi Nation
- Lower Sauk Chinook (Skagit): WDFW, Skagit River System Coop
- Upper Sauk Chinook (Skagit): WDFW, Skagit River System Coop
- Suiattle Chinook (Skagit): WDFW, Skagit River System Coop
- North Fork Stillaguamish Chinook: WDFW, Stillaguamish Tribe
- South Fork Stillaguamish Chinook: WDFW, Stillaguamish Tribe, Tulalip Tribe
- Skykomish Chinook (Snohomish): WDFW, Tulalip Tribe
- Snoqualmie Chinook (Snohomish): WDFW, Tulalip Tribe
- Sammamish Chinook: WDFW, Muckleshoot Tribe
- Cedar Chinook: WDFW, Muckleshoot Tribe
- Green River Chinook: WDFW, Muckleshoot Tribe
- White River Chinook: WDFW, Muckleshoot Tribe, Puyallup Tribe
- Puyallup Chinook: WDFW, Muckleshoot Tribe, Puyallup Tribe
- Nisqually Chinook: WDFW, Nisqually Tribe
- Skokomish Chinook: WDFW, Jamestown S'klallam Tribe, Point No Point Treaty COuncil, Port Gamble S'klallam Tribe, Skokomish Tribe
- Mid-Hood Canal Chinook: WDFW, Skokomish Tribe, Point No Point Treaty COuncil, Port Gamble S'klallam Tribe Jamestown S'klallam Tribe
- Dungeness Chinook: WDFW, Jamestown S'Klallam Tribe
- Elwha Chinook: WDFW, Elwha Tribe

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- North Fork Nooksack Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1984-2018). Spawner abundance data. Stillaguamish Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.
- South Fork Nooksack Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1984-2018). Spawner abundance data. Muckleshoot Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Lower Skagit Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1952-2018). Spawner abundance data. Skagit River System Coop and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Upper Skagit Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1952-2018). Spawner abundance data. Jamestown S'klallam Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Upper Cascade Chinook (Skagit): Puget Sound Chinook Natural Origin Spawner Abundance (1984-2018). Spawner abundance data. Lummi Nation, Nooksack Tribe, and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Lower Sauk Chinook (Skagit): Puget Sound Chinook Natural Origin Spawner Abundance (1952-2018). Spawner abundance data. Skagit River System Coop and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Upper Sauk Chinook (Skagit): Puget Sound Chinook Natural Origin Spawner Abundance (1952-2018). Spawner abundance data. Skagit River System Coop and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Suiattle Chinook (Skagit): Puget Sound Chinook Natural Origin Spawner Abundance (1952-2018). Spawner abundance data. Skagit River System Coop and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- North Fork Stillaguamish Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1974-2019). Spawner abundance data. Stillaguamish Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- South Fork Stillaguamish Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1974-2019). Spawner abundance data. Stillaguamish Tribe, Tulalip Tribe, and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Skykomish Chinook (Snohomish): Puget Sound Chinook Natural Origin Spawner Abundance (1965-2019). Spawner abundance data. Tulalip Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Snoqualmie Chinook (Snohomish): Puget Sound Chinook Natural Origin Spawner Abundance (1965-2019). Spawner abundance data. Tulalip Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Sammamish Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1983-2019). Spawner abundance data. Muckleshoot Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Cedar Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1965-2019). Spawner abundance data. Muckleshoot Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Green River Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1968-2019). Spawner abundance data. Muckleshoot Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- White River Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1965-2019). Spawner abundance data. Muckleshoot Tribe, Puyallup Tribe, and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Puyallup Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1968-2019). Spawner abundance data. Muckleshoot Tribe, Puyallup Tribe, and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Nisqually Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1968-2018). Spawner abundance data. Nisqually Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Skokomish Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1968-2018). Spawner abundance data. Jamestown S'klallam Tribe, Point No Point Treaty Council, Port Gamble S'klallam Tribe, Skokomish Tribe, and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Mid-Hood Canal Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1968-2018). Spawner abundance data. Jamestown S'klallam Tribe, Point No Point Treaty Council, Port Gamble S'klallam Tribe, Skokomish Tribe, and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Dungeness Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1968-2018). Spawner abundance data. Jamestown S'klallam Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

- Elwha Chinook: Puget Sound Chinook Natural Origin Spawner Abundance (1986-2018). Spawner abundance data. Elwha Tribe and Washington Department of Fish and Wildlife. Personal communication with Mindy Rowse 2020.

