Summary of Red Grouper age-length data for SEDAR61

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SEDAR61-WP-09

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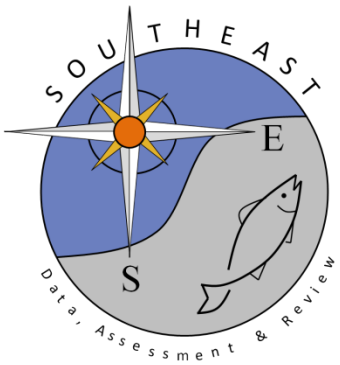

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Summary of Red Grouper age-length data for SEDAR61

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Introduction

This report documents the US Gulf of Mexico Red Grouper data provided for SEDAR61. Data that has been previously provided for past Red Grouper assessments (SEFSC/SFD 2002, SEDAR 2006, SEDAR 2009, SEDAR 2015; Table 1), plus new data are described. This is a brief summary of the age-length data submitted for 2018SEDAR61 by year, data provider, mode and gear, sampling program, and state landed.

Methods

Red Grouper age-length data were supplied by federal and state agencies and a university for 2018SEDAR61 (Table 2). Data was submitted using the SEDAR Best Practices Template (SEDAR 2015). In addition to the data, each dataset was accompanied with a meta-data description (see Appendix) and required checklists to ensure QA/QC (quality assurance/quality control), summary data tables, and exploratory data analysis (SEDAR 2015). To enable combining multiple data sets using the same fields and respective codes, minimal adjustments were made to the original data (Table 11). Detailed explanations for all adjustments were recorded in the data providers data file.

Results and Discussion

There were 48,287 Red Grouper otoliths aged for 2018SEDAR61 (Table 3). Ages were completed by one federal ageing facility, one state agency and one university (Table 2). The NMFS Panama City provided the longest time series of ages (1979-2017, n = 41,676), followed by the FWC FWRI (represented by both the FWRI-FIM and GulfFIN data providers; 2002-2017, n = 6,247) (Table 3). The majority of the Red Grouper age-length data from NMFS Panama City were intercepted through the commercial (70%) fishery (Table 4). Port agents from the Trip Interview Program (56%) provided the majority of the biological samples that were aged (Tables 5). The majority of the Red Grouper were reported from the waters from the West Coast of Florida (Table 6).

There were 9,041 new Red Grouper age-length records provided for SEDAR61 (Table 7). Of the new records, 5% (n=407) were collected during the years previously submitted for 2014SEDAR42 and a majority of these records (90%, n = 364) were collected via a new data provider, University of South Florida. NMFS Panama City provided the majority (66%) of the recently provided records, which were collected since the last update assessment (SEDAR42, terminal year 2013) (Table 7). The majority of the newly submitted age-length data were intercepted from the Commercial fishery (59%) and reported by Trip Interview Program port agents (Table 8 and 9). The newly submitted data were also collected from state of Florida (Table 10).

Literature

SEDAR (Southeast Data, Assessment, and Review). 2006. SEDAR12 Gulf of Mexico Red Grouper Stock Assessment Report. SEDAR, One Southpark Circle, Charleston, SC. 358 pp.

SEDAR. 2009. Stock assessment of Red Grouper in the Gulf of Mexico, SEDAR12 Update Assessment. Assessment workshop report by Gulf of Mexico Fishery Management Council and the NMFS Southeast Fisheries Science Center, under the SEDAR process. 143 pp.

SEDAR. 2015. SEDAR42 Gulf of Mexico Red Grouper Stock Assessment Report. SEDAR, 4055 Faber Place Drive, North Charleston, SC. 612 pp.

SEDAR. 2015. SEDAR Procedural Workshop 7: Data Best Practices. SEDAR, North Charleston SC. 151 pp.

SEFSC/SFD (Southeast Fisheries Science Center/Sustainable Fisheries Division). 2002. Status of red grouper in United States waters of the Gulf of Mexico during 1986-2001. NOAA/NMFS/SEFSC/SFD, 75 Virginia Beach Drive, Miami, FL. 65 pp.

Table 1. List of Red Grouper age-length data providers by previous SEDARs (see Table 2 for data providers' full descriptions).

SEDAR	Data Provided	Terminal Year	Data Provider Abbreviation
2002 Stock Assessment	1992-2001	2001	NMFS Panama City – AGR
SEDAR12	1978-2005	2005	NMFS Panama City – AGR FWRI –FIM
SEDAR12update	2006-2008	2008	NMFS Panama City – AGR FWRI –FIM
SEDAR42	1978-2013	2013	NMFS Panama City – AGR NMFS Panama City – BSD FWRI – FIM

Table 2. List of Red Grouper age-length data providers for SEDAR61 (terminal year 2017).

