NOAA Technical Memorandum NMFS-XXX-##

SAP Production Data Documentation

Shellfish Assessment Program Survey Team

U.S. DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northwest Fisheries Science Center

SAP Production Data Documentation

Shellfish Assessment Program Survey Team[1,,*]

1. NOAA Fisheres Alaska Fisheries Science Center, Groundfish Assessment Program

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Part I.

Welcome

Report run date: Friday, October 18, 2024

AFSC Bottom Trawl Surveys

AFSC bottom trawl surveys are conducted by the AFSC's Groundfish Assessment Program and Shellfish Assessment Program and are conducted in the Gulf of Alaska, Aleutian Islands, Eastern Bering Sea Slope, Eastern Bering Sea Shelf, and Northern Bering Sea. Each survey is a multispecies survey that collects data on the distribution, abundance, and biological characteristics of fish, crab, and other resources to inform groundfish stock assessment and management. These fishery-independent surveys are conducted in the summer aboard contracted commercial fishing vessels. Specifics regarding each of the surveys can be found below.

Figure 1.: Sorting and weighing fish on deck on the 2022 Bering Sea groundfish survey aboard the F/V Alaska Knight. Credit: Emily Markowitz/NOAA Fisheries.

Documentation Objective

As part of our commitment to open science, reproducibility, and transparency, we provide this metadata guide to compliment our public-domain data.

> Please consider this resource to be a **Living Document**. The code in this repository is regularly being updated and improved. Please refer to releases for finalized products and project milestones.
>
> At this time, these master production and AKFIN tables are **provisional and we are welcoming feedback before the 2024 survey season.** We look forward to hearing from you. Do not hesitate to reach out (to us at either nmfs.afsc.gap.metadata@noaa.gov or GitHub issues, especially if you find discrepancies in the data or want to suggest improvements to infrastructure. Thank you in advance for your collaboration and partnership with us as we develop our future data universe.

User Resources

- Groundfish Assessment Program Bottom Trawl Surveys
- AFSC's Resource Assessment and Conservation Engineering Division
- All AFSC Research Surveys
- Survey code books
- Publications and Data Reports
- Research Surveys conducted at AFSC

Cite this data

Use the below bibtext citations, as cited in our group's citation repository for citing the data created and maintained in this repository. Add "note = {Accessed: mm/dd/yyyy}" to append the day this data was accessed. Included here are AFSC RACE Groundfish and Shellfish Assessment Program's:

- Design-Based Production Data internal (NOAA Fisheries Alaska Fisheries Science Center, Goundfish Assessment Program, 2024).

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[1] "@misc{GAPProducts,"
[2] "  author = {{NOAA Fisheries Alaska Fisheries Science Center, Goundfish Assessment Prog
[3] "  year = {2024}, "
[4] "  title = {AFSC Goundfish Assessment Program Design-Based Production Data},"
[5] "  howpublished = {https://www.fisheries.noaa.gov/alaska/science-data/groundfish-assess
[6] "  publisher = {{U.S. Dep. Commer.}},"
[7] "  copyright = {Public Domain} "
[8] "}"
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- AFSC RACE Groundfish Data for AKFIN (Alaska Fisheries Information Network (AKFIN), 2024).

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 [1] "@misc{GAPakfin,"
 [2] "  author = {{Alaska Fisheries Information Network (AKFIN)}}, "
 [3] "  institution = {{NOAA Fisheries Alaska Fisheries Science Center, Goundfish Assessmen
 [4] "  year = {2024}, "
 [5] "  title = {AFSC Goundfish Assessment Program Design-Based Production Data},"
 [6] "  howpublished = {https://akfinbi.psmfc.org/analytics/},"
 [7] "  url = {https://www.psmfc.org/program/alaska-fisheries-information-network-akfin},"
 [8] "  publisher = {{U.S. Dep. Commer.}},"
 [9] "  copyright = {Public Domain} "
[10] "}"
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- Public Data hosted on the Fisheries One Stop Shop (FOSS) Data Platform (NOAA Fisheries Alaska Fisheries Science Center, 2024).

