Summary of length and weight data for gray snapper (*Lutjanus griseus*) collected during NMFS and SEAMAP fishery-independent surveys in the Gulf of Mexico

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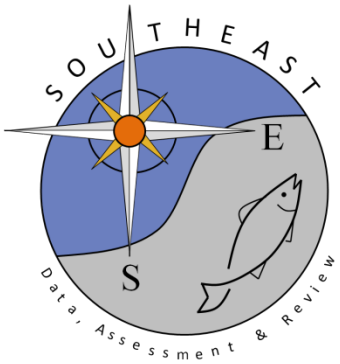

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Summary of length and weight data for gray snapper (*Lutjanus griseus*) collected during NMFS and SEAMAP fishery-independent surveys in the Gulf of Mexico

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Introduction

This report summarizes length and weight observations for gray snapper (*Lutjanus griseus*) collected from the U.S. Gulf of Mexico during National Marine Fisheries Service (NMFS) and Southeast Area Monitoring and Assessment Program (SEAMAP) fishery-independent surveys. Records compiled for this species include instances in which an individual weight and any combination of standard, fork and total length were recorded from field observations. The data are intended to supplement length and weight data from fisheries-dependent and other studies to develop length-weight relationships and length-length conversions.

Materials and Methods

Length and weight observations for NMFS and SEAMAP surveys conducted by NOAA vessels were extracted from Mississippi Laboratories (MSLABS) Field Party Chief (FPC) and MiamiMod (MMO) Oracle Database Systems. Observations from surveys conducted by SEAMAP State Partners were extracted from Gulf States Marine Fisheries SEAMAP database (SGS, updated on 10/05/2016). Only records from the U.S. Gulf of Mexico (-98.00 to -80.75 Degrees West and 23.00 to 31.00 Degrees North) were retained for this summary. All retained observations were cross validated among the multiple databases and any duplicate observations were removed. Length-weight relationships were then plotted independently for standard, fork and total lengths to identify anomalous observations. In cases with suspected outliers, the ROBUSTREG regression procedure in SAS (Version 9.4 of the SAS System for Windows 2012, SAS Institute Inc., Cary, North Carolina) was used to identify outliers using a least trimmed squares method with leverage as the diagnostic parameter. Separate outlier analyses were conducted for each weight (kg) and length combination based on the natural log of weight and length.

Results

A total of 657 length and weight observations were identified for gray snapper (Table 1, A). Initial plots of length-weight relationships indicated anomalous observations. The robust regression procedure

was then run on all combinations of weight and standard, fork and total lengths (Figures 1A to 1C). Any observations identified by the procedure as an outlier for any combination of weight and standard, fork or total length were removed from the final dataset. After outlier removal, a total of 639 observations remained (Table 1, B). The final set of observations with outliers removed was provided to the SEDAR51 Life History Working Group. Dataset formats are outlined in Appendix A.

Table 1. Gray snapper counts of length and weight observations from NMFS and SEAMAP fishery-independent data. A. has counts for all observations. B. has counts for all observations after outliers were identified and removed. N is the total number of records with weights for each species, SL records with weight and standard length, FL records with weight and fork length, TL records with weight and total length, SL&FL records with weight and both standard and fork length, SL&TL records with weight and both standard and total length and FL&TL records with weight and both fork and total length.

A.

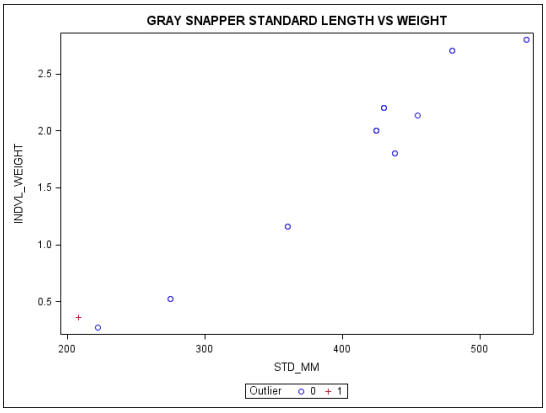
TAXON	N	SL	FL	TL	SL &FL	SL & TL	FL & TL
Lutjanus griseus	657	19	642	26	13	10	15

B.