Data Provider Abbreviation	Data Provider Description
NMFS Panama City – AGR	National Marine Fisheries Service, Panama City Laboratory: Age, Growth and Reproduction database
NMFS Panama City – BSD	National Marine Fisheries Service, Panama City Laboratory: Biological Sampling Database
FWRI – FIM	Florida Fish and Wildlife Conservation Commission, Florida Wildlife and Research Institute, Fisheries Independent Monitoring
GulfFIN	Gulf States Marine Fisheries Commission, Fisheries Information Network
USF	University of South Florida, Murawski
DISL/USA	University of South Alabama/Dauphin Island Sea Laboratory, Powers (only 15 records without ages were provided)

Table 3. The number of Red Grouper otoliths aged for SEDAR61 by year and data provider (see Table 2 for data providers' full descriptions).

Year	NMFS PC-AGR	NMFS PC-BSD	FWRI- FIM	GulfFIN	USF	Total
1979	71					71
1980	8					8
1981	301					301
1985	1					1
1986	8					8
1987	11					11
1988	10					10
1989	11					11
1991	119					119
1992	268					268
1993	494					494
1994	519					519
1995	528					528
1996	431					431
1997	158					158
1998	299					299
1999	885					885
2000	794					794
2001	2049					2049
2002	2127			5		2132
2003	2015			6		2021
2004	2877			14		2891
2005	2403			3		2406
2006	1524		82	5		1611
2007	1363		193	2		1558
2008	1413		80			1493
2009	4536		321	1		4858
2010	2450		946	7		3403
2011	2278	1145	502	8	364	4297
2012	1166	1331	541	2		3040
2013	998	1159	807			2964
2014	576	1366	529	2		2473
2015	387	1119	440	302		2248
2016	156	1155	343	361		2015
2017	82	1085	511	234		1912
Total	33316	8360	5295	952	364	48287
Percent	69.0%	17.3%	11.0%	2.0%	0.8%	

Table 4. The number of Red Grouper otoliths aged for SEDAR61 by data provider, mode and gear (see Table 11 for code definitions).

Data Provider	CM LL	CM HL	CM VLL	CM TR	CM SP	CP HL	CP Other	HB HL	PR HL	PR SP	SS TR	SS HL	SS LL	SS TRW	SS VLL	SS other	TRN all	Other	Unk	Total
NMFS PC-AGR	13486	8527	689	698	69	2849	26	1128	644	1	1179	776	1977	820	61	26	121	106	133	33316
NMFS PC-BSD	3754	3730	485	0	345	16	0	7	0	0	0	0	0	0	0	0	23	0	0	8360
FWRI-FIM	0	0	0	0	0	0	0	0	0	0	2088	2119	174	492	257	165	0	0	0	5295
GulfFIN	3	0	0	0	0	577	0	124	225	0	0	0	0	0	0	0	0	0	23	952
USF	0	0	0	0	0	0	0	0	0	0	0	0	364	0	0	0	0	0	0	364
Total	17243	12257	1174	698	414	3442	26	1259	869	1	3267	2895	2515	1312	318	191	144	106	156	48287
Percent	35.7%	25.4%	2.4%	1.4%	0.9%	7.1%	0.1%	2.6%	1.8%	0.0%	6.8%	6.0%	5.2%	2.7%	0.7%	0.4%	0.3%	0.2%	0.3%	

Table 5. The number of Red Grouper otoliths aged for SEDAR52 by data provider and sampling program (see Table 11 for code definitions). Other represents those sampling programs that 100 or less otoliths were aged (Alliance, FIN-OBS, USGS).

Data Providers	TIP	RECFIN MRFSS	SRHS	PCLAB	MSLAB	EASA	FWRI	FWRI-FIM	FWRI-OBS	GOP	SBLOP	CO-OP	GRFS	USF	Other	Unk	Total
NMFS PC-AGR	18634	2054	602	1665	1457	1013	375	1197	407	1502	495	3665	0	0	36	214	33316
NMFS PC-BSD	8353	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	8360
FWRI-FIM	0	0	0	0	0	0	0	5295	0	0	0	0	0	0	0	0	5295
GulfFIN	0	171	5	0	0	0	0	0	587	0	0	0	189	0	0	0	952
USF	0	0	0	0	0	0	0	0	0	0	0	0	0	364	0	0	364
Total	26987	2225	614	1665	1457	1013	375	6492	994	1502	495	3665	189	364	36	214	48287
Percent	55.9%	4.6%	1.3%	3.4%	3.0%	2.1%	0.8%	13.4%	2.1%	3.1%	1.0%	7.6%	0.4%	0.8%	0.1%	0.4%	100.0%

Table 6. The number of Red Grouper otoliths aged for SEDAR61 by data provider and state landed.