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[1] "@misc{FOSSAFSCData,"
[2] "  author = {{NOAA Fisheries Alaska Fisheries Science Center}},"
[3] "  year = {2024}, "
[4] "  title = {Fisheries One Stop Shop Public Data: RACE Division Bottom Trawl Survey Data
[5] "  howpublished = {https://www.fisheries.noaa.gov/foss},"
[6] "  publisher = {{U.S. Dep. Commer.}},"
[7] "  copyright = {Public Domain} "
[8] "}"
```

Access Constraints

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

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

Suggestions and comments

If the data or metadata can be improved, please create a pull request, submit an issue to the GitHub organization or submit an issue to the code's repository.

NOAA README

This repository is a scientific product and is not official communication of the National Oceanic and Atmospheric Administration, or the United States Department of Commerce. All NOAA GitHub project code is provided on an 'as is' basis and the user assumes responsibility for its use. Any claims against the Department of Commerce or Department of Commerce bureaus stemming from the use of this GitHub project will be governed by all applicable Federal law. Any reference to specific commercial products, processes, or services by service mark, trademark, manufacturer, or otherwise, does not constitute or imply their endorsement, recommendation or favoring by the Department of Commerce. The Department of Commerce seal and logo, or the seal and logo of a DOC bureau, shall not be used in any manner to imply endorsement of any commercial product or activity by DOC or the United States Government.

NOAA License

Software code created by U.S. Government employees is not subject to copyright in the United States (17 U.S.C. §105). The United States/Department of Commerce reserve all rights to seek and obtain copyright protection in countries other than the United States for Software authored in its entirety by the Department of Commerce. To this end, the Department of Commerce hereby grants to Recipient a royalty-free, nonexclusive license to use, copy, and create derivative works of the Software outside of the United States.

1. Survey Background

1.1. What we do

1.2. Who is conducting the research?

Scientists from the Alaska Fisheries Science Center's Groundfish Assessment Program (GAP) conduct these bottom trawl surveys with participation from the Alaska Department of Fish & Game (ADF&G), the International Pacific Halibut Commission (IPHC), universities, and other organizations. This research is conducted primarily on chartered fishing vessels.

1.3. What is the research objective?

Learn more about the program. The objectives of these surveys are to:

- monitor the population and environmental trends in the marine ecosystem of the Bering Sea, Aleutian Islands, and Gulf of Alaska,
- produce fishery-independent biomass (weight) and abundance (number) estimates for commercially important fish and crab species, and
- collect other biological and environmental data for use in ecosystem-based fishery management.

1.4. Who is conducting the research?

Scientists from the Alaska Fisheries Science Center conduct these bottom trawl surveys with participation from the Alaska Department of Fish & Game (ADF&G), the International Pacific Halibut Commission (IPHC), and universities. This research is conducted on chartered fishing vessels.

1.5. Bottom trawl surveys and regions

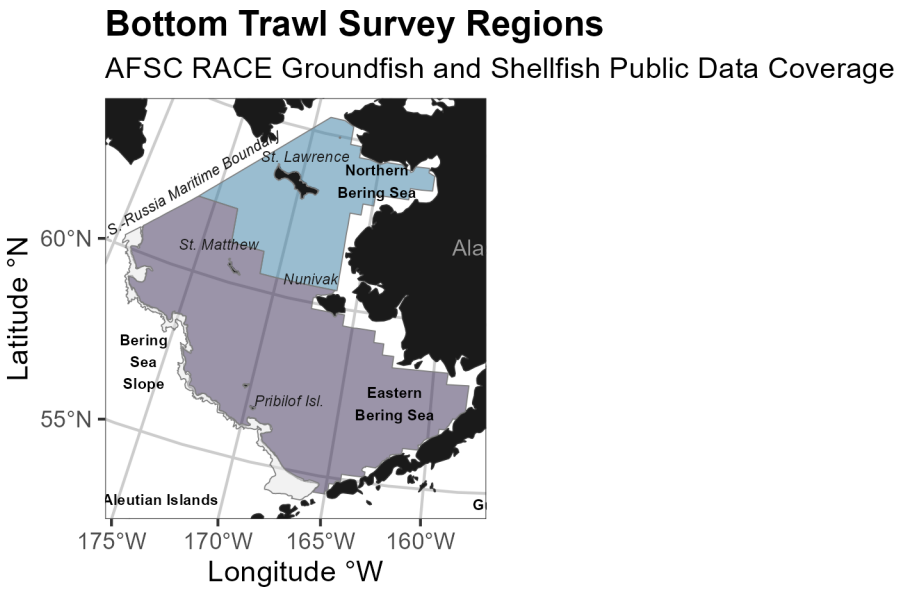


Figure 1.1.: Strata used in the all surveys.

Each survey conducted by the Groundfish Assessment Program are multispecies bottom trawl surveys. We collect environmental and biological data to assess how climate variability and loss of sea ice are affecting bottom-dwelling marine life on the Bering Sea shelf. We monitor trends in the distribution (location and movement patterns) and abundance of groundfish and crab species as well as oceanographic data (e.g., water temperature, depth). We collect biological information such as organism weight, length, stomachs to learn about diets, and otoliths to determine fish ages. We use this information in annual stock assessments and to assess the state of the ecosystem. This research is conducted on fishing industry contract vessels.

Table 1.1.: Survey summary stats

Survey	Survey Definition ID	Years	Depth (m)	Area (km2)	# Statistical Areas	# Possible Stations
Aleutian Islands Bottom Trawl Survey	52	2024 - 1991 (14)	1 - 500	64,415.0	80	1,312

Survey	Survey Definition ID	Years	Depth (m)	Area (km2)	# Statistical Areas	# Possible Stations
Eastern Bering Sea Slope Bottom Trawl Survey	78	2016 - 2002 (6)	201 - 1,200	32,861.3	37	
Eastern Bering Sea Crab/Groundfish Bottom Trawl Survey	98	2024 - 1982 (42)	1 - 200	492,989.9	28	515
Gulf of Alaska Bottom Trawl Survey	47	2023 - 1990 (16)	1 - 1,000	313,784.9	37	6,939
Northern Bering Sea Crab/Groundfish Survey - Eastern Bering Sea Shelf Survey Extension	143	2023 - 2010 (6)	1 - 100	198,866.8	4	144

1.5.1. Aleutian Islands

Most recent data report: (Von Szalay et al., 2023)

- Upper Continental Slope of the Aleutian Islands from Unimak Pass to Stalemate Bank
- Triennial (1990s)/Biennial since 2000 in even years, since 1992
- Modified Index-Stratified Random of Successful Stations Survey Design
- Important commercial fish species include Atka mackerel, Pacific ocean perch, walleye pollock, Pacific cod, sablefish, and other rockfish species.

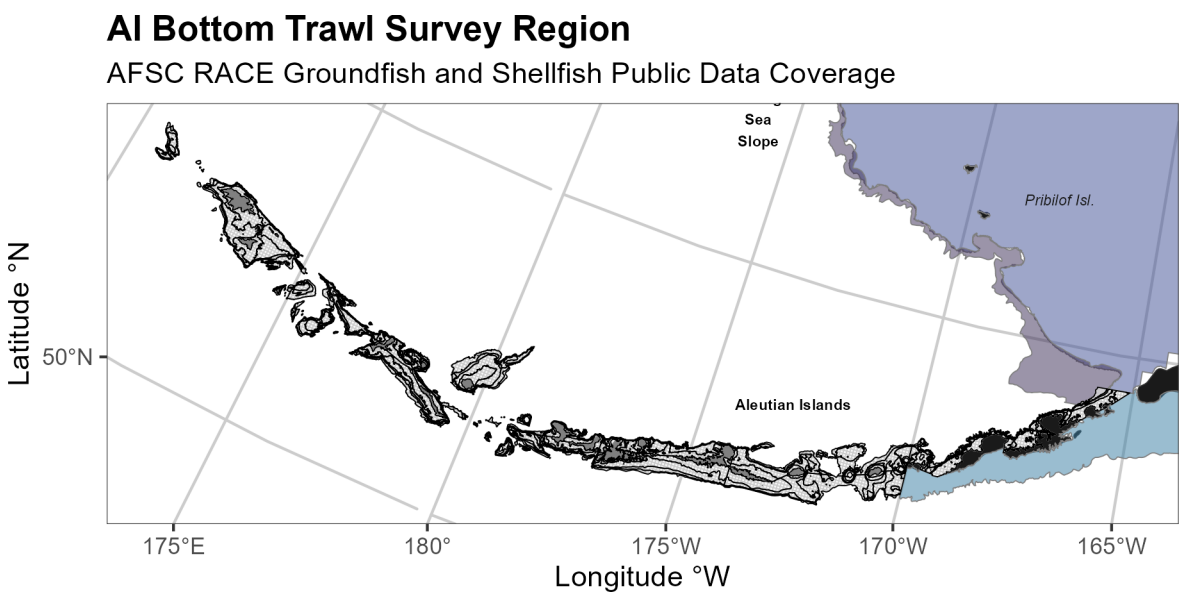


Figure 1.2.: Strata used in the Aleutian Islands bottom trawl survey.

1.5.2. Gulf of Alaska

Most recent data report: (Siple et al., 2024)

- Continental Shelf and Upper Slope of the Gulf of Alaska extending from the Islands of Four Mountains 2,300 km east to Dixon Entrance
- Triennial (1990s)/Biennial since 2001 in odd years, since 1991
- Stratified Random Survey Design
- Important commercial species in the Gulf of Alaska include Pacific ocean perch, walleye pollock, Pacific cod, flatfish, and other rockfish species.

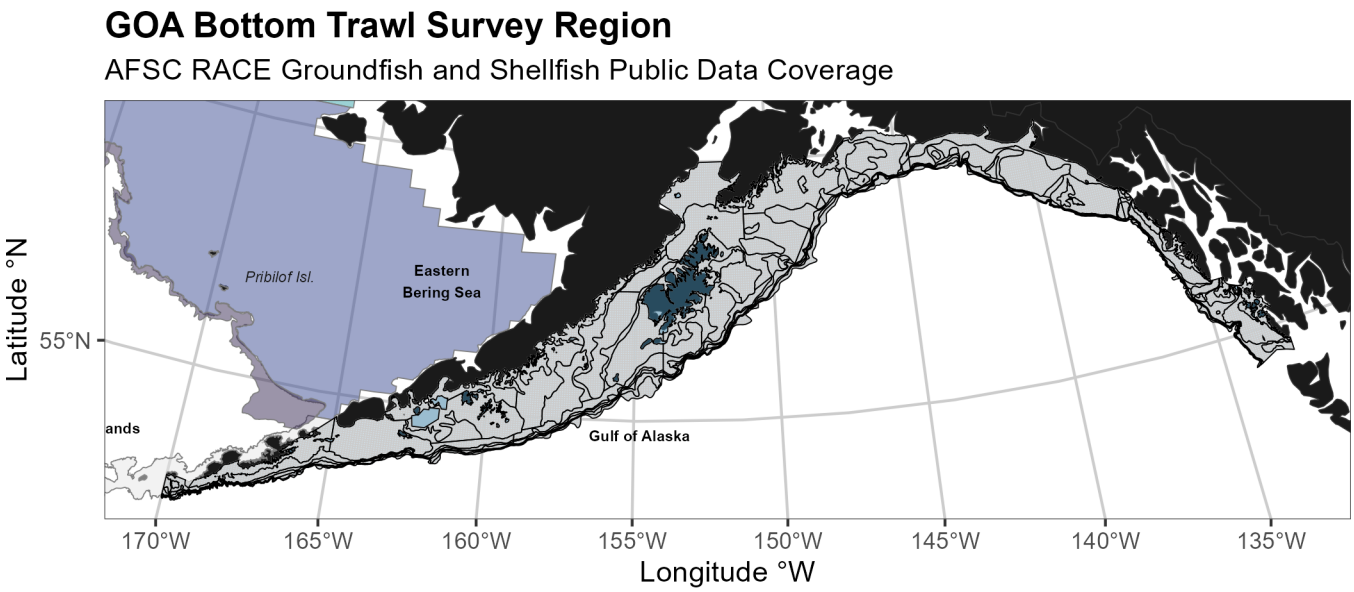


Figure 1.3.: Strata used in the Gulf of Alaska bottom trawl survey.

1.5.3. Eastern Bering Sea Shelf

Most recent data report: (Markowitz et al., 2024)

- The continental shelf of the eastern Bering Sea from the Aleutian Islands to the Bering Strait
- Conducted annually since 1982.
- Uses a stratified systematic sampling survey design with fixed stations at center of 20 x 20 nm grid.
- Similar in design to the northern Bering Sea shelf bottom trawl survey.
- Focus species for the Bering Sea include walleye pollock, Pacific cod, Greenland turbot, yellowfin sole, northern rock sole, red king crab, and snow and Tanner crabs.

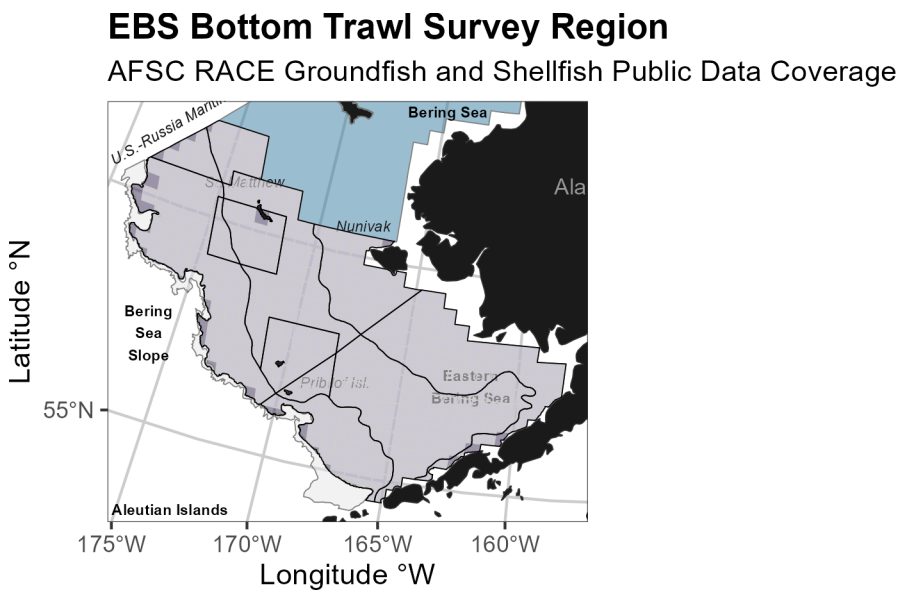


Figure 1.4.: Strata used in the Eastern Bering Sea bottom trawl survey.

1.5.4. Northern Bering Sea

Most recent data report: (Markowitz et al., 2024)

- The continental shelf of the northern Bering Sea, including the area north of St. Lawrence Island and Norton Sound
- Biennial/Annual; conducted intermittently since 2010
- Uses a stratified systematic sampling survey design with fixed stations at center of 20 x 20 nm grid.
- Similar in design to the eastern Bering Sea shelf bottom trawl survey.

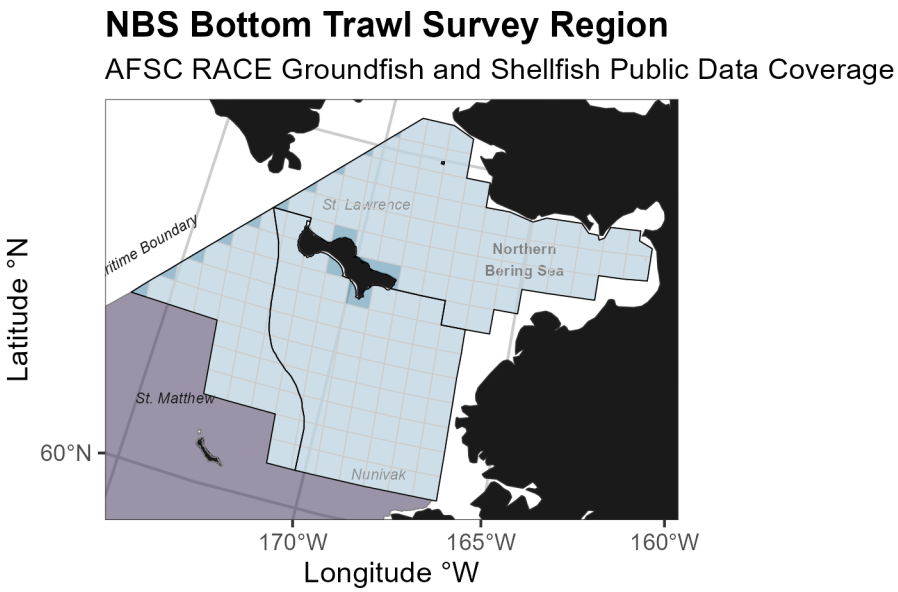


Figure 1.5.: Strata used in the Northern Bering Sea bottom trawl survey.

1.5.5. Eastern Bering Sea Upper Continental Slope

Most recent data report: (Hoff, 2016)

- The eastern Bering Sea upper continental slope survey area extends from Unalaska and Akutan Islands to the U.S.-Russian Maritime Boundary at 61° N near the International Date Line (166° E to 180° W) at depths from 200 to 1,200 m
- Conducted intermittently since 2002 (funding dependent)
- Modified Index-Stratified Random of Successful Stations Survey Design
- Focus species for the Bering Sea slope include giant grenadier, Pacific ocean perch, popeye grenadier, walleye pollock, and arrowtooth flounder.

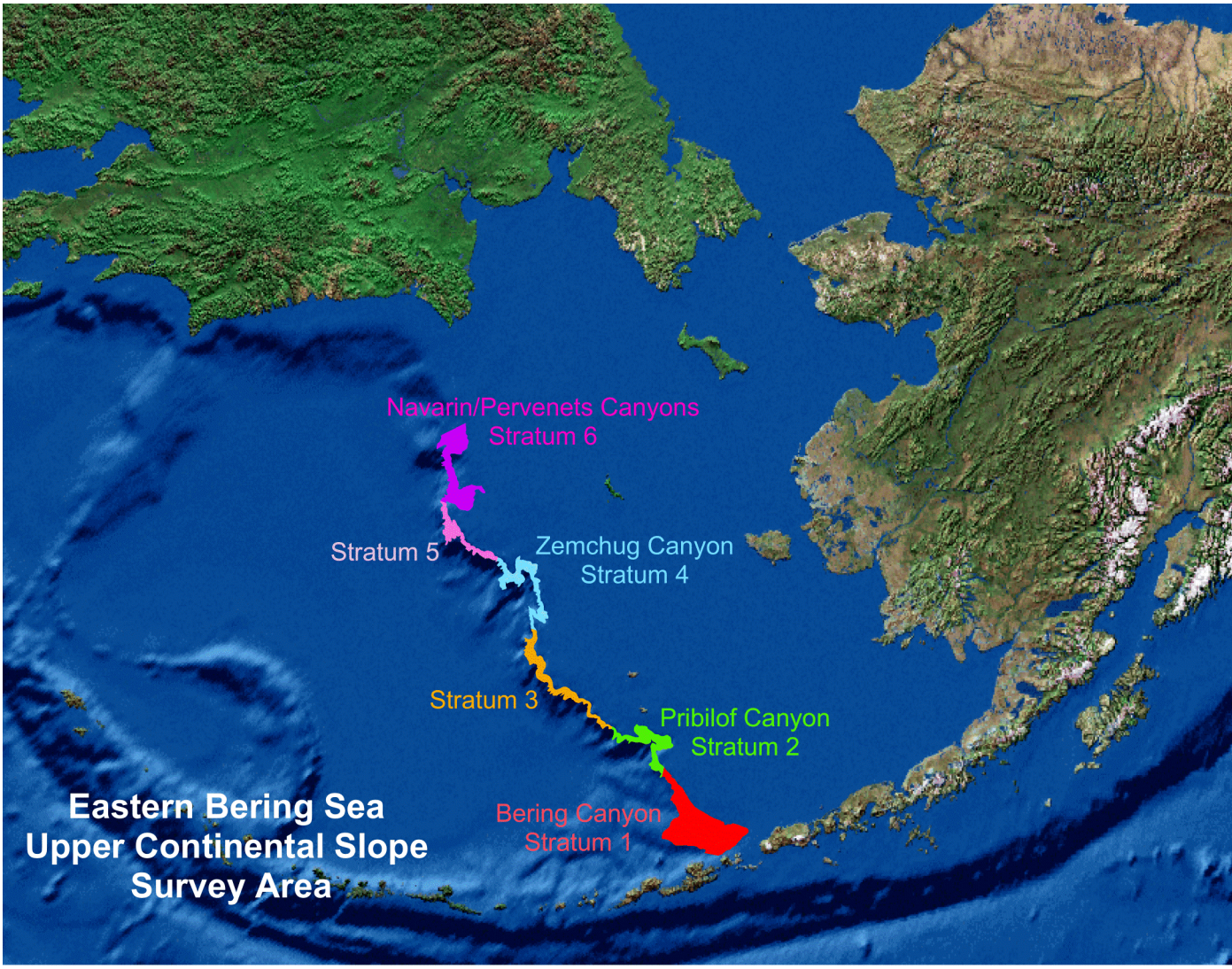


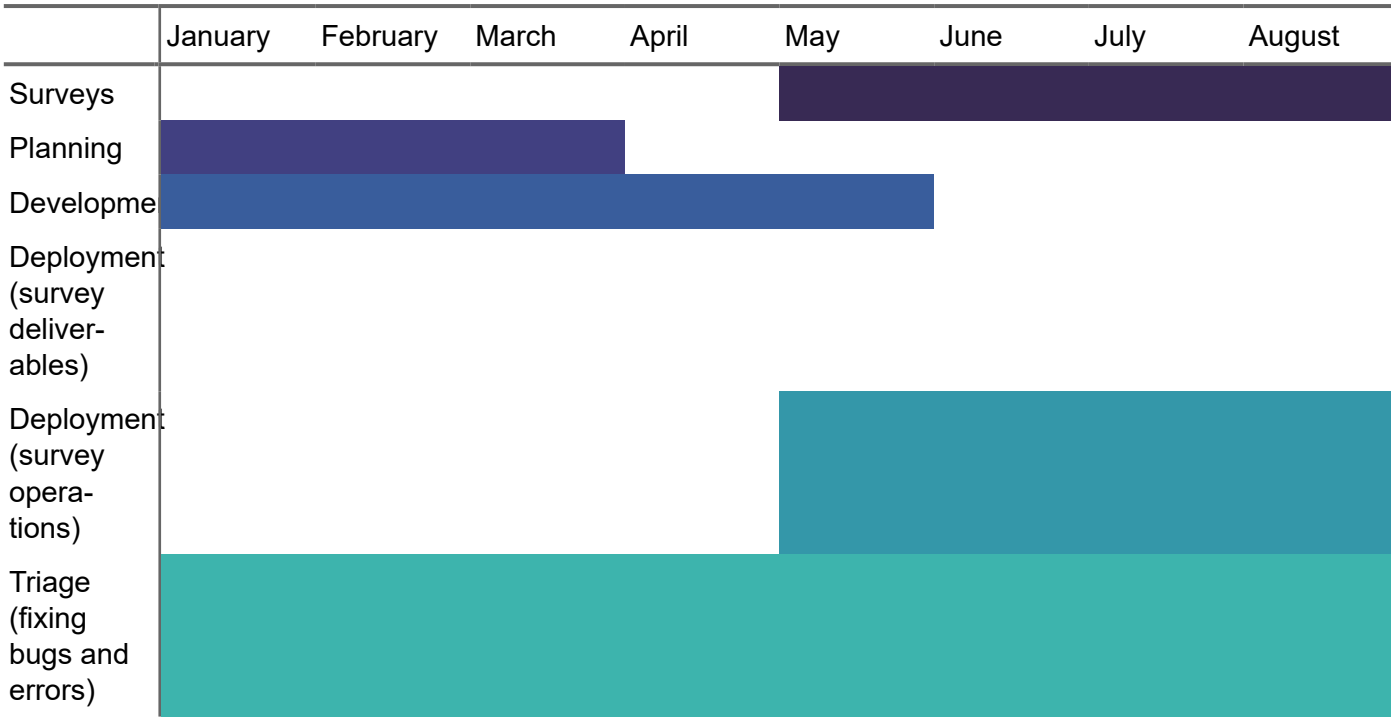
Figure 1.6.: Strata used in the Bering Sea Slope bottom trawl survey.

2. Workflow

2.1. Operational Product Development Timeline

Over the course of the year, the survey team is developing a variety of different data products. Planning and preparation for surveys happens in the late winter and spring, surveys occur in the summer, data validation takes place over the course of the survey and after the survey, and data products are produced through fall and late winter.

Table 2.1.: Operational product development timeline.



	January	February	March	April	May	June	July	August
User feedback and brain-storming								

2.2. Data workflow from boat to production

Organisms first need to be collected aboard the vessel before data can be entered into tablets.

The objective of this process is to take raw data, QA/QC and clean these data, curate standard data products for these survey. Please note, through this process we are not providing "data" (what we consider lower level data material; see the data levels section below) but "data products", which is intended to facilitate the most fool-proof standard interpretation of the data. These data products only use data from standard and validated hauls, and has undergone careful review.

Once survey data collected on the vessel has been checked and validated, the `gap_products/code/run.R` script is used to orchestrate a sequence of programs that calculate the standard data products resulting from the NOAA AFSC GAP bottom trawl surveys. Standard data products are the CPUE, BIOMASS, SIZECOMP, and AGECOMP tables in the `GAP_PRODUCTS` Oracle schema. The tables are slated to be updated twice a year: once after the survey season following finalization of that summer's bottom trawl survey data to incorporate the new catch, size, and effort data and once prior to an upcoming survey to incorporate new age data that were processed after the prior summer's survey season ended. This second pre-survey production run will also incorporate changes in the data due to the specimen voucher process as well as other post-hoc changes in the survey data.

> The data from these surveys constitute a **living data set** so we can continue to **provide the best available data to all partners, stakeholders, and fellow scientists**.

During each data product run cycle:

1. Versions of the tables in GAP_PRODUCTS are locally imported within the gap_products repository to compare with the updated production tables. Any

changes to a production table will be compared and checked to make sure those changes are intentional and documented.

2. Use the `gapindex` R package to calculate the four major standard data products: CPUE, BIOMASS, SIZECOMP, AGECOMP. These tables are compared and checked to their respective locally saved copies and any changes to the tables are vetted and documented. These tables are then uploaded to the GAP_PRODUCTS Oracle schema.
3. Calculate the various materialized views for AKFIN and FOSS purposes. Since these are derivative of the tables in GAP_PRODUCTS as well as other base tables in RACEBASE and RACE_DATA, it is not necessary to check these views in addition to the data checks done in the previous steps.

3. News

3.1. News/change logs

– SAP_PRODUCTS ChangeLog (last produced on 2024-10-15), initial development & template: Run completed by: Emily Markowitz (GAP)

4. Code of Conduct

4.1. What are Codes of Conduct?

Codes of Conduct are voluntary sets of rules that assist creators, developers, and users of code and data with data protection compliance and accountability in specific sectors or relating to particular processing operations.

Codes can help organizations to ensure all participants follow best practices and rules designed specifically for their sector or processing operations, thus enhancing compliance and collaboration. They are developed and managed by an association or other body (the 'Code Owner') which is representative of a sector (or category of data controllers or processors), with the expert and sectoral knowledge of how to enhance data protection in their area.

4.1.1. Code of Conduct from the nmfs-opensci GitHub.

5. NOAA Fisheries Open Science Code of Conduct

This code of conduct was developed and adapted from the Atom code of conduct in October 2021.

5.1. Our Pledge

In the interest of fostering an open and welcoming environment, we as contributors and maintainers pledge to making participation in our project and our community a harassment-free experience for everyone, regardless of age, body size, disability, ethnicity, gender identity and expression, level of experience, nationality, personal appearance, race, religion, or sexual identity and orientation.

5.2. Our Standards

Examples of behavior that contributes to creating a positive environment include:

- Using welcoming and inclusive language
- Being respectful of differing viewpoints and experiences
- Gracefully accepting constructive criticism
- Focusing on what is best for the community
- Showing empathy towards other community members

Examples of unacceptable behavior by participants include:

- The use of sexualized language or imagery and unwelcome sexual attention or advances
- Trolling, insulting/derogatory comments, and personal or political attacks
- Public or private harassment

- Publishing others' private information, such as a physical or electronic address, without explicit permission
- Other conduct which could reasonably be considered inappropriate in a professional setting

5.3. Our Responsibilities

Project maintainers are responsible for clarifying the standards of acceptable behavior and are expected to take appropriate and fair corrective action in response to any instances of unacceptable behavior.

Project maintainers have the right and responsibility to remove, edit, or reject comments, commits, code, wiki edits, issues, and other contributions that are not aligned to this Code of Conduct, or to ban temporarily or permanently any contributor for other behaviors that they deem inappropriate, threatening, offensive, or harmful.

5.4. Scope

This Code of Conduct applies both within project spaces and in public spaces when an individual is representing the project or its community. Examples of representing a project or community include using an official project e-mail address, posting via an official social media account, or acting as an appointed representative at an online or offline event. Representation of a project may be further defined and clarified by project maintainers.

5.5. Enforcement

Instances of abusive, harassing, or otherwise unacceptable behavior may be reported by contacting the project team. All complaints will be reviewed and investigated and will result in a response that is deemed necessary and appropriate to the circumstances. Further details of specific enforcement policies may be posted separately.

5.6. Attribution

This Code of Conduct is adapted from the Contributor Covenant, version 1.4, available at https://contributor-covenant.org/version/1/4

Part II.

GAP Production Data

Data Description

The Resource Assessment and Conservation Engineering Division (RACE) Groundfish Assessment Program (GAP) of the Alaska Fisheries Science Center (AFSC) conducts fisheries-independent bottom trawl surveys to monitor the condition of the demersal fish and crab stocks of Alaska. These data are developed to describe the temporal distribution and abundance of commercially and ecologically important groundfish species, examine the changes in the species composition of the fauna over time and space, and describe the physical environment of the groundfish habitat. These data are created using the gapindex R package v2.1.0.

Users must read and fully comprehend the metadata prior to use. Data should not be used beyond the limits of the source scale. Acknowledgement of NOAA, as the source from which these data were obtained, in any publications and/or other representations of these data, is suggested. These data are compiled and approved annually after each summer survey season. The data from previous years are unlikely to change substantially once published. Some survey data are excluded, such as non-standard stations, surveys completed in earlier years using different/non-standard gear, and special tows and non-standard data collections.

Cite this data

Use the below bibtext citation, as cited in our group's citation repository for citing the data created and maintained in this repository. Add "note = {Accessed: mm/dd/yyyy}" to append the day this data was accessed.