Examples

```
data('Puget-Sound-PSchinook2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Puget-Sound-PSchinook2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Salmon-Chinook-Lower-Columbia-River-ESU-LCchinook2020

Salmon-Chinook-Lower-Columbia-River-ESU-LCchinook2020

Description

Spawner and fraction wild data. Species: Chinook salmon. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

- Grays/Chinook Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Youngs Bay: Oregon Department of Fish and Wildlife
- Big Creek: Oregon Department of Fish and Wildlife
- Elochoman/Skamokawa Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Clatskanie River: Washington Department of Fish and Wildlife
- Mill/Abernathy/Germany Creeks Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Lower Cowlitz Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Coweeman Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Toutle Fall (Tule) Chinook: Washington Department of Fish and Wildlife

- Upper Cowlitz Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Kalama Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Lewis River Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Sandy River: Oregon Department of Fish and Wildlife
- Clackamas River: Oregon Department of Fish and Wildlife
- Washougal Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Lewis River Late Fall (Bright) Chinook: Washington Department of Fish and Wildlife
- Upper Cowlitz and Cispus Spring Chinook: Washington Department of Fish and Wildlife
- Kalama Spring Chinook: Washington Department of Fish and Wildlife
- North Fork Lewis Spring Chinook: Washington Department of Fish and Wildlife
- Lower Gorge (Columbia) Late Fall (Bright) Chinook: Washington Department of Fish and Wildlife
- Upper Gorge (Columbia) Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Big White Salmon River Fall (Tule) Chinook: Washington Department of Fish and Wildlife
- Big White Salmon River Spring Chinook: Washington Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps

Original source:

- Grays/Chinook Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1964-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.
- Youngs Bay: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (2012-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.
- Big Creek: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (2012-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.
- Elochoman/Skamokawa Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1964-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Clatskanie River: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (2002-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Mill/Abernathy/Germany Creeks Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1981-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lower Cowlitz Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1964-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Coweeman Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1964-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Toutle Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1964-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Upper Cowlitz Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1996-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Kalama Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1964-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lewis River Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1997-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Sandy River: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (2009-2019). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Personal Communication with Jamie Anthony by Mari Williams, NOAAF NWFSC/PSMFC.

- Sandy River: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1981-2006). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Sandy River: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (2013-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Clackamas River: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (2012-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Washougal Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1964-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lewis River Late Fall (Bright) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1964-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Upper Cowlitz and Cispus Spring Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (2014-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Kalama Spring Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1980-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- North Fork Lewis Spring Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1980-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lower Gorge (Columbia) Late Fall (Bright) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Upper Gorge (Columbia) Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1997-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Big White Salmon River Fall (Tule) Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (1965-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/.

Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Big White Salmon River Spring Chinook: Lower Columbia River Chinook Natural Origin Spawner Abundance Dataset (2013-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

Examples

```
data('Salmon-Chinook-Lower-Columbia-River-ESU-LCchinook2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-Chinook-Lower-Columbia-River-ESU-LCchinook2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Salmon-Chinook-Snake-River-fall-run-ESU-ICSRFchinook2021

Salmon-Chinook-Snake-River-fall-run-ESU-ICSRFchinook2021

Description

Spawner and fraction wild data. Species: Chinook salmon. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Nez Perce Tribe

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps

Original source: Snake River fall Chinook Natural Origin Spawner Abundance Dataset (1975-2019). Spawner abundance data. Nez Perce Tribe. Personal communication with Bill Young email 3172021 by Mari Williams, NOAAF NWFSC/PSMFC..

Examples

```
data('Salmon-Chinook-Snake-River-fall-run-ESU-ICSRFchinook2021')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-Chinook-Snake-River-fall-run-ESU-ICSRFchinook2021') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

```
out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookModel
Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookModel

---

Description

Spawner and fraction wild data. Species: Chinook salmon. Method: Model. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Nez Perce Tribe

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps

Original source:

- Bear Valley Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2015-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Big Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2011-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Big Sheep Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2011-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Catherine Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- East Fork Salmon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2017). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- East Fork South Fork Salmon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Grande Ronde River Upper Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2012-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187.

Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Imnaha River Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2011-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lemhi River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Little Salmon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lookingglass Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- North Fork Salmon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2016-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Pahsimeroi River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2012-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Panther Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2018-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Salmon River Lower Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2013-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Salmon River Upper Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Secesh River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at

https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Tucannon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2017). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Valley Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Yankee Fork: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2012-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2187. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

