Pacific Fisheries Information Network

Comprehensive Biological Data Sample (BDS) Commercial Table

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Subject

The goal of this project was to pull together the commercial biological data sample (BDS), as provided to PacFIN, in a simple and easy-to-use source that is pre-joined making it simpler to query. The final comprehensive table is a combination of the sample, cluster, fish, and age tables along with a series of lookup and translation tables that further define the records

Background

The comprehensive biological data sample table (i.e. COMPREHENSIVE_BDS_COMM) is a combination of the following sources from the PacFIN database.

1. **BDS.SAMPLE** – This biological sample table includes top-level sample information and represents the top-level of the hierarchy in the BDS data. This data may have one or more clusters associated with a single sample.
2. **BDS.CLUSTER** – These clusters of data are the next level in the hierarchy of BDS data and include such things as an aggregate of pounds by species in the cluster. This data may have one or more fish associated with a single cluster.
3. **BDS.FISH** – The fish table defines the attributes associated with the sample of fish in a cluster and includes such things as the fish weight, length and final age. This data may have one or more age records associated with a single fish.
4. **BDS.AGE** – The age table contains details about the structures used to age a fish sample. In some instances, multiple structures may be used to determine the age of a fish i.e. Otolith or Finray. In addition to this a count of the age structures for each has been included for reference.

Note: The combination of these four BDS sources results in one record per sample/cluster/fish/age structure and NOT at the fish level.

From here, several auxiliary tables are added to append IFQ management area, vessel info, and code descriptions. These include:

- **PACFIN_FOUNDATION.FISH_TICKETS** – Consolidated fish ticket data was joined to the BDS sources to pull across the IFQ management area when available at the SAMPLE level.
- **PACFIN_FOUNDATION.VESSEL_REGISTRATIONS** – State vessel registration data was included to provide the vessel number, name, and length information at the SAMPLE level.
- **PACFIN_FOUNDATION.PACFIN_PORT_CODES** – The port table was added to provide PacFIN port name and group codes at the SAMPLE level.
- **PACFIN_FOUNDATION.PACFIN_GEAR_CODE** – The gear table provides the gear name or description at the SAMPLE level.
- **PACFIN_FOUNDATION.PACFIN_SPECIES_CODE** – Included for the PacFIN species common name value at the CLUSTER level.
- **PACFIN.BDS_CL** – The legacy code list was also included to provide translation for the sample method, sample type, fish length type, age structure, and maturity agency codes
- **BDS.FISH_MATURITY_CODE** – Appends maturity descriptions at the FISH level.
- **PACFIN_FOUNDATION.PACFIN_GRADE_CODES** – Provides a description to the grade codes at the SAMPLE level.

Table Structure

The structure of the COMPREHENSIVE_BDS_COMM table was based off historic data extract scripts to keep the columns in roughly the same order as much as possible. With that, the sample, cluster, fish, and age fields are not grouped in the table. Some measures were put into place to speed up query on the table to include:

- Partitions on SAMPLE_YEAR (by decade)
- Bitmap index on PSMFC_CATCH_AREA_CODE
- Bitmap index on PACFIN_GEAR_CODE
- Bitmap index on PACFIN_SPECIES_CODE
- Bitmap index on VESSEL_ID

Giving priority to these fields during query may help to speed up performance.

Output Table

Table 1. COMPREHENSIVE_BDS_COMM columns, descriptions, and data types

Name	Type	Length	Description
BDS_ID	NUMBER	22	Primary key and identifier for the BDS commercial table
SAMPLE_ID	NUMBER	22	BDS Sample primary key identifier
SAMPLE_NUMBER	VARCHAR2	14	BDS Sample - Unique number for each sample
SAMPLE_YEAR	NUMBER	22	BDS Sample - Year in which sample was obtained. (Format: yyyy)
SAMPLE_MONTH	NUMBER	22	BDS Sample - Month (MM) in which sample was obtained. (Format: mm)
SAMPLE_DAY	NUMBER	22	BDS Sample - Day of month that sample was obtained. (Format: dd)
SAMPLE_TYPE	CHAR	1	BDS Sample - Sample type (M=Market, R=Research, S=Special request, C=Commercial on-board)
SAMPLE_TYPE_DESC	VARCHAR2	100	Sample type description
SAMPLE_METHOD_CODE	CHAR	1	BDS Sample - Sample method (R=Random, S=Stratified, N=Systematic, P=Purposive, X=Special)
SAMPLE_METHOD_DESC	VARCHAR2	100	Sample method description
SAMPLE_AGENCY	VARCHAR2	3	BDS Sample - Agency code for agency that obtained sample (N=NMFS Newport, W, WA=WDFW, OR, O=ODFW, C,CA=CDFW, T=NMFS Tiburon, ED=EDCP, MS=Mackerel Studies,

