Summary of Red Snapper age-length data by data providers for SEDAR52

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SEDAR52-WP-14

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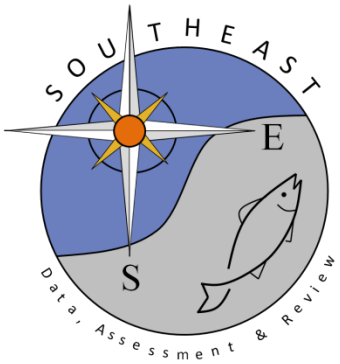

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Introduction

This report documents the US Gulf of Mexico Red Snapper data provided for SEDAR52. This report also includes data that has previously been provided for past Red Snapper assessments (SEDAR 2005, SEDAR 2009, SEDAR 2013, SEDAR 2015a; Table 1). This report provides a summary of the age-length data submitted for 2017SEDAR52 by year, data provider, sampling program, mode and gear, and state landed.

Methods

Red Snapper age-length data were supplied by federal and state agencies and universities for 2017SEDAR52 (Table 2). Data was submitted using the SEDAR Best Practices Template (SEDAR 2015b). 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 2015b). 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 194,239 Red Snapper otoliths aged for 2017SEDAR52 (Table 3). Ages were completed by one federal ageing facility, five state agencies and four universities (Table 2). The NMFS Panama City provided the longest time series of ages (1980-2016, n = 96,828), followed by GulfFIN (2002-2016, n = 82,329) (Table 3). The majority of the age-length data from NMFS Panama City and GulfFIN represented Red Snapper intercepted through the commercial (45%) and recreational (41%) fisheries (Table 4). Port agents from the Trip Interview Program (40%), Recreational Fisheries Information Network (32%) and the Southeast Region Headboat Survey (10%) provided the majority of the biological samples that were aged (Tables 5). Red Snapper were collected through the US Gulf of Mexico with the majority (43%) of the otoliths aged reported from Florida waters (Table 6).

There were 49,301 new Red Snapper age-length records provided for SEDAR52 (Table 7). GulfFIN provided the majority (41%) of the recently provided records, which were collected since the last update assessment (SEDAR31update, terminal year 2013). The majority of the newly submitted age-length data were intercepted from the recreational fishery (40%) and reported by Recreational Fisheries Information Network and Southeast Region Headboat survey port agents 19% and 18%, respectively) (Table 8 and 9). The newly submitted data were also collected throughout the US Gulf of Mexico with 50% from Florida waters (Table 10).

There were six new data providers for 2017SEDAR52 (AMRD, LDWF_Lang, DISL/USA, USF, UF, TAMUCC; Table 2). The age length data from these six new data providers were mainly collected through fishery independent surveys using a variety of hook and line gears (Table 4). These surveys collected Red Snapper throughout the US Gulf of Mexico (Table 6).

Literature

SEDAR. 2005. SEDAR7 Gulf of Mexico Red Snapper Complete Stock Assessment Report. SEDAR, Charleston, SC. 480 pp.

SEDAR. 2009. Report of the Update Assessment Workshop for Red Snapper in the Gulf of Mexico. Accepted by the Gulf of Mexico Fishery Management Council's Science and Statistical (SSC) and Reef Fish SSC Committees. 224 pp.

SEDAR. 2013. SEDAR 31 – Gulf of Mexico Red Snapper Stock Assessment Report. SEDAR, North Charleston SC. 1103 pp.

SEDAR. 2015a. Report of the Update Assessment of Red Snapper in the Gulf of Mexico 1872 – 2013 - with provisional 2014 landings. Prepared for the Science and Statistical Committee Gulf of Mexico Fishery Management Council. 242 pp.

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

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

SEDAR	Terminal Year	Data Provider Abbreviation
SEDAR7	2002	NMFS Panama City – AGR Louisiana State University GulfFIN
SEDAR7update	2008	NMFS Panama City – AGR GulfFIN
SEDAR31	2011	NMFS Panama City – AGR NMFS Panama city – BSD GulfFIN FWRI – FDM* and FIM
SEDAR31update	2013	NMFS Panama City – AGR NMFS Panama city – BSD GulfFIN FWRI – FDM* and FIM LDWF - SEAMAP

*FDM: Fishery Dependent Monitoring; FIM: Fishery Independent Monitoring

Table 2. List of age-length data providers for SEDAR52 (terminal year 2016).