Examples

```
data('Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookModel')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookModel') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookSurvey2020
                    Salmon-Chinook-Snake-River-spring-summer-run-ESU-
                    ICSRSSchinookSurvey2020

Description

Spawner and fraction wild data. Species: Chinook salmon. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

- Johnson Creek: Nez Perce Tribe
- Secesh River: Nez Perce Tribe
- Tucannon River: Washington Department of Fish and Wildlife
- Wenaha River: Oregon Department of Fish and Wildlife
- Wallowa/Lostine Rivers: Oregon Department of Fish and Wildlife
- Minam River: Oregon Department of Fish and Wildlife
- Catherine Creek: Oregon Department of Fish and Wildlife
- Grande Ronde Upper Mainstem: Oregon Department of Fish and Wildlife
- Imnaha River: Oregon Department of Fish and Wildlife
- South Fork Salmon River: Idaho Department of Fish and Game

- Chamberlain Creek: Idaho Department of Fish and Game
- Middle Fork Salmon River Lower Mainstem: Idaho Department of Fish and Game
- Big Creek: Idaho Department of Fish and Game
- Camas Creek: Idaho Department of Fish and Game
- Loon Creek: Idaho Department of Fish and Game
- Middle Fork Salmon River Upper Mainstem: Idaho Department of Fish and Game
- Sulphur Creek: Idaho Department of Fish and Game
- Marsh Creek: Idaho Department of Fish and Game
- Bear Valley Creek: Idaho Department of Fish and Game
- North Fork Salmon River: Idaho Department of Fish and Game
- Lemhi River: Idaho Department of Fish and Game
- Salmon River Lower Mainstem: Idaho Department of Fish and Game
- Pahsimeroi River: Idaho Department of Fish and Game
- East Fork Salmon River: Idaho Department of Fish and Game
- Yankee Fork: Idaho Department of Fish and Game
- Salmon River Upper Mainstem: Idaho Department of Fish and Game
- Valley Creek: Idaho Department of Fish and Game

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Johnson Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1987-2018). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2246. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.
- Secesh River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1997-2018). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/2246. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.
- Tucannon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1954-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.
- Wenaha River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1949-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Wallowa/Lostine Rivers: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1949-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Minam River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1954-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Catherine Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1953-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Grande Ronde Upper Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1953-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Imnaha River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1949-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- South Fork Salmon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Chamberlain Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Middle Fork Salmon River Lower Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Big Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Camas Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Loon Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and

Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Middle Fork Salmon River Upper Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Sulphur Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Marsh Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Bear Valley Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- North Fork Salmon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lemhi River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Salmon River Lower Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Pahsimeroi River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1980-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- East Fork Salmon River: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Yankee Fork: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Salmon River Upper Mainstem: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Valley Creek: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (1957-2019). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringmethods.org/Protocol/Details/159. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

Examples

```
data('Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookSurvey2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookSurvey2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookSurveySBT2020
Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookSurveySBT2020

Description

Spawner and fraction wild data. Species: Chinook salmon. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Shoshone-Bannock Tribe

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps

Original source: Snake River spring/summer Chinook Natural Origin Spawner Abundance Dataset (2008-2018). Spawner abundance data. Shoshone-Bannock Tribes. Excerpted from yearly reports available at https://www.cbfish.org/PiscesPublication.mvc/SearchByTitleDescriptionAuthorOrDate..

Examples

```
data('Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookSurveySBT2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-Chinook-Snake-River-spring-summer-run-ESU-ICSRSSchinookSurveySBT2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Salmon-Chinook-Upper-Columbia-River-spring-run-ESU-ICUCchinook2020

Salmon-Chinook-Upper-Columbia-River-spring-run-ESU-
ICUCchinook2020

Description

Spawner and fraction wild data. Species: Chinook salmon. Method: Survey. View raw data or
Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example
survey and model counts that are based on different methods. In this case, the 'Series' column
gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count
itself is an expansion. See the SPS (database link in sources below) for the details for the data.
LadderCount is a weir or dam count. Model refers to the DABOM model that expands from
PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate
fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Washington Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Wenatchee River: Upper Columbia River Chinook Natural Origin Spawner Abundance Dataset (1960-2018). Spawner abundance data. Washington Department of Fish and Wildlife, and Confederated Tribes of the Colville Reservation. Protocol and Methods available at https://fortress.wa.gov/dfw/score/sc Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Entiat River: Upper Columbia River Chinook Natural Origin Spawner Abundance Dataset (1960-2018). Spawner abundance data. Washington Department of Fish and Wildlife, and Confederated Tribes of the Colville Reservation. Protocol and Methods available at https://fortress.wa.gov/dfw/score/sc Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Methow River: Upper Columbia River Chinook Natural Origin Spawner Abundance Dataset (1960-2019). Spawner abundance data. Washington Department of Fish and Wildlife, and Confederated Tribes of the Colville Reservation. Protocol and Methods available at https://fortress.wa.gov/dfw/score/sc Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

Examples

```
data('Salmon-Chinook-Upper-Columbia-River-spring-run-ESU-ICUCchinook2020')
library(ggplot2)
```

```
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-Chinook-Upper-Columbia-River-spring-run-ESU-ICUCchinook2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Salmon-Chinook-Upper-Willamette-River-ESU-UWchinook2020

Salmon-Chinook-Upper-Willamette-River-ESU-UWchinook2020

Description

Spawner and fraction wild data. Species: Chinook salmon. Method: . View raw data or Download raw data

Spawner and fraction wild data. Species: chinook.

  • Clackamas River: Survey. View raw data or Download raw data

Spawner and fraction wild data. Species: Chinook salmon.

  • Willamette Falls ESC: LadderCount. View raw data or Download raw data

Spawner and fraction wild data. Species: chinook.