```
[1] "@misc{GAPProducts,"
[2] "  author = {{NOAA Fisheries Alaska Fisheries Science Center, Goundfish Assessment Prog
[3] "  year = {2024}, "
[4] "  title = {AFSC Goundfish Assessment Program Design-Based Production Data},"
[5] "  howpublished = {https://www.fisheries.noaa.gov/alaska/science-data/groundfish-assess
[6] "  publisher = {{U.S. Dep. Commer.}},"
[7] "  copyright = {Public Domain} "
[8] "}"
```

6. Data description

6.1. Data tables

6.1.1. AREA

Lookup table for which area are contained within a given AREA_ID for each DESIGN_-YEAR. This table can be used in tandom with the GAP_PRODCUTS.STARTUM_GROUPS or AKFIN_STARTUM_GROUPS tables. Tables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 12

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

SPECIES_CODE

Taxon code

ID key code

NUMBER(38,0)

The species code of the organism associated with the common_name and scientific_-name columns. For a complete species list, review the code books.

AREA_NAME

Area ID name

text

VARCHAR2(4000 BYTE)

Descriptive name of each AREA_ID. These names often identify the region, depth ranges, or other regional information for the area ID.

SURVEY_DEFINITION_ID

Survey ID

ID key code

NUMBER(38,0)

The survey definition ID key code is an integer that uniquely identifies a survey region/survey design. The column survey_definition_id is associated with the srvy and survey columns. Full list of survey definition IDs are in RACE_DATA.SURVEY_DEFINITIONS and in the code books.

AREA_ID

Area ID

ID key code

NUMBER(38,0)

Area ID key code for each statistical area used to produce production estimates (e.g., biomass, population, age comps, length comps). Each area ID is unique within each survey.

N_COUNT

Hauls with taxon counts

numeric

NUMBER(38,0)

Total number of hauls with positive count data.

DESIGN_YEAR

Design year

year

NUMBER(10,0)

Year ID associated with a given value AREA_ID. This field describes the changes in the survey design over time.

AREA_TYPE

Area ID type description

category

VARCHAR2(255 BYTE)

The type of stratum that AREA_ID represents. Types include: STRATUM (the smallest building-block unit of area in these surveys), REGION, DEPTH, SUBAREA, INPFC BY DEPTH, INPFC, SUBAREA BY DEPTH, REGULATORY AREA, NMFS STATISTICAL AREA.

DESCRIPTION

Description

text

VARCHAR2(4000 BYTE)

Description of row observation.

AREA_KM2

Area (km2)

kilometers squared

NUMBER(38,3)

Area in square kilometers.

DEPTH_MIN_M

Area ID minimum depth (m)

meters

NUMBER(38,3)

Minimum depth (meters).

DEPTH_MAX_M

Area ID maximum depth (m)

meters

NUMBER(38,3)

Maximum depth (meters).

6.1.2. HAUL

Modifed of GAP_PRODUCTS.HAUL OR AKFIN_HAUL. Tables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 26

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

STRATUM

Stratum ID

ID key code

NUMBER(10,0)

RACE database statistical area for analyzing data. Strata were designed using bathymetry and other geographic and habitat-related elements. The strata are unique to each survey region. Stratum of value 0 indicates experimental tows.

LATITUDE_DD_START

Start latitude (decimal degrees)

decimal degrees

NUMBER(38,6)

Latitude (one hundred thousandth of a decimal degree) of the start of the haul.

LATITUDE_DD_END

End latitude (decimal degrees)

decimal degrees

NUMBER(38,6)

Latitude (one hundred thousandth of a decimal degree) of the end of the haul.

LONGITUDE_DD_START

Start longitude (decimal degrees)

decimal degrees

NUMBER(38,6)

Longitude (one hundred thousandth of a decimal degree) of the start of the haul.

LONGITUDE_DD_END

End longitude (decimal degrees)

decimal degrees

NUMBER(38,6)

Longitude (one hundred thousandth of a decimal degree) of the end of the haul.

STATION

Station ID

ID key code

VARCHAR2(255 BYTE)

Alpha-numeric designation for the station established in the design of a survey.

DEPTH_GEAR_M

Depth of gear (m)

degrees Celsius

NUMBER(38,1)

Depth of gear (meters).

DEPTH_M

Depth (m)

degrees Celsius

NUMBER(38,1)

Bottom depth (meters).

BOTTOM_TYPE

Seafloor bottom type code

ID key code

NUMBER(38,0)

Bottom type on sea floor at haul location. For a complete list of bottom type ID key codes, review the code books.

SURFACE_TEMPERATURE_C

Surface temperature (degrees Celsius)

degrees Celsius

NUMBER(38,1)

Surface temperature (tenths of a degree Celsius); NA indicates removed or missing values.

GEAR_TEMPERATURE_C

Gear temperature (degrees Celsius)

degrees Celsius

NUMBER(38,1)

Temperature recorded by net gear (tenths of a degree Celsius); NA indicates removed or missing values.

WIRE_LENGTH_M

Trawl wire length

meters

NUMBER(38,0)

Length of wire deployed during a given haul in meters.

GEAR

Type of gear used on the net

ID key code

NUMBER(38,0)

Type of gear used on net. For a complete list of gear ID key codes, review the code books.

ACCESSORIES

Type of gear accessories used on the net

ID key code

NUMBER(38,0)

Type of accessories used on net. For a complete list of accessories ID key codes, review the code books.

CRUISEJOIN

Cruise ID

ID key code

NUMBER(38,0)

Unique integer ID assigned to each survey, vessel, and year combination.

HAULJOIN

Haul ID

ID key code

NUMBER(38,0)

This is a unique numeric identifier assigned to each (vessel, cruise, and haul) combination.

HAUL

Haul number

ID key code

NUMBER(38,0)

This number uniquely identifies a sampling event (haul) within a cruise. It is a sequential number, in chronological order of occurrence.

HAUL_TYPE

Haul sampling type

ID key code

NUMBER(38,0)

Type of haul sampling method. For a complete list of haul type ID key codes, review the code books.

VESSEL_ID

Vessel ID

ID key code

NUMBER(38,0)

ID number of the vessel used to collect data for that haul. The column vessel_id is associated with the vessel_name column. Note that it is possible for a vessel to have a new name but the same vessel id number. For a complete list of vessel ID key codes, review the code books.

PERFORMANCE

Haul performance code

category

NUMBER(38,0)

This denotes what, if any, issues arose during the haul. For more information, review the code books.

DATE_TIME_START

Start date and time

MM/DD/YYYY HH::MM

TIMESTAMP

The date (MM/DD/YYYY) and time (HH:MM) of the beginning of the haul. All dates and times are in Alaska time (AKDT) of Anchorage, AK, USA (UTC/GMT -8 hours).

DURATION_HR

Tow duration (decimal hr)

hours

NUMBER(38,1)

This is the elapsed time between start and end of a haul (decimal hours).

DISTANCE_FISHED_KM

Distance fished (km)

degrees Celsius

NUMBER(38,3)

Distance the net fished (thousands of kilometers).

NET_WIDTH_M

Net width (m)

meters

NUMBER(38,1)

Measured or estimated distance (meters) between wingtips of the trawl.

NET_MEASURED

Net measured during haul

logical

BINARY_DOUBLE

Logical, describing if the net was measured (TRUE) or not (FALSE) by wheelhouse and marport programs during the haul.

NET_HEIGHT_M

Net height (m)

meters

NUMBER(38,1)

Measured or estimated distance (meters) between footrope and headrope of the trawl.

6.1.3. SPECIMEN

Modifed of GAP_PRODUCTS.SPECIMEN OR AKFIN_SPECIMEN. Tables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 18

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

HAULJOIN

Haul ID

ID key code

NUMBER(38,0)

This is a unique numeric identifier assigned to each (vessel, cruise, and haul) combination.

SPECIMEN_ID

Specimen unique ID

ID key code

NUMBER(38,0)

Each individual examined must have a number assigned to it that is unique within each haul (0001 to 9999), though specimen numbers may be repeated between hauls

SPECIES_CODE

Taxon code

ID key code

NUMBER(38,0)

The species code of the organism associated with the common_name and scientific_name columns. For a complete species list, review the code books.

SEX

Sex of a specimen

ID key code

NUMBER(38,0)

Sex of a specimen where “1” = “Male”, “2” = “Female”, “3” = Unsexed.

WEIGHT_G

Specimen weight (g)

grams

NUMBER(38,1)

Weight of specimen (grams).

LENGTH_MM

Length of a specimen

millimeters

NUMBER(10,0)

Length bin in millimeters. A length of -9 indicates cases where no lengths were collected within a stratum for a species/year, even though catch numbers were recorded.

LENGTH_TYPE

Length type

ID key code

NUMBER(38,0)

How the taxon was measured (e.g., fork length, carapace width). For a complete list of length_type ID key codes, review the code books.

6.1.4. STATION

Lookup table of stations. Tables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 8

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

SURVEY_DEFINITION_ID

Survey ID

ID key code

NUMBER(38,0)

The survey definition ID key code is an integer that uniquely identifies a survey region/survey design. The column survey_definition_id is associated with the srvy and survey columns. Full list of survey definition IDs are in RACE_DATA.SURVEY_DEFINITIONS and in the code books.

AREA_ID

Area ID

ID key code

NUMBER(38,0)

Area ID key code for each statistical area used to produce production estimates (e.g., biomass, population, age comps, length comps). Each area ID is unique within each survey.

STRATUM

Stratum ID

ID key code

NUMBER(10,0)

RACE database statistical area for analyzing data. Strata were designed using bathymetry and other geographic and habitat-related elements. The strata are unique to each survey region. Stratum of value 0 indicates experimental tows.

STATION

Station ID

ID key code

VARCHAR2(255 BYTE)

Alpha-numeric designation for the station established in the design of a survey.

LONGITUDE_DD

Longitude (decimal degrees)

decimal degrees

NUMBER(38,6)

Longitude (one hundred thousandth of a decimal degree).

LATITUDE_DD

Latitude (decimal degrees)

decimal degrees

NUMBER(38,6)

Latitude (one hundred thousandth of a decimal degree).

DESIGN_YEAR

Design year

year

NUMBER(10,0)

Year ID associated with a given value AREA_ID. This field describes the changes in the survey design over time.

6.1.5. STOCK_MATURITY_CUTOFF

MALE cutlines lookup tableTables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 10

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

SPECIES_CODE

Taxon code

ID key code

NUMBER(38,0)

The species code of the organism associated with the common_name and scientific_name columns. For a complete species list, review the code books.

DESCRIPTION

Description

text

VARCHAR2(4000 BYTE)

Description of row observation.

6.1.6. STRATUM_GROUP

Lookup table for which strata are contained within a given AREA_ID. This table can be used in tandom with the GAP_PRODCUTS.AREA or AKFIN_AREA tables. Tables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 4

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

SPECIES_CODE

Taxon code

ID key code

NUMBER(38,0)

The species code of the organism associated with the common_name and scientific_-name columns. For a complete species list, review the code books.

AREA_ID

Area ID

ID key code

NUMBER(38,0)

Area ID key code for each statistical area used to produce production estimates (e.g., biomass, population, age comps, length comps). Each area ID is unique within each survey.

STRATUM

Stratum ID

ID key code

NUMBER(10,0)

RACE database statistical area for analyzing data. Strata were designed using bathymetry and other geographic and habitat-related elements. The strata are unique to each survey region. Stratum of value 0 indicates experimental tows.

DESIGN_YEAR

Design year

year

NUMBER(10,0)

Year ID associated with a given value AREA_ID. This field describes the changes in the survey design over time.

6.1.7. SURVEY_YEAR

Lookup table for DESIGN_YEAR should be used for which survey YEAR. This table can be used in tandom with the GAP_PRODCUTS.SURVEY_YEAR or AKFIN_SURVEY_YEAR tables. Tables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 3

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

SURVEY_DEFINITION_ID

Survey ID

ID key code

NUMBER(38,0)

The survey definition ID key code is an integer that uniquely identifies a survey region/survey design. The column survey_definition_id is associated with the srvy and survey columns. Full list of survey definition IDs are in RACE_DATA.SURVEY_DEFINITIONS and in the code books.

DESIGN_YEAR

Design year

year

NUMBER(10,0)

Year ID associated with a given value AREA_ID. This field describes the changes in the survey design over time.

YEAR

Survey year

year

NUMBER(10,0)

Year the observation (survey) was collected.

6.1.8. TEST

NA

Number of columns: 1

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

YEAR

Survey year

year

NUMBER(10,0)

Year the observation (survey) was collected.

6.1.9. XCRAB_SPECIES

Crab specific SPECIES_ID for crab ids. Tables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 3

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

SPECIES_CODE

Taxon code

ID key code

NUMBER(38,0)

The species code of the organism associated with the common_name and scientific_-name columns. For a complete species list, review the code books.

COMMON_NAME

Taxon common name

text

VARCHAR2(255 BYTE)

The common name of the marine organism associated with the scientific_name and species_code columns. For a complete species list, review the code books.

6.1.10. XSTOCK

Stock district lookup table. Tables are provided by the Resource Assessment and Conservation Engineering Division (RACE) Shellfish Assessment Program (SAP) of the Alaska Fisheries Science Center (AFSC).There are legal restrictions on access to the data. These data are not intended for public dissemination and should not be shared without the explicit written consent of the data managers and owners (NOAA Fisheries).The GitHub repository for the scripts that created this code can be found at (https://github.com/EmilyMarkowitz-NOAA/sap_products).

Number of columns: 2

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

SPECIES_CODE

Taxon code

ID key code

NUMBER(38,0)

The species code of the organism associated with the common_name and scientific_-name columns. For a complete species list, review the code books.

7. Universal Column Metadata

This table is used to string together the various field comments for the tables in GAP_-PRODUCTS. This table was created by the Resource Assessment and Conservation Engineering Division (RACE) Groundfish Assessment Program (GAP) of the Alaska Fisheries Science Center (AFSC). The GitHub repository for the scripts that created this code can be found at (https://github.com/afsc-gap-products/gap_products). There are no legal restrictions on access to the data. Last updated on 12 September 2024.

Table 7.1.: Universal stock metadata that users can use to document their table columns.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
ABUNDANC HAUL	Design-based index approved haul	logical	VARCHAR2 BYTE)	Logical, describing if this haul was conducted in a standard manner and thus used for design-based index estimates (TRUE) or not (FALSE).

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
ACCESSORIES	Type of gear accessories used on the net	ID key code	NUMBER(38,0)	Type of accessories used on net. For a complete list of accessories ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
ACTION	Database action	text	VARCHAR2 BYTE)	Standard action taken to alter current database record
ACTIVE	Vessel active/inactive	logical	VARCHAR2(255 BYTE)	Logical, describing if a vessel is active (TRUE) or not (FALSE).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AGE	Taxon age bin (yrs)	integer	NUMBER(3	Age bin of taxon. Age bin of a taxon in years estimated by the age comp estimate. Age -9 indicates unaged lengths for a particular sex because no otoliths were collected for that sex/length combination. Age -99 indicates a case where no lengths were collected within a stratum for a species/year even though catch numbers were recorded.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AGENCY_-ACRONYM	Acronym of listed Agency	text abbre-viated	VARCHAR2(255 BYTE)	Abbreviated agencies that are affiliated with the Alaska bottom trawl survey. The column agency_-acronym is associated with the agency_-short and agency_-long columns.