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
GulfFIN	Gulf States Marine Fisheries Commission, Fisheries Information Network
FWRI – FIM	Florida Wildlife and Research Institute, Fisheries Independent Monitoring
LDWF_SEAMAP	Louisiana Department of Wildlife and Fisheries and Gulf States SEAMAP
AMRD	Alabama Marine Resources Division
LDWF_Lang	Louisiana Department of Wildlife and Fisheries, Lang (tournament sampled)
DISL/USA	University of South Alabama/Dauphin Island Sea Laboratory, Powers & Drymon
USF	University of South Florida, Murawski
UF	University of Florida, Murie
TAMUCC	Texas A & M Corpus Christi, Streith & Stunz

Table 3. The number of Red Snapper otoliths aged for SEDAR52 by year and data provider (see Table 2 for data providers' full descriptions).

Year	NMFS PC - AGR	NMFS PC-BSD	GulfFIN	FWRI FIM	LDWF_SEAMAP	AMRD	LDWF_Lang	DISL/USA	USF	UF	TAMUCC	Total
1980	327											327
1986	547											547
1987	152											152
1988	361											361
1989	97											97
1990	38											38
1991	1124											1124
1992	1363											1363
1993	2506											2506
1994	1908											1908
1995	776											776
1996	235											235
1997	238											238
1998	5039											5039
1999	5001											5001
2000	3644											3644
2001	3375											3375
2002	5171		4660									9831
2003	3094		9329									12423
2004	2588		7352									9940
2005	3304		8744									12048
2006	2996		7527	1								10524
2007	3757		1962	35								5754
2008	3337		2203	53								5593
2009	5713		2566	427						8		8714
2010	4628		3721	1202		573		16				10140
2011	3493	3099	4534	106	199	514		53	325			12323
2012	2212	4884	5158	76	727	707	485	165	311		45	14770
2013	3117	2980	5076	581	1194	529		70	130	2	584	14263
2014	2637	3244	5585	337	526	749		280	79	17	514	13968
2015	2775	3181	6957	335		1087		143		17	220	14715
2016	1755	2132	6955	461	292	707		196		4		12502
Total	77308	19520	82329	3614	2938	4866	485	923	845	48	1363	194239

Table 4. The number of Red Snapper otoliths aged for SEDAR52 by data provider, mode and gear (see Table 11 for code definitions).

Data Provider	CM HL	CM LL	CM SP	CM VLL	CM Other	CM UNK	CP HL	CP Other	HB HL	PR HL	PR SP	SS HL	SS LL	SS TRW	SS VLL	SS TR	TRN HL	TRN Other	UNK	Total
NMFS PC - AGR	32000	6977	5	124	24	63	8626		17117	1283	1	4143	2226	2144	137	1914	460	64	0	77308
NMFS PC-BSD	15725	3586	142	19			9										23	16	0	19520
GulfFIN	17928	2448	141		42	8470	35467	14	6535	10787	179								318	82329
FWRI FIM												2353	98	207	370	586				3614
LDWF_SEAMAP													443		2495					2938
AMRD													2		4864					4866
LDWF_Lang																	485			485
DISL/USA													923							923
USF													845							845
UF												40						8		48
TAMUCC															1363					1363
Total	65653	13011	288	143	66	8533	44102	14	23652	12070	180	6536	4537	2351	9229	2500	975	88	318	194239
Percent	33.8%	6.7%	0.1%	0.1%	0.0%	4.4%	22.7%	0.0%	12.2%	6.2%	0.1%	3.4%	2.3%	1.2%	4.8%	1.3%	0.5%	0.0%	0.2%	

Table 5. The number of Red Snapper 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 (SBLOP, Alliance, LADWF, FIN-OBS, UF, USGS).