  • North Santiam River: Survey. View raw data or Download raw data

Spawner and fraction wild data. Species: Chinook salmon.

  • South Santiam River: Survey. View raw data or Download raw data

Spawner and fraction wild data. Species: chinook.

  • McKenzie River: Survey. View raw data or Download raw data

Spawner and fraction wild data. Species: Chinook salmon.

  • Middle Fork Willamette River: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Oregon Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Clackamas River: Upper Willamette River Chinook Natural Origin Spawner Abundance Dataset (1974-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Willamette Falls ESC: Upper Willamette River Chinook Natural Origin Spawner Escapement (1946-2019). Ladder count. Personal communication from Jamie Anthony, ODFW, via Mari Williams, NOAAF NWFSC/PSMFC.

- North Santiam River: Upper Willamette River Chinook Natural Origin Spawner Abundance Dataset (2007-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- South Santiam River: Upper Willamette River Chinook Natural Origin Spawner Abundance Dataset (2007-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- McKenzie River: Upper Willamette River Chinook Natural Origin Spawner Abundance Dataset (2005-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Middle Fork Willamette River: Upper Willamette River Chinook Natural Origin Spawner Abundance Dataset (2012-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

Examples

```
data('Salmon-Chinook-Upper-Willamette-River-ESU-UWchinook2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-Chinook-Upper-Willamette-River-ESU-UWchinook2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Salmon-chum-Columbia-River-ESU-CRchum2020

Salmon-chum-Columbia-River-ESU-CRchum2020

Description

Spawner and fraction wild data. Species: Chum salmon. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Washington Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Grays/Chinook Fall Chum: Columbia River Chum Natural Origin Spawner Abundance Dataset (2005-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Washougal Fall Chum: Columbia River Chum Natural Origin Spawner Abundance Dataset (2001-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lower Gorge (Columbia) Fall Chum: Columbia River Chum Natural Origin Spawner Abundance Dataset (2000-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Upper Gorge (Columbia) Fall Chum: Columbia River Chum Natural Origin Spawner Abundance Dataset (1938-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

Examples

```
data('Salmon-chum-Columbia-River-ESU-CRchum2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-chum-Columbia-River-ESU-CRchum2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Salmon-coho-Lower-Columbia-River-ESU-LCcoho2020

Salmon-coho-Lower-Columbia-River-ESU-LCcoho2020

Description

Spawner and fraction wild data. Species: Coho salmon. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

- Grays and Chinook Rivers - late Coho salmon: Washington Department of Fish and Wildlife
- Youngs Bay: Oregon Department of Fish and Wildlife
- Big Creek: Oregon Department of Fish and Wildlife
- Elochoman River - late Coho salmon: Washington Department of Fish and Wildlife
- Clatskanie River: Washington Department of Fish and Wildlife
- Mill, Abernathy, and Germany Creeks - late Coho salmon: Washington Department of Fish and Wildlife
- Scappoose River: Oregon Department of Fish and Wildlife
- Lower Cowlitz River - late Coho salmon: Washington Department of Fish and Wildlife
- Coweeman River - late Coho salmon: Washington Department of Fish and Wildlife
- North Fork Toutle Coho: Washington Department of Fish and Wildlife
- South Fork Toutle Coho: Washington Department of Fish and Wildlife
- Upper Cowlitz and Cispus Coho: Washington Department of Fish and Wildlife
- Tilton Coho: Washington Department of Fish and Wildlife
- Kalama River - late Coho salmon: Washington Department of Fish and Wildlife
- North Fork Lewis Coho: Washington Department of Fish and Wildlife
- East Fork Lewis Coho: Washington Department of Fish and Wildlife
- Salmon Creek - late Coho salmon: Washington Department of Fish and Wildlife
- Clackamas River: Oregon Department of Fish and Wildlife
- Sandy River: Oregon Department of Fish and Wildlife
- Washougal River - late Coho salmon: Washington Department of Fish and Wildlife
- Upper Gorge (Columbia) Coho: Washington Department of Fish and Wildlife
- Hood River: Oregon Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps

Original source:

- Grays and Chinook Rivers - late Coho salmon: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Youngs Bay: Columbia River Coho Natural Origin Spawner Abundance Dataset (2002-2019). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Big Creek: Columbia River Coho Natural Origin Spawner Abundance Dataset (2002-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Elochoman River - late Coho salmon: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Clatskanie River: Columbia River Coho Natural Origin Spawner Abundance Dataset (2002-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Mill, Abernathy, and Germany Creeks - late Coho salmon: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Scappoose River: Columbia River Coho Natural Origin Spawner Abundance Dataset (2002-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Lower Cowlitz River - late Coho salmon: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Coweeman River - late Coho salmon: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- North Fork Toutle Coho: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- South Fork Toutle Coho: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Upper Cowlitz and Cispus Coho: Columbia River Coho Natural Origin Spawner Abundance Dataset (1996-2018). Spawner abundance data. Washington Department of Fish and Wildlife.

Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Tilton Coho: Columbia River Coho Natural Origin Spawner Abundance Dataset (1996-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Kalama River - late Coho salmon: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- North Fork Lewis Coho: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- East Fork Lewis Coho: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Salmon Creek - late Coho salmon: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Clackamas River: Columbia River Coho Natural Origin Spawner Abundance Dataset (1974-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Sandy River: Columbia River Coho Natural Origin Spawner Abundance Dataset (2007-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Washougal River - late Coho salmon: Columbia River Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Upper Gorge (Columbia) Coho: Columbia River Coho Natural Origin Spawner Abundance Dataset (2007-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Hood River: Columbia River Coho Natural Origin Spawner Abundance Dataset (2002-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

Examples

```
data('Salmon-coho-Lower-Columbia-River-ESU-LCcoho2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-coho-Lower-Columbia-River-ESU-LCcoho2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Salmon-coho-Oregon-Coast-ESU-OCcoho2020
Salmon-coho-Oregon-Coast-ESU-OCcoho2020

Description

Spawner and fraction wild data. Species: Coho salmon. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Oregon Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Alsea River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Beaver Creek: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Coos Bay: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Coquille River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Floras Creek: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Lower Umpqua: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Middle Umpqua: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Necanicum River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Nehalem River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Nestucca River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- North Umpqua: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Salmon River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Siletz River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Siltcoos River (Lake): Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Siuslaw River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Sixes River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- South Umpqua: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and

Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Tahkenitch Lake: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Tenmile Lake: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Tillamook Bay: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Yaquina River: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (1994-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Oregon Mid-Coast Coho dependent population group: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (2007-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Oregon North Coast Coho dependent population group: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (2007-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Oregon Mid-South Coast Coho dependent population group: Oregon Coast Coho Natural Origin Spawner Abundance Dataset (2010-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

Examples

```
data('Salmon-coho-Oregon-Coast-ESU-OCcoho2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Salmon-coho-Oregon-Coast-ESU-OCcoho2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
```

```
geom_point(na.rm = TRUE) +
ggtitle('Fraction Wild') +
ylim(0,1) +
facet_wrap(~COMMON_POPULATION_NAME) +
theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
 strip.text.x = element_text(size = 6))
```

Steelhead-Lower-Columbia-River-DPS-LCsthd2020

Steelhead-Lower-Columbia-River-DPS-LCsthd2020

Description

Spawner and fraction wild data. Species: Steelhead. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

- Coweeman Winter Steelhead: Washington Department of Fish and Wildlife
- North Fork Toutle Winter Steelhead: Washington Department of Fish and Wildlife
- South Fork Toutle Winter Steelhead: Washington Department of Fish and Wildlife
- Upper Cowlitz and Cispus Winter Steelhead: Washington Department of Fish and Wildlife
- Tilton Winter Steelhead: Washington Department of Fish and Wildlife
- Kalama Winter Steelhead: Washington Department of Fish and Wildlife
- East Fork Lewis Winter Steelhead: Washington Department of Fish and Wildlife
- Clackamas River: Oregon Department of Fish and Wildlife
- Sandy River: Oregon Department of Fish and Wildlife
- Washougal Winter Steelhead: Washington Department of Fish and Wildlife
- Upper Gorge (Columbia) Winter Steelhead: Washington Department of Fish and Wildlife
- Hood River: Oregon Department of Fish and Wildlife
- Kalama Summer Steelhead: Washington Department of Fish and Wildlife
- East Fork Lewis Summer Steelhead: Washington Department of Fish and Wildlife
- Washougal Summer Steelhead: Washington Department of Fish and Wildlife
- Wind River (Upper Gorge) Summer Steelhead: Washington Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Coweeman Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1987-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.
- North Fork Toutle Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (2005-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.
- South Fork Toutle Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1981-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Upper Cowlitz and Cispus Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1997-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Tilton Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1999-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Kalama Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1977-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- East Fork Lewis Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1986-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Clackamas River: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1974-2019). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Sandy River: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Washougal Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1991-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Upper Gorge (Columbia) Winter Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (2000-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Hood River: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (2011-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Kalama Summer Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1977-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- East Fork Lewis Summer Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1996-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Washougal Summer Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1953-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

- Wind River (Upper Gorge) Summer Steelhead: Lower Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1989-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/PSMFC.

Examples

```
data('Steelhead-Lower-Columbia-River-DPS-LCsthd2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Lower-Columbia-River-DPS-LCsthd2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Steelhead-Middle-Columbia-River-DPS-ICMC2021
Steelhead-Middle-Columbia-River-DPS-ICMC2021

Description

Spawner and fraction wild data. Species: Steelhead. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