Data Providers	FL	AL	MS	LA	TX	Total
NMFS PC - AGR	33202	64	17	31	2	33316
NMFS PC-BSD	8315	20	1	22	2	8360
FWRI FIM	5295					5295
GulfFIN	895	57				952
USF	364					364
Total	48071	141	18	53	4	48287
Percent	99.6%	0.3%	0.0%	0.1%	0.0%	

Table 7. The number of Red Grouper ages newly submitted for SEDAR61 by year and data provider (see Table 2 for data providers' complete descriptions).

Year	NMFS PC - AGR	NMFS PC-BSD	FWRI-FIM	GulfFIN	USF	Total
2009			2			2
2010			1			1
2011			1		364	365
2012			11			11
2013	20		8			28
2014	549	1366	538	2		2455
2015	387	1119	444	302		2252
2016	156	1155	343	361		2015
2017	82	1085	511	234		1912
Total	1194	4725	1859	899	364	9041
Percent	13.2%	52.3%	20.6%	9.9%	4.0%	

Table 8. The number of Red Grouper ages newly submitted for SEDAR61 by year and mode and gear (see Table 11 for code definitions).

Year	CM LL	CM HL	CM VLL	CM SP	CP HL	HB HL	PR HL	PR SP	SS TR	SS HL	SS LL	SS TRW	SS VLL	SS other	TRN all	Unk	Total
2009	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
2010	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
2011	0	0	0	0	0	0	0	0	1	0	364	0	0	0	0	0	365
2012	0	0	0	0	0	0	0	0	0	8	2	0	1	0	0	0	11
2013	20	0	0	0	0	0	0	0	0	3	3	0	2	0	0	0	28
2014	899	554	104	121	101	20	19	0	288	131	22	132	25	16	23	0	2455
2015	583	749	0	59	225	71	62	2	247	67	43	129	13	0	0	2	2252
2016	586	538	64	17	224	99	72	3	23	206	34	61	39	40	0	9	2015
2017	523	536	6	13	142	29	87	0	97	210	35	82	16	124	0	12	1912
Total	2611	2377	174	210	692	219	240	5	656	627	503	405	96	180	23	23	9041
Percent	28.9%	26.3%	1.9%	2.3%	7.7%	2.4%	2.7%	0.1%	7.3%	6.9%	5.6%	4.5%	1.1%	2.0%	0.3%	0.3%	

Table 9. The number of Red Grouper ages newly submitted for SEDAR61 by year and sampling program (see Table 11 for code definitions).

Year	TIP	RECFIN	SRHS	PCLAB	MSLAB	FWRI-FIM	FWRI-OBS	GOP	GRFS	USF	Total
2009	0	0	0	0	0	2	0	0	0	0	2
2010	0	0	0	0	0	1	0	0	0	0	1
2011	0	0	0	0	0	1	0	0	0	364	365
2012	0	0	0	0	0	11	0	0	0	0	11
2013	0	0	0	0	0	8	0	20	0	0	28
2014	1366	112	18	43	34	538	9	335	0	0	2455
2015	1119	47	41	35	44	444	205	272	45	0	2252
2016	1155	54	28	41	37	343	245	50	62	0	2015
2017	1078	15	7	42	40	511	137	0	82	0	1912
Total	4718	228	94	161	155	1859	596	677	189	364	9041
Percent	52.2%	2.5%	1.0%	1.8%	1.7%	20.6%	6.6%	7.5%	2.1%	4.0%	

Table 10. The number of Red Grouper ages newly submitted for SEDAR61 by year and state.

Year	FL	AL	MS	LA	TX	Total
2009	2					2
2010	1					1
2011	365					365
2012	11					11
2013	28					28
2014	2447	8				2455
2015	2247	3		1	1	2252
2016	2007	4	4			2015
2017	1910	2				1912
Total	9018	17	4	1	1	9041
Percent	99.75%	0.19%	0.04%	0.01%	0.01%	

Table 11. SEDAR Best Practices standardized data template, fields and definitions: Red Grouper 2018SEDAR61. Key Updated August 2018.