Name	Type	Length	Description
			PW=Pacific Whiting, SP=Special projects, T-Treaty)
AGENCY_CODE	VARCHAR2	6	PacFIN Agency Code
DATA_TYPE	CHAR	1	BDS Sample - Data type will be either "C" = commercial sample or "S" = Survey
AGENCY_CONDITION_CODE	VARCHAR2	3	Agency Condition Code
PACFIN_CONDITION_CODE	CHAR	1	PacFIN Condition Code
AGENCY_PORT_CODE	VARCHAR2	3	BDS Sample - Source agency port identifier
PACFIN_PORT_CODE	VARCHAR2	3	BDS Sample - PacFIN port identifier (may be null)
PACFIN_PORT_NAME	VARCHAR2	100	PacFIN port name
PACFIN_GROUP_PORT_CODE	VARCHAR2	3	PacFIN group port code
FTID	VARCHAR2	10	BDS Sample - Fish ticket number
AGENCY_GEAR_CODE	VARCHAR2	3	BDS Sample - Source agency gear identifier
PACFIN_GEAR_CODE	VARCHAR2	3	BDS Sample - PacFIN gear or gear group code
PACFIN_GEAR_NAME	VARCHAR2	100	PacFIN gear name
VESSEL_ID	VARCHAR2	10	BDS Sample - Vessel ID
VESSEL_NUM	VARCHAR2	10	Vessel Registration - Vessel Num
VESSEL_NAME	VARCHAR2	50	Vessel Registration - Vessel Name
VESSEL_LENGTH	NUMBER	22	Vessel Registration - Vessel Length
FISHING_AREA_BLOCK_NUMBER	VARCHAR2	5	BDS Sample - State fishing area block number
PSMFC_CATCH_AREA_CODE	VARCHAR2	2	BDS Sample - Agency PSMFC area code. (Values are: (W: 1C, 2A, 2B, 2C, 2E, 2F, 3A, 3B,3C, 3N, 3S) (O: 1C, 2A, 2B, 2C, 2E, 2F, 3A, 3B, CS) (C: 1A, 1B, 1C))
IFQ_MANAGEMENT_AREA	VARCHAR2	50	IFQ management areas, which are: "N of 40°10", "40°10 to 36", "36 to 34°27", and "S of 42°27". Only for IFQ landings
DEPTH_AVERAGE_FATHOMS	NUMBER	22	BDS Sample - Average depth fished in fathoms
DEPTH_MAXIMUM_FATHOMS	NUMBER	22	BDS Sample - Maximum depth fished in fathoms
DEPTH_MINIMUM_FATHOMS	NUMBER	22	BDS Sample - Minimum depth fished in fathoms

Name	Type	Length	Description
MARKET_CATEGORY	VARCHAR2	4	BDS Sample - Agency market category (state spcode) of species sampled market_category (submitted by CA and OR; null for WA)
CLUSTER_ID	NUMBER	22	BDS Cluster primary key identifier
CLUSTER_SEQUENCE_NUMBER	NUMBER	22	Sequential number for each cluster in sample
CLUSTER_WEIGHT_LBS	NUMBER	22	Weight (pounds) of the cluster that the specimen came from
ADJUSTED_CLUSTER_WEIGHT_LBS	NUMBER	22	Weight (pounds) of the cluster that the specimen came from minus weight of fish that can't be aged (ODFW only)
FRAME_CLUSTER_WEIGHT_LBS	NUMBER	22	Weight (pounds) of the cluster that the specimen frame came from in postprocessing sample (ODFW only)
PACFIN_SPECIES_CODE	VARCHAR2	4	Translated PacFIN species code
PACFIN_SPECIES_COMMON_NAME	VARCHAR2	100	PacFIN species common name
FISH_ID	NUMBER	22	BDS Fish primary key identifier
FISH_SEQUENCE_NUMBER	VARCHAR2	5	BDS Fish - Sequential number for each specimen (fish) in sample if bds_fish.freq = 1 (if bds_fish.freq > 1 then represents a group of fish)
OBSERVED_FREQUENCY	NUMBER	22	BDS Fish - Specifies the number of fish observed with the same characteristics specified in the other columns of each bds_fish record
FISH_LENGTH_TYPE_CODE	CHAR	1	BDS Fish - Length type (A = alternate length, F = fork length, S = standard length, T = total length)
FISH_LENGTH_TYPE_DESC	VARCHAR2	100	Fish length type description
FISH_LENGTH	NUMBER	22	BDS Fish - Length of specimen in millimeters (mm)
FORK_LENGTH	NUMBER	22	BDS Fish - Fork length (mm) of fish, either measured or estimated
FORK_LENGTH_IS_ESTIMATED	CHAR	1	BDS Fish - Flag indicating source of fork_length (T = True, fork_length was estimated F = False, fork_length was measured)
FISH_WEIGHT	NUMBER	22	BDS Fish - Weight (pounds) of fish
SEX_CODE	CHAR	1	BDS Fish - PacFIN sex code