- Klickitat River: Yakama Nation Fisheries
- Fifteenmile Creek: Oregon Department of Fish and Wildlife
- Deschutes River Westside: Oregon Department of Fish and Wildlife
- Deschutes River Eastside: Oregon Department of Fish and Wildlife
- Rock Creek: Yakama Nation Fisheries
- John Day River Lower Mainstem Tributaries: Oregon Department of Fish and Wildlife
- North Fork John Day River: Oregon Department of Fish and Wildlife
- Middle Fork John Day River: Oregon Department of Fish and Wildlife
- South Fork John Day River: Oregon Department of Fish and Wildlife
- John Day River Upper Mainstem: Oregon Department of Fish and Wildlife

- Satus Creek: Yakama Nation Fisheries

- Toppenish Creek: Yakama Nation Fisheries

- Naches River: Yakama Nation Fisheries

- Yakima River upper mainstem: Yakama Nation Fisheries

- Umatilla River: Oregon Department of Fish and Wildlife

- Walla Walla River: Oregon Department of Fish and Wildlife

- Touchet River: Washington Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Klickitat River: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (2006-2019). Spawner abundance data. Confederated Tribes and Bands of the Yakama Nation. Protocol and Methods available at https://www.cbfish.org/Document.mvc/Viewer/P148516 and https://www.cbfish.org/Document.mvc/Viewer/P160751. Accessed from www.cax.streamnet.org vers July 1, 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Fifteenmile Creek: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1985-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Deschutes River Westside: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1978-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Deschutes River Eastside: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1990-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Rock Creek: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (2008-2018). Spawner abundance data. Confederated Tribes and Bands of the Yakama Nation. Protocol and Methods available at https://www.cbfish.org/Document.mvc/Viewer/P148516 and https://www.cbfish.org/Document.mvc/Viewer/P160751. Accessed from www.cax.streamnet.org vers July 1, 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- John Day River Lower Mainstem Tributaries: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1959-2019). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- North Fork John Day River: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1963-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Middle Fork John Day River: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1964-2019). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- South Fork John Day River: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1960-2019). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- John Day River Upper Mainstem: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1959-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Satus Creek: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1984-2018). Spawner abundance data. Confederated Tribes and Bands of the Yakama Nation. Protocol and Methods available at https://www.cbfish.org/Document.mvc/Viewer/P153378. Accessed from www.cax.streamnet.org vers July 1 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Toppenish Creek: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1984-2018). Spawner abundance data. Confederated Tribes and Bands of the Yakama Nation. Protocol and Methods available at https://www.cbfish.org/Document.mvc/Viewer/P153378. Accessed from www.cax.streamnet.org vers July 1 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Naches River: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1984-2018). Spawner abundance data. Confederated Tribes and Bands of the Yakama Nation. Protocol and Methods available at https://www.cbfish.org/Document.mvc/Viewer/P153378. Accessed from www.cax.streamnet.org vers July 1 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Yakima River upper mainstem: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1984-2018). Spawner abundance data. Confederated Tribes and Bands of the Yakama Nation. Protocol and Methods available at https://www.cbfish.org/Document.mvc/Viewer/P153378. Accessed from www.cax.streamnet.org vers July 1 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Umatilla River: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1967-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Walla Walla River: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1993-2019). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Touchet River: Middle Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1993-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

Examples

```
data('Steelhead-Middle-Columbia-River-DPS-ICMC2021')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Middle-Columbia-River-DPS-ICMC2021') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Steelhead-Puget-Sound-DPS-PSsteelhead2020

Steelhead-Puget-Sound-DPS-PSsteelhead2020

Description

Spawner and fraction wild data. Species: Steelhead. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Katie Barnes

CITATION Data citation. Listed under References below.

Source

Washington Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Samish River and Bellingham Bay Tributaries - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (1979-2018). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/ste Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Nooksack River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (2004-2018). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Stee Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Skagit River - summer and winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (1978-2019). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species= Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Stillaguamish River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (1985-2019). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Stee Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Snohomish/Skykomish Rivers - winter Steelhead: Puget Sound Steelhead Natural Origin
  Spawner Abundance Dataset (1981-2019). Spawner abundance Data. Washington Depart-
  ment of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Pilchuck River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance
  Dataset (1981-2019). Spawner abundance Data. Washington Department of Fish and Wildlife.
  Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Steelhead.
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Tolt River - summer Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance
  Dataset (1985-2019). Spawner abundance Data. Washington Department of Fish and Wildlife.
  Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Steelhead.
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Snoqualmie River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abun-
  dance Dataset (1981-2019). Spawner abundance Data. Washington Department of Fish and
  Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Stee
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- North Lake Washington and Lake Sammamish - winter Steelhead: Puget Sound Steelhead
  Natural Origin Spawner Abundance Dataset (1984-1999). Spawner abundance Data. Wash-
  ington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/spec
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Cedar River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance
  Dataset (1984-2019). Spawner abundance Data. Washington Department of Fish and Wildlife.
  Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Steelhead.
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Green River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance
  Dataset (1978-2019). Spawner abundance Data. Washington Department of Fish and Wildlife.
  Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Steelhead.
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- White River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance
  Dataset (1983-2018). Spawner abundance Data. Washington Department of Fish and Wildlife.
  Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Steelhead.
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Puyallup River/Carbon River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner
  Abundance Dataset (1992-2019). Spawner abundance Data. Washington Department of Fish
  and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Nisqually River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abun-
  dance Dataset (1980-2019). Spawner abundance Data. Washington Department of Fish and
  Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Stee
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- South Hood Canal Tributaries - winter Steelhead: Puget Sound Steelhead Natural Origin
  Spawner Abundance Dataset (1998-2019). Spawner abundance Data. Washington Depart-
  ment of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.
  Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- East Hood Canal Tributaries - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner
  Abundance Dataset (1981-2019). Spawner abundance Data. Washington Department of Fish

and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=
Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Skokomish River - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (1982-2019). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Stee Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- West Hood Canal Tributaries - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (1995-2018). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead. Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Dungeness River - summer and winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (1988-2019). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead. Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Strait of Juan de Fuca Tributaries - winter Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (1984-2018). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead. Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

- Elhwa Steelhead: Puget Sound Steelhead Natural Origin Spawner Abundance Dataset (2013-2018). Spawner abundance Data. Washington Department of Fish and Wildlife. Protocols and Methods available at https://fortress.wa.gov/dfw/score/score/species/steelhead.jsp?species=Steelhead. Accessed from WA SCORE on March 9, 2021 by Katie Barnas, NOAAF NWFSC.

Examples