AGENCY_-JOIN	Agency ID	ID key code	NUMBER(3	Affiliated agency ID key code.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AGENCY_LONG	Official name of agency	text	VARCHAR2(255 BYTE)	Full official name of affiliated agencies to the Alaska bottom trawl survey. The column agency_long is associated with the agency_acronym and agency_short columns.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AGENCY_-SHORT	Agency shorthand name	text	VARCHAR2 BYTE)	A sort version of the full official name of affiliated agencies to the Alaska bottom trawl survey. The column agency_-short is associated with the agency_-acronym and agency_-long columns.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AGE_DETERMINATION_METHOD	Aging method	ID key code	NUMBER(10,0)	Numeric code corresponding to the method of age determination. For a complete list of age determination codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
AGE_DETERMINATION_METHODS	Age determination method	ID key code	NUMBER(3	A unique ID used to identify this age determination method.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AGE_-YEAR	Age bin of taxon	year	NUMBER(38,0)	Age bin of a taxon in years estimated by the age comp estimate.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AREAJOIN	Area polygon ID	ID key code	NUMBER(3	A call sign is a designated sequence of letters and numbers that are assigned when a vessel, whether it be a sailing yacht, motor yacht, rib or commercial vessel, receives its Ship Radio Licence. The vessel also receives its MMSI number, so that each vessel is uniquely identified.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AREA_ID	Area ID	ID key code	NUMBER(38,0)	Area ID key code for each statistical area used to produce production estimates (e.g., biomass, population, age comps, length comps). Each area ID is unique within each survey.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AREA_ID_FOOTPRINT	Survey Footprint	text	VARCHAR2(255 BYTE)	Survey footprint, usually equivalent to the SURVEY_DEFINITION_ID with the exception of the Standard and Standard +NW survey footprints in the Eastern Bering Sea shelf bottom trawl survey
AREA_KM2	Area (km2)	kilometers squared	NUMBER(38,8)	Area in square kilometers.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AREA_-NAME	Area ID name	text	VARCHAR2(255 BYTE)	Descriptive name of each AREA_ID. These names often identify the region, depth ranges, or other regional information for the area ID.
AREA_-SWEPT_-KM2	Area swept (km)	kilometers	NUMBER(38,6)	The area the net covered while the net was fishing (kilometers squared), defined as the distance fished times the net width.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
AREA_-TYPE	Area ID type description	category	VARCHAR2 BYTE)	The type of stratum that AREA_ID represents. Types include: STRATUM (the smallest building-block unit of area in these surveys), REGION, DEPTH, SUB-AREA, INPFC BY DEPTH, INPFC, SUBAREA BY DEPTH, REGULA-TORY AREA, NMFS STATISTI-CAL AREA.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
BIOMASS_MT	Estimated biomass	numeric	NUMBER(38,6)	The estimated total biomass.
BIOMASS_VAR	Estimated biomass variance	numeric	NUMBER(38,6)	The estimated variance associated with the total biomass.
BOTTOM_TEMPERATURE_C	Bottom temperature (degrees Celsius)	degrees Celsius	NUMBER(38,1)	Bottom temperature (tenths of a degree Celsius); NA indicates removed or missing values.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
BOTTOM_TYPE	Seafloor bottom type code	ID key code	NUMBER(3	Bottom type on sea floor at haul location. For a complete list of bottom type ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
CATALOG_NUM	Catalog number	text	VARCHAR2(255 BYTE)	Museum catalog number associated with record

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
CATCHJOIN	Catch observation ID	ID key code	NUMBER(3	Unique integer ID assigned to each survey, vessel, year, and catch observation combination.
CLASSIFICATION	Taxonomic classification rank group	category	VARCHAR2(255 BYTE)	Phylogenetic classification group rank for a given species.
CLASS_TAXON	Class phylogenetic rank	category	VARCHAR2 BYTE)	Phylogenetic latin rank of class of a given species.
COLLECTED_BY	Person who collected specimen	text	VARCHAR2(255 BYTE)	Initials of person who collected specimen in the field
COMMENT	Comments	text	VARCHAR2 BYTE)	Comments regarding row observation.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
COMMON_NAME	Taxon common name	text	VARCHAR2(255 BYTE)	The common name of the marine organism associated with the scientific_name and species_code columns. For a complete species list, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
COUNT	Taxon count	count, whole number resolution	NUMBER(3	Total whole number of individuals caught in haul or samples collected.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
COUNTRY_ID	Country code	ID key code	NUMBER(38,0)	Country ID key code of where a vessel, for example, may be from. For a complete list of country ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
CPUE_KGHA	Weight CPUE (kg/ha)	kilograms per hectare	NUMBER(3	Catch weight (kilograms) per unit effort (area swept by the net, units hectares).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
CPUE_KGKM2	Weight CPUE (kg/km2)	kilograms per kilometers squared	NUMBER(38,6)	Catch weight (kilograms) per unit effort (area swept by the net, units square kilometers).
CPUE_KGKM2_MEAN	Mean weight CPUE	kilograms per kilometers squared	NUMBER(3	The mean catch weight (kilograms) per unit effort (area swept by the net, units squared kilometers).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
CPUE_-KGKM2_-VAR	Variance of the mean weight CPUE	kilograms per kilometers squared	NUMBER(38,6)	The variance of mean catch weight (kilograms) per unit effort (area swept by the net, units squared kilometers).
CPUE_-NOHA	Number CPUE (no/ha)	count per hectare	NUMBER(38,6)	Numerical catch per unit effort (area swept by the net, units hectares).
CPUE_-NOKM2	Number CPUE (no/km2)	count per kilometers squared	NUMBER(38,6)	Numerical catch per unit effort (area swept by the net, units square kilometers).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
CPUE_-NOKM2_-MEAN	Mean numeric CPUE	count per kilometers squared	NUMBER(3	The mean of numerical catch per unit effort (area swept by the net, units square kilometers).
CPUE_-NOKM2_-VAR	Variance of the mean numeric CPUE	count per kilometers squared	NUMBER(38,6)	The variance of mean numerical catch per unit effort (area swept by the net, units square kilometers).

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
CRS	Coordinate reference system	ID key code	VARCHAR2 BYTE)	The coordinate reference system (CRS) that shapefiles were created in or areas (like AREA_-KM2) are calculated in, as defined by https://spatialreference.org/ (e.g., ”+proj=longlat”, ”EPSG:3338”).

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
CRUISE	Cruise Name	ID key code	NUMBER(38,0)	This is a six-digit integer identifying the cruise number of the form: YYYY99 (where YYYY = year of the cruise; 99 is a 2-digit number and is sequential; 01 denotes the first cruise that vessel made in this year, 02 is the second, etc.).
CRUISEJO	Cruise ID	ID key code	NUMBER(3	Unique integer ID assigned to each survey, vessel, and year combination.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
DATABASE	Database source	category	VARCHAR2(255 BYTE)	Taxonomic database source, either ITIS or WoRMS.
DATABASE ID	Species ID in database	ID key code	VARCHAR2 BYTE)	Species ID key code of a species in the taxonomic ”DATABASE” source.
DATE	Date	YYYY-MM-DD	DATE	The date (YYYY-MM-DD) of the event (e.g., cruise).
DATE_-END	End date	YYYY-MM-DD	DATE	The date (YYYY-MM-DD) of the end of the event (e.g., cruise).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
DATE_-START	Start date	YYYY-MM-DD	DATE	The date (YYYY-MM-DD) of the beginning of the event (e.g., cruise).
DATE_-TIME	Date and time	MM/DD/YY HH::MM	DATE	The date (MM/DD/YYYY) and time (HH:MM) of the haul. All dates and times are in Alaska time (AKDT) of Anchor-age, AK, USA (UTC/GMT -8 hours).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
DATE_-TIME_-END	End date and time	MM/DD/YYYY HH::MM	TIMESTAMP	The date (MM/DD/YYYY) and time (HH:MM) of the end of the haul. All dates and times are in Alaska time (AKDT) of Anchor-age, AK, USA (UTC/GMT -8 hours).
DATE_-TIME_-START	Start date and time	MM/DD/YY HH::MM	TIMESTAM	The date (MM/DD/YYYY) and time (HH:MM) of the beginning of the haul. All dates and times are in Alaska time (AKDT) of Anchor-age, AK, USA (UTC/GMT -8 hours).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
DEPTH_-GEAR_M	Depth of gear (m)	degrees Celsius	NUMBER(38,1)	Depth of gear (meters).
DEPTH_M	Depth (m)	degrees Celsius	NUMBER(3	Bottom depth (meters).
DEPTH_-MAX_M	Area ID maximum depth (m)	meters	NUMBER(38,0)	Maximum depth (meters).
DEPTH_-MIN_M	Area ID minimum depth (m)	meters	NUMBER(3	Minimum depth (meters).
DESCRIPTION	Description	text	VARCHAR2(4000 BYTE)	Description of row observation.
DESIGN_-YEAR	Design year	year	NUMBER(1	Year ID associated with a given value AREA_ID. This field describes the changes in the survey design over time.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
DISTANCE_-FISHED_-KM	Distance fished (km)	degrees Celsius	NUMBER(38,3)	Distance the net fished (thousands of kilometers).
DUMMY	dummy	dummy	VARCHAR2 BYTE)	dummy
DURATION_-HR	Tow duration (decimal hr)	hours	NUMBER(38,1)	This is the elapsed time between start and end of a haul (decimal hours).
FAMILY_-TAXON	Family phylogenetic rank	category	VARCHAR2 BYTE)	Phylogenetic latin rank of family of a given species.
FIELD_ID	Field specimen identification	text	VARCHAR2(255 BYTE)	Field identification for the vouchered specimen
FREQUEN(	Count of observation	count	NUMBER(3	Frequency, or count, of an observation.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
GEAR	Type of gear used on the net	ID key code	NUMBER(38,0)	Type of gear used on net. For a complete list of gear ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
GEAR_-DEPTH_M	Gear depth	meters	NUMBER(3	Depth gear was deployed at (tenths of a meter). Gear depth plus net height equals bottom depth.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
GEAR_ID	Gear ID	ID key code	NUMBER(38,0)	Type of trawl or gear deployed. For a complete list of vessel gear type ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
GEAR_-TEMPER-ATURE_C	Gear tem-perature (degrees Celsius)	degrees Celsius	NUMBER(3	Temperature recorded by net gear (tenths of a degree Celsius); NA indicates removed or missing values.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
GENUS_-TAXON	Genus phyloge-netic rank	category	VARCHAR2(255 BYTE)	Phylogenetic latin rank of genus of a given species.
GONAD_-G	Weight of gonads (g)	grams	NUMBER(3	Weight of specimen gonads (grams).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
GROUP_-CODE	Species or Complex ID	ID key code	NUMBER(38,0)	Equivalent to the SPECIES_-CODE if the taxon is reported as a single taxon in GAP_-PROD-UCTS, otherwise denotes a SPECIES_-CODE of a higher taxonomic group to which the taxon is aggre-gated in the GAP_-PROD-UCTS CPUE and BIOMASS tables.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
HAUL	Haul number	ID key code	NUMBER(3	This number uniquely identifies a sampling event (haul) within a cruise. It is a sequential number, in chronological order of occurrence.
HAULJOIN	Haul ID	ID key code	NUMBER(38,0)	This is a unique numeric identifier assigned to each (vessel, cruise, and haul) combination.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
HAUL_-TYPE	Haul sampling type	ID key code	NUMBER(3	Type of haul sampling method. For a complete list of haul type ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
ID_RANK	Lowest taxonomic rank	text	VARCHAR2(25 BYTE)	Lowest taxonomic rank of a given species entry.
INFRACLA TAXON	Infraclass phyloge-netic rank	category	VARCHAR2 BYTE)	Infraclass phyloge-netic rank. Phyloge-netic latin rank of infraclass of a given speices.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
INFRAORDER_TAXON	Infraorder phylogenetic rank	category	VARCHAR2(255 BYTE)	Infraorder phylogenetic rank. Phylogenetic latin rank of infraorder of a given speices.
ITIS	Integrated taxonomic information system (ITIS) serial number	ID key code	NUMBER(3	Species code as identified in the Integrated Taxonomic Information System (https://itis.gov/).
KINGDOM_TAXON	Kingdom phylogenetic rank	category	VARCHAR2(255 BYTE)	Phylogenetic latin rank of kingdom of a given species.
LATITUDE_DD	Latitude (decimal degrees)	decimal degrees	NUMBER(3	Latitude (one hundred thousandth of a decimal degree).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
LATITUDE_DD_END	End latitude (decimal degrees)	decimal degrees	NUMBER(38,6)	Latitude (one hundred thousandth of a decimal degree) of the end of the haul.
LATITUDE_DD_START	Start latitude (decimal degrees)	decimal degrees	NUMBER(38,6)	Latitude (one hundred thousandth of a decimal degree) of the start of the haul.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
LENGTH_-MM	Length of a specimen	millimeters	NUMBER(10,0)	Length bin in millimeters. A length of -9 indicates cases where no lengths were collected within a stratum for a species/year, even though catch numbers were recorded.
LENGTH_-MM_-MEAN	Mean length at age weighted by numbers at length	numeric	NUMBER(3	Mean length (millimeters)
LENGTH_-MM_SD	Standard deviation of length at age weighted by numbers at length	numeric	NUMBER(38,3)	Variance of mean length.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
LENGTH_-TYPE	Length type	ID key code	NUMBER(3	How the taxon was measured (e.g., fork length, carapace width). For a complete list of length_-type ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
LONGITUDE_-DD	Longitude (decimal degrees)	decimal degrees	NUMBER(38,6)	Longitude (one hundred thou-sandth of a decimal degree).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
LONGITUDDD_END	End longitude (decimal degrees)	decimal degrees	NUMBER(3	Longitude (one hundred thousandth of a decimal degree) of the end of the haul.
LONGITUDE_DD_-START	Start longitude (decimal degrees)	decimal degrees	NUMBER(38,6)	Longitude (one hundred thousandth of a decimal degree) of the start of the haul.
MATURITY	Specimen maturity code	ID key code	NUMBER(3	The maturity code or the condition identified by the maturity code.
METADATA_-COL-NAME	Column name	text	VARCHAR2(4000 BYTE)	Name of the column in a table.
METADATACOL-NAME_-DESC	Column description	text	VARCHAR2 BYTE)	Description of the column.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
METADATA_COLNAME_LONG	Column name spelled out	text	VARCHAR2(4000 BYTE)	Long name for the column.
METADATA_DATATYPE	Oracle datatype code	text	VARCHAR2(4000 BYTE)	Oracle data type of data column.
METADATA_SENTENCE	Sentence	text	VARCHAR2(4000 BYTE)	Table metadata sentence.
METADATA_SENTENCE_NAME	Metadata sentence name	text	VARCHAR2(4000 BYTE)	Name of table metadata sentence.
METADATA_SENTENCE_TYPE	Sentence type	text	VARCHAR2(4000 BYTE)	Type of sentence to have in table metadata.
METADATA_UNITS	Units	category	VARCHAR2(4000 BYTE)	Units of the column.
NET_HEIGHT_M	Net height (m)	meters	NUMBER(38,4)	Measured or estimated distance (meters) between footrope and headrope of the trawl.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
NET_-MEA-SURED	Net measured during haul	logical	BINARY_-DOUBLE	Logical, describing if the net was measured (TRUE) or not (FALSE) by wheel-house and marport programs during the haul.
NET_-WIDTH_M	Net width (m)	meters	NUMBER(38,1)	Measured or estimated distance (meters) between wingtips of the trawl.
NEW_ID	New specimen identifica-tion	text	VARCHAR2 BYTE)	Confirmed taxonomist identifica-tion of the vouchered specimen
NEW_-SPECIES_-CODE	New species code	ID key code	NUMBER(10,0)	Species code associated with new species name

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
NEW_-SPECIES_-NAME	New species name	text	VARCHAR2 BYTE)	Updated taxonomic name
N_COUNT	Hauls with taxon counts	numeric	NUMBER(38,0)	Total number of hauls with positive count data.
N_HAUL	Valid hauls	count	NUMBER(3	Total number of hauls.