Field	Data Provided	Definitions and Codes
Unique_Record_Num	Yes	Unique number per record (S61_RDG_000001-S61_RDG_129521)
SEDAR#	Yes	Year and SEDAR number: 2018SEDAR61 If data provided in previous SEDAR: 2002SA 2006SEDAR12; 2009SEDAR12update; 2014SEDAR42;
SEDAR_Date_Submit	Yes	Month, Day, and Year data submitted for SEDAR September 2002, 2002 Stock Assessment; May 2006, 2006SEDAR12; December 2008, 2009SEDAR12Update; October 2014, 2014SEDAR 42; March 2018 or August 2018, 2018SEDAR61
Stock	Yes	Stock identification: – Gulf of Mexico (TX, LA, MS, LA, and FL: only including those fish landed North of route US 1 in Monroe County, FL) – South Atlantic (n = 211; based on the reported NMFS_Statistical_Grid and County Landed) – Blank records (n = 1055; NMFS_PC_AGR only, specific to records (n = 78) reported as landed in FL, Monroe County without any other capture information; most records, n = 975 collected in 1980-1981 and no specific capture information was provided)
Data_Provider	Yes	Name of Source providing the dataset to SEDAR 1. NMFS Panama City–AGR* 2. NMFS Panama City–BSD* 3. FWRI Fisheries-Independent Monitoring* 4. GulfFIN (Gulf States Marine Fisheries Commission, Fisheries Information Network) 5. University of South Florida – Murawski 6. University of South Alabama/Dauphin Sea Lab^ *These data providers submitted data during previous SEDARs (12, 12update, 42) ^Data was obtained from this provider but no ages submitted, n = 15 records *No data provided by USF or USA/DISL for 2017*
Species	Yes	*Epinephelus morio*
Fishing_Mode	Yes	Vessel type listed for fishery-dependent and fishery-independent samples identified to the trip level CM – Commercial CP or CB – Charter Party or Charter Boat CP EFP – Charter with Exempted Fishing Permit HB – head boat HB EFP – Head Boat with Exempted Fishing Permit OB - Observer PR – private vessel PR EFP – Private vessel with Exempted Fishing Permit REC – Recreational – specific vessel type not reported SS – scientific survey TRN – tournament UNK – unknown or is blank
Fishery	Yes	REC - Recreational

Field	Data Provided	Definitions and Codes
		COM - Commercial FI - Fishery-Independent UNK - Unknown or is blank
Source	Yes	Program that collected a sample Alliance - expanded vertical line survey from MSLAB CO-OP - Cooperative Research Proposal CO-OP_Ward – Cooperative Research Proposal, W. Ward EASA – Expanded Annual Stock Assessment Survey, NMFS Pascagoula, MS FIN-OBS – Fishery Information Network, Headboat Observer FWRI – Florida Fish and Wildlife Conservation Commission, Florida Wildlife Research Institute FWRI-FIM - FWRI, Fisheries Independent Monitoring FWRI–OBS - Florida Wildlife Research Institute, Observer GOP – Galveston Observer Program GRFS – Gulf Reef Fish Survey HB – Southeast Region Headboat Survey MARFIN – special project (GulfFIN) MRFSS - Marine Recreational Fisheries Statistical Survey MSLAB -NMFS Pascagoula, MS PCLAB - NMFS Panama City, FL RECFIN - Recreational Fisheries Information Network SBLOP - NOAA Fisheries, Shark Bottom Longline Observer Program TIP - Trip Interview Program USF – University of Florida, Murawski USGS – U.S. Geological Survey UNK – Unknown or is blank
Sampling_Unit_ID	Yes	Interview # - identifies a trip within a Source Unique codes specific to source
Specimen_ID	Yes	Unique identifier for an individual fish within an interview
Barcode	Yes	Unique identifier for an individual fish
Month	Yes	Month sample collected
Day	Yes	Day sample collected
Year	Yes	Year sample collected
State_Landed	Yes	State abbreviations FL – Florida AL – Alabama MS – Mississippi LA – Louisiana TX – Texas
County_Location	Yes	Fishery-dependent data (COM, REC) - county landed. Fishery-independent data, this may reflect a specific sampling site.
Headboat_Area	Yes	Headboat Area assigned by the SRHS.
NMFS_Statistical_Grid	Yes	Shrimp statistical grid including sub-areas, specific TIP
Latitude	Yes	Latitude of where fish was caught.
Longitude	Yes	Longitude of where fish was caught.
Gear_Code	Yes	Numeric or Alphabetic Gear Code number see TIP Gear Codes for TIP data (NMFS Panama City) see GulfFIN Gear Codes for TIP, MRFSS, RECFIN data
Gear_Name	Yes	Text description of the Gear Code see TIP Gear Codes for TIP data (NMFS Panama City)