Data Providers	TIP	REC FIN	HB	DISL/ USA	MS LAB	FWRI-FIM	FWRI-OBS	PC LAB	MRFSS	SEA MAP	EASA	TAM UCC	CO-OP	USF	GRFS	GOP	FWRI	UNK	Other	Total
NMFS PC - AGR	43612	432	16293		5876			3513	2943		2395		1231			377	355		281	77308
NMFS PC-BSD	19520																			19520
GulfFIN	13734	61167	2944				3593		439						380				72	82329
FWRI FIM						3614														3614
LDWF_SEAMAP										2938										2938
AMRD				4866																4866
LDWF_Lang																		485		485
DISL/USA				923																923
USF														845						845
UF																		8	40	48
TAMUCC												1363								1363
Total	76866	61599	19237	5789	5876	3614	3593	3513	3382	2938	2395	1363	1231	845	380	377	355	500	393	194239
Percent	39.6%	31.7%	9.9%	3.0%	3.0%	1.9%	1.8%	1.8%	1.7%	1.5%	1.2%	0.7%	0.6%	0.4%	0.2%	0.2%	0.2%	0.3%	0.2%	

Table 6. The number of Red Snapper otoliths aged for SEDAR52 by data provider and state landed.

Data Providers	FL	AL	MS	LA	TX	UNK	Total
NMFS PC - AGR	26211	5339	3582	20344	21580	252	77308
NMFS PC-BSD	9936	217	527	4270	4570		19520
GulfFIN	43309	10751	1509	14161	12599		82329
FWRI FIM	3614						3614
LDWF_SEAMAP				2938			2938
AMRD		4866					4866
LDWF_Lang		129	5	343		8	485
DISL/USA		923					923
USF	845						845
UF	26			22			48
TAMUCC					1363		1363
Total	83941	22226	5623	42084	40112	260	194239
Percent	43.2%	11.4%	2.9%	21.7%	20.7%	0.1%	

Table 7. The number of Red Snapper ages newly submitted for SEDAR52 by year and data provider (see Table 2 for data providers' complete descriptions).

Year	NMFS PC - AGR	NMFS PC-BSD	GulfFIN	FWRI FIM	LDWF_ SEAMAP	AMRD	LDWF_ Lang	DISL/ USA	USF	UF	TAMUCC	Total
1986	547											547
1987	152											152
1988	361											361
1989	97											97
1990	38											38
1991												
1992	1											1
1993												
1994	1											1
1995												
1996												
1997												
1998	1											1
1999	12											12
2000	1											1
2001												
2002	704											704
2003												
2004	1											1
2005	690											690
2006	4											4
2007	2			29								31
2008			500	6								506
2009				366						8		374
2010	7			6		573		16				602
2011				4		514		53	325			896
2012						707	485	165	311		45	1713
2013	59			10		529		70	130	2	584	1384
2014	2637	3244	5585	337	526	749		280	79	17	514	13968
2015	2775	3181	6957	335		1087		143		17	220	14715
2016	1755	2132	6955	461	292	707		196		4		12502
Total	9845	8557	19997	1554	818	4866	485	923	845	48	1363	49301

Table 8. The number of Red Snapper ages newly submitted for SEDAR52 by year and mode and gear (see Table 11 for code definitions).

Year	CM HL	CM LL	CM SP	CM VLL	CM UNK	CP HL	CP Other	HB HL	PR HL	PR SP	SS HL	SS LL	SS TRW	SS VLL	SS TR	TRN HL	UNK	Total
1986								547										547
1987								152										152
1988								361										361
1989								97										97
1990								38										38
1991																		
1992																	1	1
1993																		
1994						1												1
1995																		
1996																		
1997																		
1998									1									1
1999	12																	12
2000	1																	1
2001																		
2002						683			21									704
2003																		
2004												1						1
2005								1			689							690
2006								1								3		4
2007											20	6		3	2			31
2008	306					97			97						6			506
2009											190		28		148		8	374
2010											6	23		573				602
2011											3	378	1	514				896
2012												476		752		485		1713
2013		59									5	200		1113	7			1384
2014	3431	1220	53	8	129	1158		4237	781	4	341	488	145	1759	214			13968
2015	4138	1040	54	9	313	2425		3558	1012	10	117	387	56	1340	256			14715
2016	4679	950	60		498	1672	14	1057	1413	28	459	425	30	1080	136		1	12502
Total	12567	3269	167	17	940	6036	14	10049	3325	42	1830	2384	260	7134	769	488	10	49301

Table 9. The number of Red Snapper ages newly submitted for SEDAR52 by year and sampling program (see Table 11 for code definitions).

