

Data Matching & Imputation System

DMIS

Purpose/Abstract: DMIS is a Northeast Regional Office data record matching system. The purpose of the system is to provide timely fishery trip level data in support of weekly catch and landing reports, and analysis to support, improve, and evaluate the region's fishery management decisions and programs.

DMIS was initially developed to support the catch monitoring requirements of Amendment 16 to the Northeast Multispecies FMP. The tables are constructed consistently with that fishing year, May 1st through April 30th. DMIS contains trip information for federally permitted vessels from January 1, 2007. The data for the current fishing year is updated weekly with plans to update daily. Past years are updated periodically.

The system consists of three major parts 1) building a map of matched data sets, 2) classifying match data into individual trips, and 3) applying fishery management plan business rules to the individual trips. Missing data including area fished, gear type, amount of species landed and discarded is estimated through an imputation procedure based on fully matched historical data within the DMIS data set.

DMIS is NERO's strongest data matching tool and that aspect is used to support catch monitoring in many fisheries. Additional FMP specific rules are being /have been developed to expand DMIS to all monitoring requirements.

Primary data sources include Allocation Management System (AMS) Database, Vessel Trip Reports (VTRs), Dealer Reports, Vessel Monitoring System (VMS) Catch Reports, Observer Reports, Vessel Permit Database, and the MQRS database which tracks limited access fishing eligibilities .

Data Matching Imputation System (DMIS) Dictionary

The DMIS tables and are divided into groundfish fishing years, May 1st through April 30th.

Table Dictionaries

Trip Level Table Data

PERMIT: Vessel Permit Number
TRIP_ID: Trip ID (Not in chronological order, use trip date to sort)
TRIP_DATE: Trip date, assigned in order of availability: VTR land date, AMS Land Date, Dealer Sold Date
Trip date is broken down into fields Calendar_Year, Month_of_Year, Week_of_Year, and Day_of_Year

Vessel Information (Permit Database)

GTONS: Gross registered tonnage specified on the USCG documentation for a vessel
LEN: Length, in feet, of the vessel
VHP: Vessel engine horsepower
HPORT: Hailing (Home) port -vessel mooring location
HPST: State in which hailing (home) port is located
PPORT: Principal port - main vessel landings location
PPST: State in which principal port is located

Multispecies/Sector Membership Fields (As of Trip_Date)

SECTOR_ID: Sector identification number (See Table 5)
MULT_MRI: Multispecies MRI
MULT_YEAR: Multispecies fishing year (May through April)

Allocation Management System (AMS Database)

DAS_ID: Day at Sea ID number
ACTIVITY_CODE: Declaration Code
BROAD_AREA: Groundfish Broad Stock Statistical Area: Based on last character of Activity Code
A,515; B,521; C,525; D,616; E,515; F,515; G,616; H,521; I,521; J,616; K,521
L,616; M,616; N,616: **If unknown defaults to 616.** A through D are single area
declarations, and E through N are multi-area declarations.
AMS_SAIL: AMS Sail Date
AMS_LAND: AMS Land Date

Vessel Trip Report (VTR Database)

DOCID: VTR Document table record identifier; Each DOCID represents one trip; CREW
TRIPCATG: Type of trip: 1=Commercial; 2=Party; 3=Charter, 4= Research Set Aside/Exempted
Fishing Permit (RSA/EFP), in effect early multispecies FY10
NANGLERS: Number of anglers
VTR_SAIL: VTR Sail Date
VTR_LAND: VTR Land Date
VTR_PORT: Name of first VTR Port landed
VTR_STATE: Name of first VTR state landed

Multispecies Records

GILL_SET: Gill Net Setting Trip (T/F)
PTNS_SET: Declared Gill Net Setting Trip in Pre Trip Notification System

Permit Information (As of Trip Date)

NORTHEAST MULTI-SPECIES

Limited Access (Type if any): GROUND FISH PERMIT
Open Access (T/F): HB PERMIT, I PERMIT, J PERMIT, K PERMIT

OTHER FISHERIES PERMITS (Fishery Plan Fishery Category) (T/F)

HERRING: HRG_A, HRG_B, HRG_C, HRG_D
MONKFISH: MNK_A, MNK_B, MNK_C, MNK_D, MNK_E, MNK_F, MNK_H
RED SEA CRAB: RCB_A, RCB_B, RCB_C
SURF CLAM: SF_1, SF_6, SF_7
TILEFISH: TLF_1, TLF_2, TLF_A, TLF_B, TLF_C, TLF_D
SUMMER FLOUNDER: FLS_1, FLS_2
SCUP: SCP_1, SCP_2
SQUID/MACKEREL
/BUTTERFISH: SMB_1, SMB_2, SMB_3, SMB_4, SMB_5
AMERICAN LOBSTER: LO_1, LO_2, LO_A1, LO_A2, LO_A3, LO_A4, LO_A5, LO_A5W, LO_A6,
LO_AOC