Field	Data Provided	Definitions and Codes
		see GulfFIN Gear Codes for MRFSS, RECFIN data
Gear_Group_Code	Yes	Collapsed grouping of the Gear Code (ex: HL, LL, etc.) DN – Dip Net HL - Hand-Line HL-EFP Hand-Line with Exempted Fishing Permit LL - Long-Line SP – Spear SP- EFP Spear with Exempted Fishing Permit SN – Seine Net TR - Trap TRW – Trawl VLL - Vertical Longline UNK or UA – unknown or combined gear or is blank
Depth_m	Yes	Approximate depth fish caught.
Jurisdictional_Waters	Yes	Refers to water body jurisdiction (State, Federal, Unknown) where fish was caught.
Distance_from_Shore	Yes	Record the distance (nautical miles) from shore where the fish was caught.
Bias_Type	Yes	Record if the sample was collected using a bias method. R or Random – random S – selected (size, effort, and/or other bias type) No Bias Known No Information Effort Bias Effort and Size Bias Size Bias Is Blank
Smallest_Length_Unit	Yes	Record smallest length unit used in measurement (mm)
Observed_Maximum_TL_mm	Yes	Measured maximum total length (tail pinched), n = 12871
Observed_Natural_TL_mm	Yes	Measured natural total length (tail not pinched), n = 4992
Observed_FL_mm	Yes	Measured fork length, n = 123529
Observed_SL_mm	Yes	Measured standard length, n = 6233
Predicted_Maximum_TL_mm	No	
Predicted_Natural_TL_mm	No	

Predicted_FL_mm	Yes	Fork length predicted from either natural or maximum total length or standard, regressions from 2014SEDAR42
		# records with FL = 123529, predicted FL for 5909 records
		FL = 5.35 + Max_TL * 0.95, (n = 4945)
		FL = 5.71 + Nat_TL * 0.95, (n = 710)
		FL = 15.90 + SL * 1.14, (n= 254)
		83 records without lengths

Predicted_SL_mm	No	
Final_MaxTL_mm	No	
Final_FL_mm	Yes	Final length column for analysis, includes both predicted and observed fork lengths
Whole_Weight_g	Yes	Measured whole weight
Gutted_Weight_g	Yes	Measured gutted weight
Gutted_Weight_Type	Yes	Description of gutted weight recorded. GUTTED – HEAD ON GUTTED – HEAD OFF ROUND (WHOLE)

Field	Data Provided	Definitions and Codes
		UNGRADED UNKNOWN or NA
Predicted_Whole_Weight_g	No	
Final_Whole_Weight_g	No	
Duplicate_Length	Yes	Yes or No: Refers to whether the age and/or length are recorded in another data set. Data Provider: FWRI-FIM, USF No – these records are only in data providers dataset Data Provider: NMFS Panama City: Yes – Sources: TIP, HB, FWRI, FIN-OBS, FWRI-OBS, MRFSS, RECFIN, CO-OP_Ward (this data also recorded in TIP) No – Sources: Alliance, CO-OP, EASA, GOP, MSLAB, PCLAB, SBLOP, USGS GulfFIN Yes – Sources: HB, MRFSS, TIP, FIN_OBS, FWRI_OBS, GRFS, RECFIN
#_of_Annuli	Yes	Reader(s) consensus of annuli count
Edge_Type	Yes	Reader(s) consensus of edge type FWRI-FIM, GulfFIN Codes Description 1 opaque zone on margin 2 translucent zone <1/3 complete 3 translucent zone 1/3 to 2/3 complete 4 translucent zone 2/3 to fully complete or NMFS Panama City (AGR and BSD) and USF Codes Description 2_PC opaque zone complete 4_PC translucent zone forming to ½ complete 6_PC translucent zone ½ to fully complete or NMFS Panama City (AGR: only in 1978-2001) Codes Description O_PC opaque zone complete T_PC translucent on edge
Calendar_Age	Yes	Final age assigned to an individual fish to assign fish to calendar year. Note: differences in edge types among data providers. Age advanced based on the degree of completion of the translucent zone. Edge Types: 2_PC, 4_PC, 6_PC If capture date < July 1 and Edge = 6_PC, Calendar_Age = # of annuli +1 or Edge Types: 1, 2, 3, 4 If capture date < July 1 and Edge = 3 and 4, Calendar_Age = # of annuli +1 or Edge Types: O_PC, T_PC If capture date < July 1 and Edge = T_PC, Calendar_Age = # of annuli +1 Fully Opaque Edge If capture date = November or December and Edge = 1 or 2_PC or O_PC, Calendar_Age = # of annuli – 1

