NOAA/NMFS/TUBRI DNA Barcoding Additional Information and Data Dictionary

Dataset title: Faunal tissue collections (fishes) for DNA barcoding collected by NOAA National Marine Fisheries Service and Tulane University Biodiversity Research Center from the NOAA ships Oregon II, Pisces and Gordon Gunter in the U.S. Gulf of Mexico from 2010-02-01 to present

Dataset Objectives: Tissue samples for species DNA barcoding and associated whole voucher specimens and their photographs were collected during NOAA National Marine Fisheries Service, Southeast Fisheries Science Center research vessel bottom and midwater trawl surveys in the Gulf of Mexico from (2010-02-01 to present). This dataset represents the tissue samples and voucher specimens archived at the Tulane University Biodiversity Research Center (TUBRI), New Orleans, Louisiana, USA. Tissue samples and associated photographs were collected both during field studies and post-survey in the laboratory. Photographs of the voucher specimens are also included in this dataset. Tissue samples, voucher specimens and voucher specimen photographs (when available) indicated in this dataset are available to researchers for each species listed in the dataset.

Responsible Persons: Mark Grace, NOAA/NMFS Pascagoula, Mississippi; Dr. Hank Bart, Tulane University Biodiversity Research Institute, New Orleans, Louisiana.

Related Funding Agencies: U.S. Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Southeast Fisheries Science Center (SEFSC), Tulane University Biodiversity Research Institute (TUBRI).

Related Projects and/or Programs: Gulf of Mexico SEAMAP trawl surveys

Platforms: NOAA/NMFS/SEFSC NOAA FRVs OREGON II (OT and SU), GORDON GUNTER (GU), PISCES (PI). When needed additional platform abbreviations will be the first two letters of the vessel’s name.

Sample Naming Convention: The sample naming convention is a combination of a two-letter NOAA vessel abbreviation, a two-digit year, a two-digit month, a two-digit day, the two-digit trawl station number and the individual sample number for each specimen.

* + Re: GU190710-T22-11
  + GU = NOAA Ship GORDON GUNTER
  + 19 = year 2019
  + 07 = July
  + 10 = July 10
  + T22 = trawl station 22 (T is optional)
  + 11 = specimen 11

Sea Areas or Regions:

United States of America, Gulf of Mexico

Data Types:

Parameter or Variable: FINFISH

Observation Category: SPECIES DISTRIBUTION MODELS, POPULATION ABUNDANCE, IN SITU/LABORATORY INSTRUMENTS.

Sampling Instrument: FISHERY RESEARCH VESSELS, RANDOM-STATION SURVEY, LINE-TRANSECT SURVEY, FAUNA-SPECIFIC SURVEY.

Sampling and Analyzing Method: The goal of the research was to conduct surveys with random-station selection (NOAA/NMFS SEAMAP Trawl Surveys) or surveys that are fauna specific (e.g., NOAA/NMFS Gulf of Mexico cetacean prey species surveys). For the surveys that used random-station selection the biological survey data are used for numerous indexes of abundance for NOAA/NMFS management-important finfish and invertebrates. For the fauna-specific surveys the biological survey data are used to assess cetacean predator/prey relationships and prey population dynamics. Both survey types collect environmental data at sampling locations (water column; surface to 500 m depth; CTD casts). Often the fauna-specific surveys are a component of a primary survey related to estimating the abundance and spatial distribution of marine mammals in the coastal waters of the U.S. Gulf of Mexico (line-transect survey).

Data Quality Method: Data auditing consisted of making corrections when needed based on SEAMAP data editing software for trawl survey data and comparisons of sample labeling with SEAMAP trawl data. Specimen tissue samples for DNA barcoding were collected as a separate sample each from a different specimen of each species (usually 3 specimens sampled). If a tissue sample DNA barcode does not agree with the specimen identification then there was a specimen identification problem or a problem with proper sample labeling. If the problem is not due to labeling, then the voucher specimen for the DNA tissue sample can be re-examined for resolving a species identification. The specimens sampled for DNA barcoding could be from a single survey station or a combination of survey stations.