N_-LENGTH	Hauls with taxon lengths	count	NUMBER(38,0)	Total number of hauls with length data.
N_-SAMPLE	Hauls with sample	count	NUMBER(3	Total number of hauls with positive sample collection.
N_SPECI-MENS	Number of specimens in the lot	count	NUMBER(38,0)	Number of specimens in the voucher lot
N_-WEIGHT	Hauls with catch	count	NUMBER(3	Total number of hauls with positive catch biomass.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column descrip-tion
OLD_-SPECIES_-CODE	Old species code	ID key code	NUMBER(10,0)	Species code associated with old species name
OLD_-SPECIES_-NAME	Old species name	text	VARCHAR2 BYTE)	Taxonomic name previously used in the database
ORDER_-TAXON	Order phy-logenetic rank	category	VARCHAR2(255 BYTE)	Phylogenetic latin rank of order of a given species.

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
PERFORM	Haul performance code	category	NUMBER(3	This denotes what, if any, issues arose during the haul. For more information, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
PHYLUM_TAXON	Phylum phylogenetic rank	category	VARCHAR2(255 BYTE)	Phylogenetic latin rank of phylum of a given species.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
POLYGON_WKB	Polygon binary string	code string	VARCHAR2(4000 BYTE)	Well-known binary (WKB) representation of geometry for a AREA_JOIN polygon. WKB is used to transfer and store the same information in a more compact form convenient for computer processing but that is not human-readable.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
POLYGON_WKT	Polygon - well known text	code string	VARCHAR2(255 BYTE)	Well-known text (WKT) representation of geometry for a AREA_-JOIN polygon. WKT is a text markup language for representing vector geometry objects.
POPULATI(COUNT	Estimated population	numeric	NUMBER(3	The estimated population caught in the survey for a species, group, or total for a given survey.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
POPULATION_VAR	Estimated population variance	numeric	NUMBER(38,6)	The estimated population variance caught in the survey for a species, group, or total for a given survey.
PRESERVA	Chemical specimen stored in	text	VARCHAR2 BYTE)	Chemical specimen currently stored in
PRINCIPAL_INVESTIGATOR	Principle investigator	text	VARCHAR2(255 BYTE)	First and last name of principal investigator for a project.
PROJECT_TITLE	Title of special project	text	VARCHAR2 BYTE)	Special project title.
PROJECT_TITLE_SHORT	Short title of special project	text	VARCHAR2(255 BYTE)	Special project short title (short version of PROJECT_TITLE).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
RANK_ID	Taxonomic rank	category	VARCHAR2(BYTE)	The taxonomic rank of a taxon identification.
REASON	Reason for taxonomic change	text	VARCHAR2(255 BYTE)	Reason for taxonomic change; pulled directly from online database (i.e. WoRMS or ITIS)

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SAMPLE_-TYPE	Sample type	ID key code	NUMBER(3	Sampling information on how the taxon was sampled. For a complete list of length_-type ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SCIENTIFIC_NAME	Taxon scientific name	text	VARCHAR2(255 BYTE)	The scientific name of the organism associated with the common_-name and species_-code columns. For a complete taxon list, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
SEX	Sex of a specimen	ID key code	NUMBER(3	Sex of a specimen where ”1” = ”Male”, ”2” = ”Female”, ”3” = Unsexed.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SPECIES_CODE	Taxon code	ID key code	NUMBER(38,0)	The species code of the organism associated with the common_name and scientific_name columns. For a complete species list, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).
SPECIES_NAME	Scientific name of species	text	VARCHAR2 BYTE)	Scientific name of species.
SPECIES_NAME_ACCEPTED	Scientific name used in taxonomic database	text	VARCHAR2(255 BYTE)	Scientific name of species used in taxonomic ”DATABASE” column.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SPECIES_-NAME_-SURVEY	Scientific name used in survey data	text	VARCHAR2(255 BYTE)	Scientific name of species historically or currently used in the survey.
SPECIMEN_ID	Specimen unique ID	ID key code	NUMBER(38,0)	Each individual examined must have a number assigned to it that is unique within each haul (0001 to 9999), though specimen numbers may be repeated between hauls

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SPECIMEN SAM-PLE_-TYPE	Specimen sample type	ID key code	NUMBER(3	The specimen sample type ID key code as defined in the RACE_-DATA.SPECIMEN_-SAM-PLE_-TYPES table. For a complete list of Specimen sample type ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SPECIMEN_-SUBSAM-PLE_-METHOD	Specimen subsample method	ID key code	NUMBER(38,0)	For a complete list of specimen subsample method ID key codes, review the [c, code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).

7. Universal Column Metadata

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SRVY	Survey abbreviation	text abbreviated	VARCHAR2 BYTE)	Abbreviated survey names. The column srvy is associated with the survey and survey_definition_id columns. Northern Bering Sea (NBS), Southeastern Bering Sea (EBS), Bering Sea Slope (BSS), Gulf of Alaska (GOA), Aleutian Islands (AI).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
STANDARD_LENGTH_MM	Standard length of specimens (mm)	numeric	VARCHAR2(255 BYTE)	Standard length of specimen or range of lengths if multiple specimens in lot; measured by taxonomists in lab
STATION	Station ID	ID key code	VARCHAR2 BYTE)	Alpha-numeric designation for the station established in the design of a survey.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
STRATUM	Stratum ID	ID key code	NUMBER(10,0)	RACE database statistical area for analyzing data. Strata were designed using bathymetry and other geographic and habitat-related elements. The strata are unique to each survey region. Stratum of value 0 indicates experimental tows.
SUBCLASS_TAXON	Subclass phylogenetic rank	category	VARCHAR2(4000 BYTE)	Phylogenetic latin rank of subclass of a given species.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SUBFAMILY_TAXON	Subfamily phylogenetic rank	category	VARCHAR2(255 BYTE)	Phylogenetic latin rank of subfamily of a given species.
SUBMISSIO_DATE	Date	YYYY-MM-DD	DATE	Date special projects were due to be submitted for the upcoming survey season.
SUBORDER_TAXON	Suborder phylogenetic rank	category	VARCHAR2(255 BYTE)	Phylogenetic latin rank of suborder of a given species.
SUBPHYLU_TAXON	Subphylum phylogenetic rank	category	VARCHAR2(BYTE)	Phylogenetic latin rank of subphylum of a given species.
SUPERCLASS_TAXON	Superclass phylogenetic rank	category	VARCHAR2(255 BYTE)	Phylogenetic latin rank of superclass of a given species.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SUPERFAM TAXON	Superfamily phyloge-netic rank	category	VARCHAR2 BYTE)	Phylogenetic latin rank of super-family of a given species.
SUPERORDER_ TAXON	Superorder phyloge-netic rank	category	VARCHAR2(255 BYTE)	Phylogenetic latin rank of superorder of a given species.
SURFACE_ TEMPER-ATURE_C	Surface tempera-ture (degrees Celsius)	degrees Celsius	NUMBER(3	Surface tempera-ture (tenths of a degree Celsius); NA indicates removed or missing values.

Column name from data	Descriptive column Name	Units	Oracle data type	Column descrip-tion
SURVEY	Survey name	text	VARCHAR2(255 BYTE)	Name and description of survey. The column survey is associated with the srvy and survey_-definition_-id columns.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SURVEY_-DEFINI-TION_ID	Survey ID	ID key code	NUMBER(3	The survey definition ID key code is an integer that uniquely identifies a survey region/survey design. The column survey_-definition_-id is associated with the srvy and survey columns. Full list of survey definition IDs are in RACE_-DATA.SURVEY_-DEFINI-TIONS and in the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
SURVEY_ID	Survey ID raw	ID key code	NUMBER(38,0)	The survey ID uniquely identifies a survey instance.
SURVEY_NAME	Survey name official	text	VARCHAR2(4000 BYTE)	Long name of the survey conducted
SURVEY_SPECIES	Species used in survey	logical	BINARY_DOUBLE	Designates whether or not species name is accepted/actively used in the RACE surveys
TAXONOMI	Taxonomist	text	VARCHAR2(4000 BYTE)	Taxonomist(s) who re-identified specimen(s)

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
				Confidence in the ability of the survey team to correctly identify the taxon to the specified level, based solely on identification skill (e.g., not likelihood of a taxon being caught at that station on a location-by-location basis). Quality codes follow: **High**: High confidence and consistency. Taxonomy is stable and reliable at this level, and field identification characteristics are well known and reliable. **Moderate**:

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
				Confidence in the ability of the survey team to correctly identify the taxon to the specified level, based solely on identification skill (e.g., not likelihood of a taxon being caught at that station on a location-by-location basis). Quality codes follow: **High**: High confidence and consistency. Taxonomy is stable and reliable at this level, and field identification characteristics are well known and reliable. **Moder-ate**:

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
TRAWLABLE	Trawlable stations	logical	BINARY_DOUBLE	Logical, describing if stations are trawlable (TRUE) or not (FALSE).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
VESSEL_-CALL-SIGN	Vessel call sign	ID key code	NUMBER(3	A call sign is a designated sequence of letters and numbers that are assigned when a vessel, whether it be a sailing yacht, motor yacht, rib or commercial vessel, receives its Ship Radio Licence. The vessel also receives its MMSI number, so that each vessel is uniquely identified.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
VESSEL_-COAST_-GUARD_-NUMBER	Vessel coast guard number	ID key code	NUMBER(38,0)	Official Identification number as defined by www.dco.uscg.mil. The Official Number (O/N) is the 6 or 7 digit number awarded to the vessel at the time it is first documented with the US Coast Guard. This number remains with the vessel indefinitely and should be marked in accordance with 46 CFR 67.121.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
VESSEL_-ID	Vessel ID	ID key code	NUMBER(3	ID number of the vessel used to collect data for that haul. The column vessel_id is associated with the vessel_-name column. Note that it is possible for a vessel to have a new name but the same vessel id number. For a complete list of vessel ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
VESSEL_-IMO	Vessel international maritime organization number	ID key code	NUMBER(38,0)	The International Maritime Organization (IMO) number consists of the letters ”IMO” followed by a unique, seven-digit number: the pattern is ”NNNNNNN”, where N is a single-digit number, e.g., ”1234567”
VESSEL_-LENGTH_-M	Vessel length (m)	meters	NUMBER(3	The length of vessel in meters.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
VESSEL_-MMSI	Vessel maritime mobile service identities	ID key code	NUMBER(38,0)	Maritime Mobile Service Identities (MMSIs) are nine-digit numbers used by maritime digital selective calling (DSC), automatic identification systems (AIS) and certain other equipment to uniquely identify a ship or a coast radio station.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
VESSEL_-NAME	Vessel name	text	VARCHAR2 BYTE)	Name of the vessel used to collect data for that haul. The column vessel_-name is associated with the vessel_id column. Note that it is possible for a vessel to have a new name but the same vessel id number. For a complete list of vessel ID key codes, review the [code books](https://www.fisheries.noaa.gov/resour survey-species-code-manual-and-data-codes-manual).

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
VESSEL_-OWNER	Vessel owner	text	VARCHAR2(255 BYTE)	Name of vessel owner or company.
VESSEL_-TONNAGE	Vessel tonnage	metric tons	NUMBER(3	The tonnage of vessel in metric tons.
VOUCHER	Voucher number	numeric	NUMBER(38,0)	The voucher number of the specimen within a single haul
WEIGHT_-G	Specimen weight (g)	grams	NUMBER(3	Weight of specimen (grams).
WEIGHT_-KG	Sample or taxon weight (kg)	kilograms	NUMBER(38,3)	Weight (thousandths of a kilogram) of individuals in a haul by taxon.
WIRE_-LENGTH_-M	Trawl wire length	meters	NUMBER(3	Length of wire deployed during a given haul in meters.

Column name from data	Descriptive column Name	Units	Oracle data type	Column description
WORMS	World register of marine species (WoRMS) taxonomic serial number	ID key code	NUMBER(38,0)	Species code as identified in the World Register of Marine Species (WoRMS) (https://www.marinespecies.org/).
YEAR	Survey year	year	NUMBER(1	Year the observation (survey) was collected.
YEAR_CHANGED	Year changed	numeric	DATE	Year change implemented in database

Part III.

AKFIN

These data are used directly by stock assessors and are provided to The Alaska Fisheries Information Network (AKFIN).

The Alaska Fisheries Information Network

The Alaska Fisheries Information Network (AKFIN) is a regional program that consolidates and supports the processing, analysis, and reporting of fisheries data for Alaskan fisheries. AKFIN integrates this information into a single data management system using consistent methods and standardized formats. The resulting data enables fishery managers, scientists, and associated agencies to supervise fisheries resources more effectively and efficiently. The AKFIN database contains much of the data needed to complete stock assessments, including GAP trawl survey data. .

Data Access Options

Direct database connection If you are an AFSC employee you may access the AKFIN oracle database directly while on the NOAA network or VPN. Note that this is a separate database from the AFSC oracle database referenced above, and requires separate credentials. If you do not already have an AKFIN account you can request one here. NOAA IT will need to add AKFIN access to your tnsnames.ora file (They do this frequently). Once your connection is established data may be accessed through SQL queries using SQL developer, R, or python.

AKFIN Answers

(AKFIN Answers)[https://akfin.psmfc.org/akfin-answers/] is an Oracle BI tool used for distributing data to stock assessors and other users. Usernames and passwords are distinct from AKFIN direct database credentials. The distribution of GAP_PRODUCTS on AKFIN Answers is planned but not yet implemented. The RACE Survey tab on the stock assessment dashboard contains reports generated from now depreciated tables that predated the GAP_PRODUCTS tables. AKFIN will keep these reports for reference but they will not be updated 2024 onward.

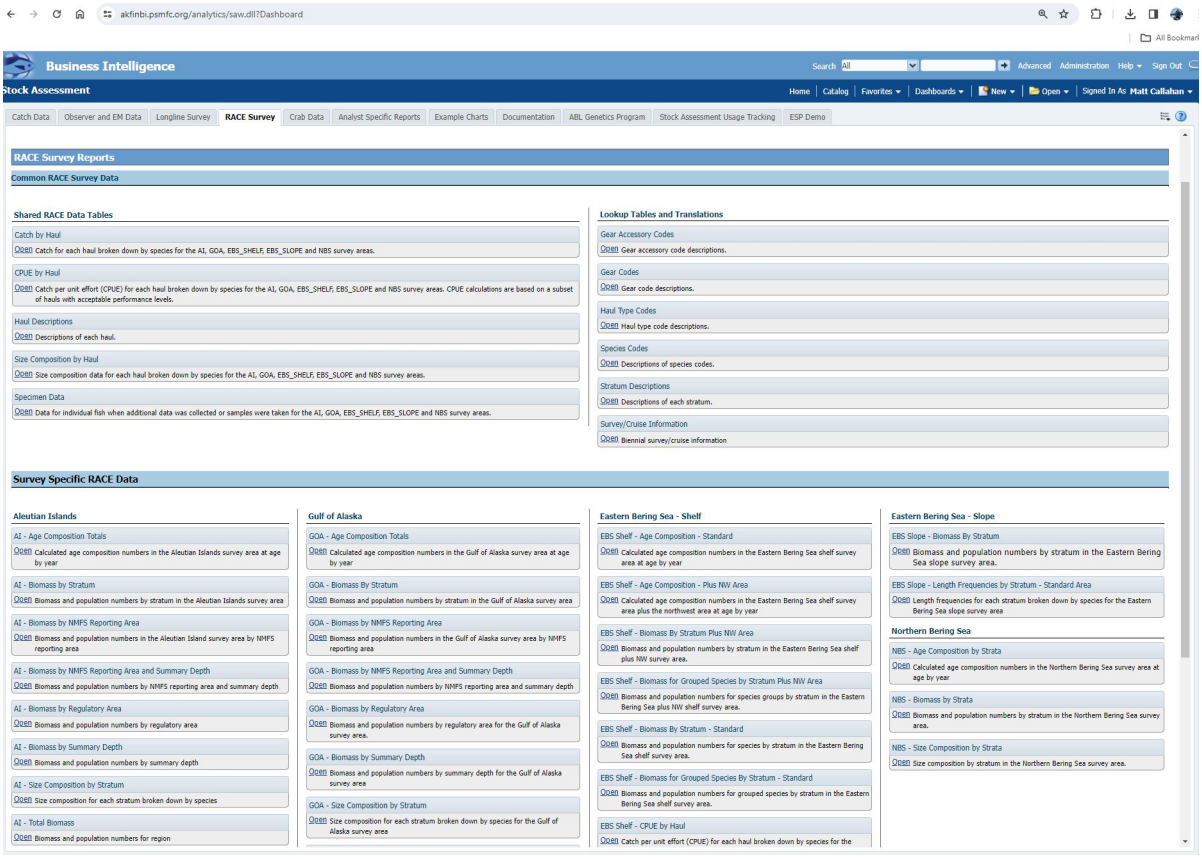


Figure 7.1.: AKFIN platfrom.

Web Service

AKFIN has developed web services (apis) to distribute GAP data. Like the GAP_PRODUCTS schema, these are under active development. These do not require VPN or an oracle connection but they are protected by Oracle authentication, please contact matt.callahan@noaa.gov for information on how to get an api token to use this option.

The url structure is “https://apex.psmfc.org/akfin/data_marts/gap_products/gap_[base table name]” . For example “https://apex.psmfc.org/akfin/data_marts/gap_products/gap_biomass” is the base url to get data from the akfin_biomass table. Web services linked to large tables have mandatory parameters to reduce

data download size. For example to get agecomp data for Bering Sea pollock in area_id 10 in 2022 you would use "https://apex.psmfc.org/akfin/data_marts/gap_products/gap_biomass?survey_definition_id=98&area_id=10&species_code=21740&start_year=2022&end_year=2022".

If you're using R to pull data through web services you might find the akfingapdata (pronounced akfin-gap-data not ak-eff-ing-app-data) R package helpful.

Cite this data

Use the below bibtext citation, as cited in our group's citation repository for citing the data created and maintained in this repository. Add "note = {Accessed: mm/dd/yyyy}" to append the day this data was accessed.