Field	Data Provided	Definitions and Codes
		Else # of Annuli = Calendar_Age
Fractional_Age	Yes	Fractional age assigned to an individual fish based on the time between date of birth and collection date. Date of Birth (DOB) = peak spawning month (5), peak spawning day (15), Year-Calendar_Age Fractional Age = (Collection Date – DOB)/365.25
Sub_Sampled	Yes	Data Provider = NMFS Panama City-AGR and -BSD Criteria: Source = TIP; Mode = Commercial; Gears = LL or HL; Years = 2002-2017 Y or N = Sub-sampling based on the proportion of commercial landings by year, gear, and NMFS statistical grid. Protocols for sub-sampling see 2006SEDAR12. The accompanying data file contains all TIP records (Y and N).
Macro_Sex	Yes	Sex identified by field sampler based on macroscopic appearance of gonad: D – did not attempt F - female I or IM - immature M - male N – no gonad T - transition U – unknown Is Blank
Histo_Sex	Yes	Sex assigned after histology reading of gonad tissue: F - female M – male T – transition E – early transition
Secondary_Sex	No	Does not apply to Red Grouper
Repro_Phase	No	Reference document (Brown-Peterson 2011); see table in Lowerre-Barbieri et al. 2015.
Macro_Maturity	No	Maturity based on macroscopic reading of reproductive tissue; Mature or Immature based on appearance of yolked (VTG) oocytes.
Histo_Maturity	No	Maturity based on histology reading; Mature or Immature based on CA + VTG oocytes or based only on VTG.
Spawner	No	Yes: refers only to mature fish with spawning markers; leave blank if immature fish
Batch_Fecundity_Estimate	No	# of oocytes in a batch for an individual specimen
Gonad_Weight_Fresh_g	Yes	Fresh weight of gonad
Gonad_Weight_Formalin_g	Yes	Weight of gonad preserved in formalin
Gonad_Weight_Frozen_g	Yes	Frozen gonad weight
Outlier and Notes	Yes	Identify records with age, length, weigh, or otolith weight not fitting normal pattern of relationships between meristic combinations for all data providers. Some data providers removed outliers prior to data submission.
Additional Fields new to SEDAR Template (these are subject to change given species specific fields)		
Samples	Yes	Biological Sample Type: NMFS Panama City – BSD 0 = (only 4 records, not aged) 1 = otolith or OTOLITH 3 = (only 7 records, not aged)

Field	Data Provided	Definitions and Codes
		NMFS Panama City – AGR, USF O = Otolith G = Gonad S = Spine L = Length FWRI – Fisheries Independent Monitoring 1 = Otolith, section 2 = Spine (ages from spine not submitted in final SEDAR data file) 3 = Otolith, whole
NMFS_PC_Collection_ Comments	Yes	Any specific information unique to the trip or an individual, specific to data provider: NMFS Panama City_BSD and _AGR
BSD/AGR_Start_Depth_m	Yes	Specific to data provider: NMFS Panama City_BSD and _AGR
BSD/AGR_End_Depth_m	Yes	Specific to data provider: NMFS Panama City_BSD and _AGR
FWRI_Project	Yes	Specific to data provider: FWRI_FIM and GulfFIN FWRI_FIM (correspond to state data file) AS Inshore GOM, Bimonthly Fish Monitoring BF Offshore GOM, Baitfish Trawling CA Offshore GOM, CRP - FIM vs FDM DX Offshore GOM. DACS Hook & Line Sampling EA Offshore SA, CRP - Red Snapper Hook & Line Sampling EB Offshore SA, CRP - Spawning Aggregation Sampling EJ South Atlantic juvenile Red Snapper MARFIN NA NFW Artificial Reef Monitoring NB NFWF – Geoform-specific Sampling (02/2017) SM Offshore GOM, SEAMap Trawling WA Offshore GOM, Middle Grounds Sampling WB Tortugas - Seagrass Study WC Offshore GOM, CRP - Hooked Gear Sampling WE Offshore GOM, Elbow Sampling WH Nearshore West Florida Shelf camera/trap - supplemental effort WI Inshore GOM, Seasonal Polyhaline Seagrass Fish Monitoring WM Offshore GOM, West Florida Shelf Monitoring WT Offshore, Tortugas Sampling WZ Offshore GOM, MARFIN - Z-trap and Hook & Line Sampling ZZ Offshore Gear Testing in 2006 & 2007 GulfFIN FIN-BIOS FWRI-OBS GRFS HB MARFIN samples MRFSS RECFIN TIP
GulfFIN_FL_Offshore	Yes	Specific to data provider: GulfFIN
GulfFIN_FL_FisherFishID	Yes	Specific to data provider: GulfFIN
GulfFIN_Collection_Method	Yes	Specific to data provider: GulfFIN and NMFS Panama City AGR RANDOM INTERCEPT TARGETED BIOLOGICAL