Abstract: As part of the NOAA/NMFS Gulf of Mexico SEAMAP and Marine Assessment Program for Protected Species (GoMMAPPS), the Southeast Fisheries Science Center (SEFSC) conducts midwater (infrequent) and bottom trawling (biannual) on and beyond the U.S. continental shelf waters (the 200-m isobath). The survey design for the SEAMAP bottom trawl surveys is to provide an annual population index that is useful for NOAA/NMFS fisheries management. SEAMAP bottom trawl stations were allocated in the Gulf of Mexico from the Texas/Mexico border to approximately just south of Tampa, Florida. The survey design for GoMMAPPS cetacean predator/prey midwater trawl surveys was to conduct midwater trawling through water column aggregations of cetacean prey (primarily in the eastern Gulf of Mexico), in conjunction with standard cetacean survey objectives (examples; cetacean sightings, biopsies). For the tissue samples collected for DNA barcoding, tissue samples were collected from trawl captured specimens for up to three specimens sampled per species when possible. Also collected was a whole voucher specimen of each tissue-sampled species and photographs of specimens sampled were archived. Data elements for each sample include:

Genus and species

Date collected

Survey vessel

Survey station number

Latitude N degrees

Longitude W degrees

Latitude N decimal degrees

Longitude W decimal degrees

Bottom depth fathoms

Bottom depth meters

Number collected

Sample number(s)

Tissue sample and voucher specimen archive location

Point of contact

Voucher specimen sample bucket

Photograph Sample Number

Comments

Frozen tissue samples (in alcohol) and whole voucher specimens are archived at TUBRI and are accessible upon request.

Dataset Author List: Grace, Mark (NOAA/NMFS); Bart, Henry (TUBRI).

Purpose: The primary goal was to conduct midwater and bottom trawling for marine fauna in the U.S. Gulf of Mexico, then sample, photograph and collect marine fauna that were tissue sampled for DNA barcoding.

Research Permit: All experimental methods were conducted in accordance with relevant guidelines and regulations, and were approved by the NOAA/NMFS Southeast Regional Office Committee in St. Petersburg, Florida (Scientific Research Permit No. 779-1633; granting date: 9 January 2009).

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Keywords:

*UNITED STATES OF AMERICA*

*GULF OF MEXICO*

*DOC/NOAA/NMFS/SEFSC*

*GOMMAPPS*

*DOI/BOEM*

*TULANE UNIVERSITY BIODIVERSITY RESEARCH INSTITUTE*

*SURVEY – BIOLOGICAL*

*BIOLOGICAL DATA*

*IN SITU/LABORATORY INSTRUMENTS*

*RANDOM-STATION SAMPLING*

*FAUNA-SPECIFIC SAMPLING*

*LINE TRANSECT SAMPLING*

*SPECIES DISTRIBUTION MODELS (FINFISH AND INVERTEBRATES)*

*POPULATION ABUNDANCE (FINFISH AND INVERTEBRATES)*

*TISSUE SAMPLES AND SPECIMEN VOUCHER SPECIMENS FOR DNA BARCODING*

*PHOTOGRAPHS*

Dataset content and format:

* + Sample number example, GU190709-20-1; GU = GORDON GUNTER, 19 = 2019, 07 = July, 09 = day, 20 = station number, 1 = sample specimen number. The station number may include a “T” prefix to indicate a sample was collect by trawling.
  + One of the survey naming conventions did not follow the established format; survey SU2019 (see spreadsheet comments). SU is from OREGON II summer survey 2019. Specimens of the same species are grouped by survey station number and not individually numbered.
  + Specimen photograph numbers follow the same coding convention as sample numbers. If sample numbers were similar, the genus or species was also included in the specimen photograph number. Photographic superimposed camera setting dates or dates for photograph properties may not be correct.
  + Voucher specimen archival bucket example, TUBRI-GU6320191901-1; TUBRI = archival location organization, GU = vessel, 63 = vessel code, 2019 = year, 1901 = survey, 1 = sample bucket number. For samples labeled SU2019, the specimen archival bucket is labeled TUBRI-OT042019332-M.Cyrna (OT = vessel OREGON II).