```
 [1] "@misc{GAPakfin,"
 [2] "  author = {{Alaska Fisheries Information Network (AKFIN)}}, "
 [3] "  institution = {{NOAA Fisheries Alaska Fisheries Science Center, Goundfish Assessmen
 [4] "  year = {2024}, "
 [5] "  title = {AFSC Goundfish Assessment Program Design-Based Production Data},"
 [6] "  howpublished = {https://akfinbi.psmfc.org/analytics/},"
 [7] "  url = {https://www.psmfc.org/program/alaska-fisheries-information-network-akfin},"
 [8] "  publisher = {{U.S. Dep. Commer.}},"
 [9] "  copyright = {Public Domain} "
[10] "}"
```

8. Data description

AKFIN Answers is an Oracle BI tool used for distributing data to stock assessors and other users. Usernames and passwords are distinct from direct AKFIN database credentials.

8.1. Data tables

8.1.1. AKFIN_TEST

NA

Number of columns: 1

Column name from data

Descriptive column Name

Units

Oracle data type

Column description

Column name from data	Descriptive column Name	Units	Oracle data type	Column description

Part IV.

Public Data (FOSS)

The final, validated survey data are publicly accessible soon after surveys are completed on the Fisheries One Stop Shop (FOSS) platform. This data includes catch, haul, and environmental data collected at each station. On the FOSS data platform, users can interactively select, view, and download data. Descriptive documentation and user-examples are available on the metadata page.

This data contains all of the catch, environmental, and haul data from the fisheries-independent Groundfish and Shellfish Assessment Program surveys in the Bering Sea, Aleutian Islands, and Gulf of Alaska. This data is sought after by the general public, private entities, and NOAA partners alike, including tribal organizations, K-12 classrooms, academic institutions, for-profit groups, and non-profit groups. This data is compiled and approved once a year after each summer survey season and is available for open access.

Learn more about our data available on FOSS on the Groundfish Assessment Program's data products website.

Cite this data

Use the below bibtext citation, as cited in our group's citation repository for citing the data created and maintained in this repository. Add "note = {Accessed: mm/dd/yyyy}" to append the day this data was accessed.