Field	Data Provided	Definitions and Codes
		TIP
GulfFIN_FISH_COLLNUM	Yes	Specific to data provider: GulfFIN
GulfFIN_Dest_Lab	Yes	Specific to data provider: GulfFIN Identification of the Ageing Facility (GulfFIN, state of FL) FWRI BEAUFORT Unknown or NA or is blank

Appendix. Metadata for each data provider.

Data Provider: NMFS Panama City – AGR

Year(s) collected	1978-2017
Species	*Epinephelus morio*
Describe sampling	Data from various fishery dependent sampling programs and fishery independent surveys
Type of data	Age, length, reproduction
Spatial coverage	Gulf of Mexico
# and type age structures	56458, otoliths (whole and sectioned)
# samples aged	33326 (sub-sampled: TIP, 2002-2011, CM LL and CM HL)
Age assignment	Calendar ages assigned based on the count of annuli, the degree of marginal edge completion, and the capture date. Fractional age assigned to an individual fish based on the time between date of birth (peak spawning May 15) and collection date.
Reader agreement	PCLAB reference set (n=240), APE = 3.96; FWRI reference set (n=100), APE = 3.39
# of reproductive tissues*	9347
Reproductive staging assignment *	See NMFS Panama City Lab Manual, 4th edition, in revision
Funding source	NOAA/SEFSC
Contact person	Linda Lombardi, Linda.Lombardi@noaa.gov
Data files	sedar_rdg_AGR_export_2018_03_23_LLedits.xlsx 2017_RDG_data_only_08_01_2018.xlsx

*Reproductive data supplied in separate data files and report

Data Provider: NMFS Panama City – BSD

Year(s) collected	2011-2017
Species	*Epinephelus morio*
Describe sampling	Data from Trip Interview Program dockside sampling
Type of data	Age, length
Spatial coverage	Gulf of Mexico
# and type age structures	65767
# samples aged	8370 (sub-sampling CMLL and CMHL)
Age assignment	Calendar ages assigned based on the count of annuli, the degree of marginal edge completion, and the capture date. Fractional age assigned to an individual fish based on the time between date of birth (peak spawning May 15) and collection date.
Reader agreement	PCLAB reference set (n=240), APE = 3.96; FWRI reference set (n=100), APE = 3.39
# of reproductive tissues	None
Reproductive staging assignment	No reproductive staging completed
Funding source	NOAA/SEFSC
Contact person	Linda Lombardi, Linda.Lombardi@noaa.gov
Data file	2011-2016_RDG_BSD_all_records_03212018.xlsx 2017_RDG_BSD_all_records_08072018.xlsx