```
data('Steelhead-Puget-Sound-DPS-PSsteelhead2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Puget-Sound-DPS-PSsteelhead2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Steelhead-Snake-River-Basin-DPS-ICSRsthdGSI
Steelhead-Snake-River-Basin-DPS-ICSRsthdGSI

Description

Spawner and fraction wild data. Species: Steelhead. Method: GSI. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Idaho Department of Fish and Game

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source: Snake River Steelhead Natural Origin Spawner Abundance Dataset (1985-2020). Spawner abundance data. Idaho Department of Fish and Game. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 14, 2021 10:00PM by Mari Williams, NOAAF NWFSC/OAI..

Examples

```
data('Steelhead-Snake-River-Basin-DPS-ICSRsthdGSI')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Snake-River-Basin-DPS-ICSRsthdGSI') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Steelhead-Snake-River-Basin-DPS-ICSRsthdModel

Steelhead-Snake-River-Basin-DPS-ICSRsthdModel

Description

Spawner and fraction wild data. Species: Steelhead. Method: Model. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Nez Perce Tribe

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps

Original source:

- Tucannon River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Asotin Creek: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Clearwater River Lower Mainstem: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Lolo Creek: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2012-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Doc Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- South Fork Clearwater River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2012-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Selway River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2018-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.o Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Lochsa River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2018-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.o Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Grande Ronde River Lower Mainstem: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Joseph Creek: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2011-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.o Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Wallowa River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2014-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.o Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Grande Ronde River Upper Mainstem: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2013-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Little Salmon River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- South Fork Salmon River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Panther Creek: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2018-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Middle Fork Salmon River Lower Mainstem: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2011-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- North Fork Salmon River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2016-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Lemhi River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Pahsimeroi River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2011-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- East Fork Salmon River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2012-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Imnaha River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2011-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Secesh River: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Salmon River Upper Mainstem: Snake River Steelhead Natural Origin Spawner Abundance Dataset (2010-2019). Spawner abundance data. Nez Perce Tribe. Protocol and Methods available at https://www.monitoringresources.org/Document/Protocol/Details/230. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

Examples

```
data('Steelhead-Snake-River-Basin-DPS-ICSRsthdModel')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Snake-River-Basin-DPS-ICSRsthdModel') +
  facet_wrap(~COMMON_POPULATION_NAME) +
```

```
    theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
     strip.text.x = element_text(size = 6))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1),
   strip.text.x = element_text(size = 6))
```

Steelhead-Snake-River-Basin-DPS-ICSRsthdSurvey

Steelhead-Snake-River-Basin-DPS-ICSRsthdSurvey

Description

Spawner and fraction wild data. Species: Steelhead. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

- Asotin Creek: Washington Department of Fish and Wildlife

- Joseph Creek: Oregon Department of Fish and Wildlife

- Grande Ronde River Upper Mainstem: Oregon Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Asotin Creek: Snake River Steelhead Natural Origin Spawner Abundance Dataset (1986-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Joseph Creek: Snake River Steelhead Natural Origin Spawner Abundance Dataset (1970-2017). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Grande Ronde River Upper Mainstem: Snake River Steelhead Natural Origin Spawner Abundance Dataset (1967-2018). Spawner abundance data. Oregon Department of Fish and Wildlife. Protocol and Methods available at http://odfwrecoverytracker.org/metadata/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

Examples

```
data('Steelhead-Snake-River-Basin-DPS-ICSRsthdSurvey')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Snake-River-Basin-DPS-ICSRsthdSurvey') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
```

```
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Steelhead-Upper-Columbia-River-DPS-ICUCsthdModel

Steelhead-Upper-Columbia-River-DPS-ICUCsthdModel

Description

Spawner and fraction wild data. Species: Steelhead. Method: Model. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Washington Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source: Waterhouse, L., J. White, K. See, A. Murdoch, and B. X. Semmens. 2020. A Bayesian nested patch occupancy model to estimate steelhead movement and abundance. Ecological Applications 00(00): e02202. 10.1002/eap.2202.