```
[1] "@misc{FOSSAFSCData,"
[2] "  author = {{NOAA Fisheries Alaska Fisheries Science Center}},"
[3] "  year = {2024}, "
[4] "  title = {Fisheries One Stop Shop Public Data: RACE Division Bottom Trawl Survey Data
[5] "  howpublished = {https://www.fisheries.noaa.gov/foss},"
[6] "  publisher = {{U.S. Dep. Commer.}},"
[7] "  copyright = {Public Domain} "
[8] "}"
```

Part V.

Data Products & Tools

To accompany these data, we also produce data products to make using our data more accessible and straightforward. Information on these data products are coming soon.

Part VI.

Contact us

This code is primarally maintained by:

Thank you for using our data guide!

> This code is always in development. Find code used for various reports in the code releases.

This code is primarally maintained by:

Emily Markowitz (Emily.Markowitz AT noaa.gov; @EmilyMarkowitz-NOAA)

Zack Oyafuso (Zack.Oyafuso AT noaa.gov; @zoyafuso-NOAA)

Sarah Friedman (Sarah.Friedman AT noaa.gov; @SarahFriedman-NOAA)

Alaska Fisheries Science Center,

National Marine Fisheries Service,

National Oceanic and Atmospheric Administration,

Seattle, WA 98195

General questions and more specific data requests can be sent to nmfs.afsc.gap.metadata@noaa.gov or submitted as an issue on our GitHub Organization. The version of this data used for stock assessments can be found through the Alaska Fisheries Information Network (AKFIN). For questions about the eastern Bering Sea surveys, contact Duane Stevenson (Duane.Stevenson@noaa.gov). For questions about the Gulf of Alaska or Aleutian Islands surveys, contact Ned Laman (Ned.Laman@noaa.gov). For questions specifically about crab data in any region, contact Mike Litzow (Mike.Litzow@noaa.gov), the Shellfish Assessment Program lead.

For questions, comments, and concerns specifically about the Fisheries One Stop Shop (FOSS) platform, please contact us using the Comments page on the FOSS webpage.

9. Production run notes

Report run date: Friday, October 18, 2024

10. R Version Metadata