Year	TIP	RECFIN	HB	DISL/USA	MSLAB	FWRI-FIM	TAMUCC	USF	FWRI-OBS	PCLAB	SEAMAP	MRFSS	LDWF	GRFS	GOP	UF	Total
1986			547														547
1987			152														152
1988			361														361
1989			97														97
1990			38														38
1991																	
1992	1																1
1993																	
1994	1																1
1995																	
1996																	
1997																	
1998												1					1
1999	12																12
2000	1																1
2001																	
2002		430										274					704
2003																	
2004					1												1
2005			1		689												690
2006	3		1														4
2007						29				2							31
2008		500				6											506
2009						366							8				374
2010				589	7	6											602
2011				567		4		325									896
2012				872			45	311					485				1713
2013				599		10	584	130							59	2	1384
2014	4683	1897	3696	1029	367	337	514	79	593	192	526				38	17	13968
2015	5031	3284	3245	1230	276	335	220		534	391				77	75	17	14715
2016	5387	3101	942	903	334	461			285	344	292			303	146	4	12502
Total	15119	9212	9080	5789	1674	1554	1363	845	1412	929	818	275	493	380	318	40	49301

Table 10. The number of Red Snapper ages newly submitted for SEDAR52 by year and state.

Year	FL	AL	MS	LA	TX	UNK	Total
1986	3	1			350	193	547
1987				4	145	3	152
1988	1				354	6	361
1989	1				82	14	97
1990				13	23	2	38
1991							
1992	1						1
1993							
1994	1						1
1995							
1996							
1997							
1998				1			1
1999	12						12
2000	1						1
2001							
2002	704						704
2003							
2004	1						1
2005	34	37	180	438	1		690
2006	3				1		4
2007	31						31
2008	6				500		506
2009	366			8			374
2010	13	589					602
2011	329	567					896
2012	311	1001	5	343	45	8	1713
2013	201	599			584		1384
2014	7692	1722	119	1943	2462	30	13968
2015	8156	1868	534	2108	2049		14715
2016	6622	1354	410	2232	1884		12502
Total	24489	7738	1248	7090	8480	256	49301

Table 11. SEDAR Best Practices standardized data template, fields and definitions: Red Snapper 2017 SEDAR52. Key Updated September 16, 2017

Field	Data Provided	Definitions and Codes
Unique_Record_Num	Yes	S52_RS_000000; Unique number per record (1 – XXXXXX)
SEDAR#	Yes	Year and SEDAR number: 2017SEDAR52 If data provided in previous SEDAR (only for NMFS PC and FWRI-FIM records): 2004SEDAR07; 2009SEDAR7update; 2012SEDAR31; 2014SEDAR31Update; 2017SEDAR52
SEDAR_Date_Submit	Yes	Month, Day, and Year data submitted for SEDAR
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 = 45; based on the reported NMFS_Statistical_Grid) – Blank records (n = 268; NMFS_PC_AGR only, specific to records reported as landed in FL, Monroe County without any other capture information, SRHS 1986 records without Headboat Areas, MSLAB SS without latitudes/longitudes
Data_Provider	Yes	Name of Source providing the dataset to SEDAR 1. NMFS Panama City–AGR* 2. NMFS Panama City–BSD* 3. GulfFIN (Gulf States Marine Fisheries Commission, Fisheries Information Network)* 4. FWRI- Fisheries Independent Monitoring* 5. LDWF_SEAMAP - Louisiana Department of Wildlife and Fisheries and Gulf States SEAMAP* 6. AMRD – Alabama Marine Resources Division 7. LDWF_Lang – Louisiana Department of Wildlife and Fisheries, Lang (tournament sampled) 8. DISL/USA – University of South Alabama/Dauphin Island Sea Laboratory, Powers&Drymon 9. USF – University of South Florida, Murawski 10. UF – University of Florida, Murie 11. TAMUCC - Texas A&M Corpus Christi, Streith&Stunz *These data providers submitted data during previous SEDARs (7, 7update, 31, 31update)
Species	Yes	*Lutjanus campechanus*
Fishing_Mode	Yes	Vessel type listed for fishery-dependent and fishery-independent samples identified to the trip level CM – Commercial CP or CB – Charter boat Party HB – head boat PR – private vessel SS – scientific survey TRN – tournament UNK – unknown or is blank
Fishery	Yes	REC - Recreational COM - Commercial FI - Fishery-Independent UNK - Unknown or is blank
Source	Yes	Program that collected a sample Alliance - expanded vertical line survey from NMFS Pascagoula, MS