Catch Level Data

FISHERY_GROUP:	Category for binning groundfish catch into fisheries. Category does not necessarily define a full fishery membership. Multispecies groundfish trips are defined by groups (GROUND, OTHER2).
VMS_CATCH_ID:	Multispecies catch report (replaces DOCID when missing)
VTRSERNO:	VTR Document table sub-record identifier
SECGEARFISH:	VTR Gear code
MESH_CAT:	Groundfish Mesh Category (ELM – Extra Large Mesh, LM – Large Mesh)
OTHER_STRATA:	Groundfish Other Gear Category (Currently NA only)
MESH:	Mesh size for: Trawl-codend/liner (inches); Dredge - ring size (inches); Gillnet - mesh size (inches) Pots - entrance size (inches); Traps - mesh size of crib (inches).
GEAR:	Gear Source: VTR, VTR; VMS, AMS Declaration Code – Groundfish trips Only.
DEALER_RPT_ID:	Confirmation number that identifies the record and is given to the dealer
LINK:	The field (month-document) used to link species and biological sampling data to the trip information. LINK = (month,docn,tallyno,sampno,linkpad), Unique within Calendar year
DLR_MATCH :	VTR – VTR VTRSERNO; VMS – VMS Catch Report VTRSERNO, DATE
DLR_VTRSERNO:	Dealer Reported VTRSERNO
DLR_DATE:	Dealer transaction Date
DLR_PORT:	Combined dealer code for state, port and county
DLR_PORTNAME :	Dealer Port Name where vessel sold the catch
DLR_STATE:	Dealer Port State where vessel sold the catch
DLR_COUNTY:	Dealer County where vessel sold the catch
DLR_REGION:	NMFS Region code: 0=Mississippi River; 1=New England; 2=Mid-Atlantic; 3=Chesapeake Bay; 4=South Atlantic; 5=Gulf of Mexico; 6=Pacific; 7=Great Lakes; 8= Hawaii.
AREA:	Assigned NAFO statistical area (For Source see AREA_SOURCE)
VTR_AREA:	VTR Document table sub-record statistical area
AREA_SOURCE:	AMS, broadstock area (see Table 1); CVT, calculated area from VTR; IMP, Imputed based on vessel permit trip history; RVT, reported area from VTR, VMS, VMS multispecies catch report area

NESPP3:	The Northeast Species code, without the market category
NESPP4:	The 4-digit Northeast Species code
MARKET_CATEGORY:	Market category for a species sold to a dealer
VTR_LIVE:	VTR live pounds for a given species
VTR_LANDED:	VTR reported landed pounds for a given species
BHC_LIVE_POUNDS :	Bait and home consumption VTR live pounds for a given species
BHC_LANDED_POUNDS:	Bait and home consumption VTR reported landed pounds for a given species
DLR_LIVE:	Dealer live weight of species landed.
DLR_LANDED:	Dealer reported pounds landed for a given species.
DLR_DOLLAR:	The value of landed catch to the nearest dollar (U.S.), paid to fisherman by dealer, for a given species
STOCK_ID:	Groundfish Stock ID (See Table Four)
KEPT_SOURCE:	Describes source of pounds: APR, VTR with dealer records; DLR, Dealer record only; VMS, VMS catch report only; VTR, VTR only; SET, Gill Net Setting Trip; SPAG, Imputed based on records with kept source of VTR or APR. SPAG denotes record type match (within Sector, Permit number, broad stock Area, and Gear). Only declared groundfish trips with no matching records are currently imputed.
LANDED:	Assigned landed pounds for a given species
POUNDS :	Assigned live pounds assigned for a given species
DOLLAR_SSB:	Assign Dollar Value (NEFSC SSB algorithm)
DOLLAR_GDP:	Assign Dollar Value (NEFSC SSB algorithm) adjusted for Gross Domestic Product Implicit Price Deflator – 2010 Calendar Year Dollars
TRIP_PORT:	Assigned Trip Port: Trip Port is selected in order of availability (DLR_PORT,VTR_PORT, PPORT)
TRIP_STATE:	Assigned Trip State: Trip State is selected in order of availability (DLR_STATE,VTR_STATE, PPST)
TRIP_COUNTY:	Assigned Trip County: Determined by Trip Port and State
TRIP_REGION:	Assigned Trip Region: Determined by Trip Port and State

Catch Level Discard Data

OBSERVER:	Discards from Observed Trip (T/F)
STOCK_ID:	Groundfish Stock ID (See Table Four)
DISCARD:	Discards in Live Pounds