Examples

```
data('Steelhead-Upper-Columbia-River-DPS-ICUCsthdModel')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Upper-Columbia-River-DPS-ICUCsthdModel') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Steelhead-Upper-Columbia-River-DPS-ICUCsthdSurvey2020
Steelhead-Upper-Columbia-River-DPS-ICUCsthdSurvey2020

Description

Spawner and fraction wild data. Species: Steelhead. Method: Survey. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Washington Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: `https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps`

Original source:

- Wenatchee River: Upper Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1962-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Entiat River: Upper Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1987-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Methow River: Upper Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1988-2019). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

- Okanogan River: Upper Columbia River Steelhead Natural Origin Spawner Abundance Dataset (1988-2018). Spawner abundance data. Washington Department of Fish and Wildlife. Protocol and Methods available at https://fortress.wa.gov/dfw/score/score/. Accessed from www.cax.streamnet.org vers May 26 2020 10:00PM by Mari Williams, NOAAF NWFSC/OAI.

Examples

```
data('Steelhead-Upper-Columbia-River-DPS-ICUCsthdSurvey2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Upper-Columbia-River-DPS-ICUCsthdSurvey2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))

out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Steelhead-Upper-Willamette-River-DPS-UWsthd2020

Steelhead-Upper-Willamette-River-DPS-UWsthd2020

Description

Spawner and fraction wild data. Species: steelhead. Method: LadderCount. View raw data or Download raw data

Format

A csv file.

SERIES For certain populations, there are multiple types of spawner count data. For example survey and model counts that are based on different methods. In this case, the 'Series' column gives a name for the dataset to distinguish it from other data sets of the same population.

ESU ESU or DPS name.

SPECIES Species name.

METHOD Method for the spawner count. Survey refers to a spawning ground survey; the count itself is an expansion. See the SPS (database link in sources below) for the details for the data. LadderCount is a weir or dam count. Model refers to the DABOM model that expands from PIT tag data. GSI is an expansion based on the BOXCAR model, which uses GSI to allocate fish sampled at Lower Granite Dam.

MAJOR_POPULATION_GROUP Major population group within the ESU or DPS.

NMFS_POPID NWFSC id for the population.

POPULATION_NAME Long population name.

COMMON_POPULATION_NAME Shorter population name used in Viability Report figures and tables.

RUN_TIMING Run timing (fall, winter, spring, etc). If missing, see the ESU/DPS name or may not be applicable for the species.

YEAR Integer in XXXX format. The year that the count was made. See details for ESU or DPS specific comments.

NUMBER_OF_SPAWNERS Total spawners or escapement count. -99 means missing count. May be integer or decimal.

FRACWILD Decimal between 0 and 1. Fraction wild or natural. -99 means missing information.

CONTRIBUTOR Data contributor. Listed under Source below.

COMPILER NWFSC staff who compiled the data file: Mari Williams

CITATION Data citation. Listed under References below.

Source

Oregon Department of Fish and Wildlife

References

Ford, M.J., et al. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-171. https://doi.org/10.25923/kq2n-ke70

Salmon Population Summaries (SPS) Database: https://www.fisheries.noaa.gov/resource/tool-app/salmon-population-summaries-sps

Original source: Upper Willamette River Steelhead Natural Origin Spawner Escapement (1971-2019). Ladder count. Personal communication from Jamie Anthony, ODFW, via Mari Williams, NOAAF NWFSC/PSMFC..

Examples

```
data('Steelhead-Upper-Willamette-River-DPS-UWsthd2020')
library(ggplot2)
out$NUMBER_OF_SPAWNERS[out$NUMBER_OF_SPAWNERS==-99] <- NA
ggplot(out, aes(x=YEAR, y=NUMBER_OF_SPAWNERS)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Steelhead-Upper-Willamette-River-DPS-UWsthd2020') +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

```
out$FRACWILD[out$FRACWILD == -99] <- NA
ggplot(out, aes(x=YEAR, y=FRACWILD)) +
  geom_point(na.rm = TRUE) +
  ggtitle('Fraction Wild') +
  ylim(0,1) +
  facet_wrap(~COMMON_POPULATION_NAME) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust=1))
```

Index