Data Provider: GulfFIN

Field	Field Description
Year(s) collected	2003-2016
Species	*Epinephelus morio*
Describe sampling	Fishery dependent (commercial, recreational), some random samples with some opportunistic samples. See Source variable definitions below: **FIN-BIOSTAT –** aged and non-aged fish sampled during bio-sampling for GulfFIN **FIN-OBS** – aged fish that are also included in the old I3 files for the FIN-funded headboat at-sea observer surveys (2005-2007) **FWRI-OBS** –aged and non-aged fish sampled during various at-sea observer programs in Florida **RECFIN** –aged and non-aged fish sampled during bio-sampling for GulfFIN, aged fish collected from a handful of other short-term projects that used similar sampling methods to FIN. **GRFS** –aged fish sampled during the Gulf Reef Fish Survey. **MRFSS** –aged fish from old MRFSS assignments, flags them as duplicate lengths **TIP** – FWRI aged fish from TIP samples, flags them as duplicate lengths **HB** – FWRI aged fish sampled by state Headboat logbook samplers, flags them as duplicates lengths
Type of data	Age, lengths, Macro Sex ID
Spatial coverage	Gulf of Mexico
# and type age structures	1466 (whole and sectioned)
# samples aged	952
Age assignment	Calendar ages assigned based on the count of annuli, the degree of marginal edge completion, and the capture date. Fractional age per instruction from NOAA PC Lab, May 15 peak spawning date used.
Reader agreement	PCLAB reference set (n=240), APE = 3.96; FWRI reference set (n=100), APE = 3.39
# of reproductive tissues	None
Reproductive staging assignment	No reproductive staging completed
Funding source	Multiple
Contact person	Gregg Bray, 228-875-5912, gbray@gsmfc.org
Data file	Red_grouper_2018_age_LLedits_March2018.xlsx Red_grouper_2018_age_new_LLedits_August_2018.xlsx

Data Provider: FWRI-FIM

Year(s) collected	2006-2017
Species	*Epinephelus morio*
Describe sampling	Fishery independent surveys AS Inshore GOM, Bimonthly Fish Monitoring BF Offshore GOM, Baitfish Trawling CA Offshore GOM, CRP - FIM vs FDM DX Offshore GOM. DACS Hook & Line Sampling EA Offshore SA, CRP - Red Snapper Hook & Line Sampling EB Offshore SA, CRP - Spawning Aggregation Sampling EJ South Atlantic juvenile Red Snapper MARFIN NA NFW Artificial Reef Monitoring NB NFWF – Geoform-specific Sampling (02/2017) SM Offshore GOM, SEAMap Trawling WA Offshore GOM, Middle Grounds Sampling WB Tortugas - Seagrass Study WC Offshore GOM, CRP - Hooked Gear Sampling WE Offshore GOM, Elbow Sampling WH Nearshore West Florida Shelf camera/trap - supplemental effort WI Inshore GOM, Seasonal Polyhaline Seagrass Fish Monitoring WM Offshore GOM, West Florida Shelf Monitoring WT Offshore, Tortugas Sampling WZ Offshore GOM, MARFIN - Z-trap and Hook & Line Sampling ZZ Offshore Gear Testing in 2006 & 2007
Type of data	Age, lengths, Macro Sex ID
Spatial coverage	Gulf of Mexico
# and type age structures	5465 (otoliths whole and sectioned)
# samples aged	5318
Age assignment	Ages were assigned based on the count of annuli, the degree of marginal edge completion, and the capture date
Reader agreement	PCLAB reference set (n=240), APE = 3.96; FWRI reference set (n=100), APE = 3.39
# of reproductive tissues*	None
Reproductive staging assignment*	No reproductive staging completed
Funding source	Multiple
Contact person	Tim MacDonald, tim.macdonald@myfwc.com
File Name	FWRI_FIM_Emorio_deliverable_20180214_LLeditsMarch2018.xlsx FWRI_FIM_SEDAR61_Emorio_deliverable_20180801_LLedit_August_08_2018.xlsx

*Reproductive data supplied in separate data files and report

Data Provider: USF

Years collected	2011
Species	*Epinephelus morio*
Describe sampling	fishery independent, demersal long line
Type of data	length, weight, age
Spatial range	West Florida Shelf and Gulf of Mexico
Type of age structures	365, otoliths (sectioned)
# samples aged	364
Age assignment	Age assigned based on NMFS Panama City edge type (2, 4, 6)
Reader agreement	1 reader, trained by J. Carrol (FWRI St. Pete)
# of reproductive tissues	None
Reproductive stating assignment	No reproductive staging completed
Funding source	Grant NA11NMF4720151–Systematic Survey of Fish Diseases in the Gulf of Mexico, to S.A.M. and W.T.H., from the National Marine Fisheries Service (NMFS) and the National Oceanic and Atmospheric Administration (NOAA) and by the BP–Gulf of Mexico Research Initiative, through its Center for Integrated Modeling and Analysis of Gulf Ecosystems, and the State of Louisiana Oil Spill Coordinator's
Contact Person	Steve Murawski, smurawski@usf.edu, Elizabeth Herdter, eherdter@mail.usf.edu
File Name	E.morio_age_data_request.csv USF_S61_RDG_age_data_March2018.xlsx (adjusted data)