```
R version 4.4.1 (2024-06-14 ucrt)
Platform: x86_64-w64-mingw32/x64
Running under: Windows 10 x64 (build 19045)

Matrix products: default


locale:
[1] LC_COLLATE=English_United States.utf8
[2] LC_CTYPE=English_United States.utf8
[3] LC_MONETARY=English_United States.utf8
[4] LC_NUMERIC=C
[5] LC_TIME=English_United States.utf8

time zone: America/Los_Angeles
tzcode source: internal

attached base packages:
[1] stats     graphics  grDevices utils     datasets  methods   base

loaded via a namespace (and not attached):
 [1] compiler_4.4.1    fastmap_1.2.0     cli_3.6.3         tools_4.4.1
 [5] htmltools_0.5.8.1 rstudioapi_0.16.0 yaml_2.3.10       rmarkdown_2.28
 [9] knitr_1.48        jsonlite_1.8.8    xfun_0.47         digest_0.6.37
[13] rlang_1.1.4       evaluate_0.24.0
```

10.0.1. NOAA README

This repository is a scientific product and is not official communication of the National Oceanic and Atmospheric Administration, or the United States Department of Commerce. All NOAA GitHub project code is provided on an 'as is' basis and the user assumes responsibility for its use. Any claims against the Department of Commerce or

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10.0.2. NOAA License

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11. Acknowledgments

12. Community Acknowledgments

We would like to thank the many communities of Alaska and their members who have helped contribute to this body of work. The knowledge, experiences, and insights have been instrumental in expanding the scope of our science and knowledge to encompass the many issues that face this important ecosystem. We appreciate feedback from those residing in the region that are willing to share their insights and participation in an open dialog about how we can improve our collective knowledge of the ecosystem and the region.

13. Land Acknowledgements

We would like to thank the many communities of the Bering Strait region and their members who have helped contribute to this document. The knowledge, experiences, and insights of the people of the Bering Strait region have been instrumental in expanding the scope of our science and knowledge to encompass the many issues that face this important ecosystem. We appreciate feedback from those residing in the region that are willing to share their insights, including the local names used for the species covered by this document, identifying species of interest or concern that should be included in this document, and participation in an open dialog about how we can improve our collective knowledge of the ecosystem and the region.

NOAA Fisheries Alaska Fisheries Science Center's work is conducted in the waters and along the coastlines of Alaska, which include the traditional home lands and waters of the Inupiat, Yupiit, Siberian Yupiit, Unangax, Alutiiq/Sugpiaq, Eyak, Dena'ina Athabascan, Tlingit, Haida, and Tsimshian who have stewarded their lands and waters since time immemorial. We are indebted to these peoples for their wisdom and knowledge of their lands and waters.

This document was prepared in the greater Seattle area, which are the traditional lands of the Coast Salish people, including the Duwamish people, past and present. We are grateful for their continued sharing of vision, wisdom, values, and leadership.

14. Technical Acknowledgments

This quarto book is based off the NOAA-quarto-book GitHub repo designed by Eli Holmes and the similar data product book for the Groundfish Assessment Program.

This repo and GitHub Action was based on the tutorial by Openscapes quarto-website-tutorial by Julia Lowndes and Stefanie Butland.

14.1. Partners

Scientists from the Alaska Fisheries Science Center conduct these bottom trawl surveys with participation from the Alaska Department of Fish & Game (ADF&G), the International Pacific Halibut Commission (IPHC), and universities. This research is conducted on chartered fishing vessels.

14.2. Collaborators

Our data are used in many annual publications, including but not limited to the list below:

- Alaska Stock Assessments
- North Pacific Groundfish Stock Assessment and Fishery Evaluation Reports
- Groundfish Economic Status Reports for the Gulf of Alaska and Bering Sea and Aleutian Islands
- Alaska Marine Ecosystem Status Report Database
- Southeast Alaska Coastal Monitoring Survey Reports
- Alaska Fisheries Life History Database
- Essential Fish Habitat Research Plan in Alaska

15. Citations and References

16. Access Constraints

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

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

17. References

Alaska Fisheries Information Network (AKFIN). (2024). *AFSC goundfish assessment program design-based production data*. NOAA Fisheries Alaska Fisheries Science Center, Goundfish Assessment Program; https://akfinbi.psmfc.org/analytics/; U.S. Dep. Commer. https://www.psmfc.org/program/alaska-fisheries-information-network-akfin

Hoff, G. R. (2016). *Results of the 2016 eastern Bering Sea upper continental slope survey of groundfishes and invertebrate resources* (NOAA Tech. Memo. NOAA-AFSC-339). U.S. Dep. Commer. https://doi.org/10.7289/V5/TM-AFSC-339

Markowitz, E. H., Dawson, E. J., Wassermann, S., Anderson, A. B., Rohan, S. K., Charriere, B. K., and Stevenson, D. E. (2024). *Results of the 2023 eastern and northern Bering Sea continental shelf bottom trawl survey of groundfish and invertebrate fauna* (NOAA Tech. Memo. NMFS-AFSC-487; p. 242). U.S. Dep. Commer. https://doi.org/10.25923/2mry-yx09

NOAA Fisheries Alaska Fisheries Science Center. (2024). *Fisheries one stop shop public data: RACE division bottom trawl survey data query*. https://www.fisheries.noaa.gov/foss; U.S. Dep. Commer.

NOAA Fisheries Alaska Fisheries Science Center, Goundfish Assessment Program. (2024). *AFSC goundfish assessment program design-based production data*. https://www.fisheries.noaa.gov/alaska/science-data/groundfish-assessment-program-bottom-trawl-surveys; U.S. Dep. Commer.

Siple, M. C., Szalay, P. G. von, Raring, N. W., Dowlin, A. N., and Riggle, B. C. (2024). *Data report: 2023 gulf of alaska bottom trawl survey* (NOAA Tech. Memo. AFSC processed report; 2024-09). U.S. Dep. Commer. https://doi.org/10.25923/gbb1-x748

Von Szalay, P. G., Raring, N. W., Siple, M. C., Dowlin, A. N., Riggle, B. C., and Laman, E. A. and. (2023). *Data report: 2022 Aleutian Islands bottom trawl survey* (AFSC Processed Rep. 2023-07; p. 230). U.S. Dep. Commer. https://doi.org/10.25923/85cy-g225