Name	Type	Length	Description
AGENCY_FISH_MATURITY_CODE	VARCHAR2	2	BDS Fish - Agency maturity code. ((W=?), (O: 0=unknown, 1-2=immature,3-8=mature), (C: 1=immature,2,3,4,5,6,7,8 =undeterminable, 9=not noted))
AGENCY_FISH_MATURITY_DESC	VARCHAR2	100	Agency maturity description
FISH_MATURITY_CODE	VARCHAR2	1	PacFIN fish maturity code
WEIGHT_OF_MALES_LBS	NUMBER	22	BDS Fish - Weight (pounds) of males in sample
WEIGHT_OF_FEMALES_LBS	NUMBER	22	BDS Fish - Weight (pounds) of females in sample
NUMBER_OF_MALES	NUMBER	22	BDS Fish - Number of males in sample
NUMBER_OF_FEMALES	NUMBER	22	BDS Fish - Number of females in sample
WEIGHT_OF_LANDING_LBS	NUMBER	22	BDS Fish - Total landed weight (in pounds) for just that species portion of the landed catch
EXPANDED_SAMPLE_WEIGHT	NUMBER	22	Oregon only. Weight the sample will be expanded to (default is the landing weight).
SPECIES_WEIGHT_LBS	NUMBER	22	BDS Cluster - Weight (pounds) of the target species
FINAL_FISH_AGE_CODE	NUMBER	22	BDS Fish - Final fish age code
FINAL_FISH_AGE_IN_YEARS	NUMBER	22	BDS Fish - Age of specimen (best age or final age)
AGE_COUNT	NUMBER	22	Count of age records for the FISH_ID
AGE_ID	NUMBER	22	BDS Age - BDS Age primary key identifier
AGE_SEQUENCE_NUMBER	NUMBER	22	BDS Age - Sequential number for each age
AGE_METHOD_CODE	VARCHAR2	1	BDS Age - Aging method: WDFW (B-break and burn; L-length; N-not aged; O-optical scanner; X-sectioning), ODFW (1-break and burn; 2-surface; 3-scales; 4-thin section; 5-optical scanner; 6-length; 9-unable), CDFW (B-break and burn; S-surface; T-thin section)
AGE_READABILITY	VARCHAR2	1	BDS Age - Age readability (WDFW only)
PERSON_WHO_AGED	VARCHAR2	100	BDS Age - Person who read structure age (WDFW only)

Name	Type	Length	Description
DATE_AGE_RECORDED	DATE	7	BDS Age - Date sample was aged (WDFW only) (Format: dd-MMM-yy)
AGE_IN_YEARS	NUMBER	22	BDS Age - Age of fish in years
AGE_STRUCTURE_CODE	VARCHAR2	2	BDS Age - PacFIN age structure code
AGE_STRUCTURE_DESC	VARCHAR2	100	PacFIN age structure description
AGENCY_AGE_STRUCTURE_CODE	VARCHAR2	1	BDS Age - Source agency age structure code
PACFIN_LOAD_DATE	DATE	7	Comprehensive BDS commercial datamart load date
AGENCY_GRADE_CODE	VARCHAR2	2	Agency Grade Code
PACFIN_GRADE_CODE	VARCHAR2	1	PacFIN Grade Codes associated with the Agency Grade Code
PACFIN_GRADE_NAME	VARCHAR2	100	PacFIN grade name as translated from the PACFIN_GRADE_CODES table