TAXON	N	SL	FL	TL	SL &FL	SL & TL	FL & TL
Lutjanus griseus	639	18	625	24	12	9	14

Figure 1. Scatter plots of gray snapper length and weight with outliers (red crosses) identified. Panel A is standard length (STD_MM) in mm versus individual weight in kg (INDVL_WEIGHT), Panel B is fork length (FORK_MM) in mm versus individual weight in kg (INDVL_WEIGHT) and panel C is total length (TOTAL_MM) in mm versus individual weight (INDVL_WEIGHT) in kg.

A.



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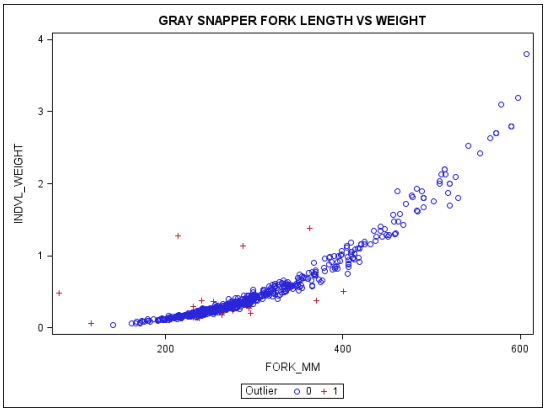
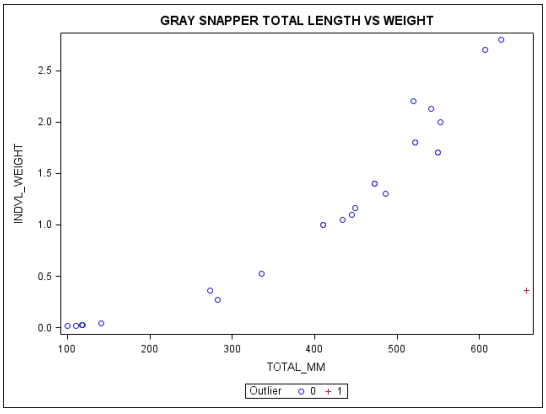


C.



Appendix A. Variables contained in the dataset for all length and weight observations.

FROM

Indicates which database values were pulled from:

FPC – NMFS Pascagoula Field Party Chief Oracle Database

MMO – NMFS Pascagoula MiamiMod Oracle Database

SGS – Gulf States Marine Fisheries Commission SEAMAP Database

VESSEL

NMFS or SEAMAP vessel code.

CRUISE

NMFS or SEAMAP cruise number.

PASC

NMFS or SEAMAP station number.

STA_LON

Longitude of capture.

STA_LAT

Latitude of capture.

STA_DPTH

Depth of capture.

GEAR

Type of gear used to collect fish.

BL = bottom longline

BR = bandit reel

FT = fish trawl

GN = gill net

HL = handline

HO = high opening bottom trawl

ST = shrimp trawl

VL = vertical line

TAXON

Species name.

INDVL_WEIGHT

Species weight in kg.

STANDARD

Standard length if taken in mm.

FORK

Fork length if taken in mm.

TOTAL

Total length if taken in mm.

SEX

Sex of fish. U = Unknown, M = Male, F = Female. Blank indicates sex type not attempted.

ID

Record identifier for the current datasets. Specific to only this dataset.

OUTLIERS_IDENTIFIED

Indicates whether or not Robust Regression outlier detection was used to identify outliers. Y = Yes and N = No. All Y values will have at least one of the SL_SUSPECT, FL_SUSPECT or TL_SUSPECT populated with 0 or 1.

SL_SUSPECT

Indicates whether the relationship between standard length and weight is a suspected outlier. Zero (0) for no and One (1) for yes. Null if no standard length.

FL_SUSPECT

Indicates whether the relationship between length and weight is a suspected outlier. Zero (0) for no and One (1) for yes. Null if no fork length.

TL_SUSPECT

Indicates whether the relationship between total length and weight is a suspected outlier. Zero (0) for no and One (1) for yes. Null if no total length.