Field	Data Provided	Definitions and Codes
		CO-OP - Cooperative Research Proposal DISL/USA – University of South Alabama/Dauphin Island Sea Laboratory 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 – NMFS, Galveston Observer Program GRFS – FWRI, Gulf Reef Fish Survey HB – Southeast Region Headboat Survey LADWF – Louisiana Department of Wildlife and Fisheries MRFSS - Marine Recreational Fisheries Statistical Survey MSLAB -NMFS Pascagoula, MS PCLAB - NMFS Panama City, FL RECFIN - Recreational Fisheries Information Network SBLOP - NMFS, Shark Bottom Longline Observer Program SEAMAP - Southeast Area Monitoring and Assessment Program (LDWF_SEAMAP data provider only) TAMUCC – Texas A&M Corpus Christi TIP – NMFS, Trip Interview Program UF – University of Florida, Murie USF – University of South Florida, Murawski USGS – U.S. Geological Survey UNK - Unknown
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 UNK - Unknown
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 TIP, MRFSS, RECFIN data
Gear_Group_Code	Yes	Collapsed grouping of the Gear Code (ex: HL, LL, etc.) HL - Hand-Line LL - Long-Line SP – Spear TR - Trap TRW – Trawl SN – Seine Net VLL - Vertical Longline UNK – 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 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 Habitat (see TAMUCC data)
Smallest_Length_Unit	Yes	Record smallest length unit used in measurement (mm, cm)
Observed_Maximum_TL_mm	Yes	Measured maximum total length (tail pinched), n = 17797
Observed_Natural_TL_mm	Yes	Measured natural total length (tail not pinched), n = 52870
Observed_FL_mm	Yes	Measured fork length, n = 192973
Observed_SL_mm	Yes	Measured standard length, n =14627
Predicted_Maximum_TL_mm	Yes	This is the designated length for 2017SEDAR52 Converted (n = 199406) from other lengths, regressions: Pred_Max_TL = Natural _TL *1.022 + 0.1325 Pred Max_TL = FL * 1.079
Predicted_Natural_TL_mm	No	
Predicted_FL_mm	Yes	Converted (n = 24230) from other lengths, regressions: Pred FL = Natural _TL *0.9339 – 3.8272 Pred FL = Maximum_TL * 0.9249 + 0.8787 see file: RS_reproduce_conversions_S31_data.xlsx
Predicted_SL_mm	No	
Final_MaxTL_mm	Yes	This is the designated length for 2017SEDAR52 Observed_Max_TL, n = 17797; Predicted_Max_TL, n =199406
Final_FL_mm	Yes	Observed_FL, n = 192973; Predicted_FL, n = 24230
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 HARD ROUND (WHOLE) UNGRADED UNKNOWN
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

Field	Data Provided	Definitions and Codes
		in another data set. FWRI-FIM, USF, TAMUCC, LDWF_SEAMAP, DISL/USA No – these records only in data providers dataset NMFS Panama City: Yes – Sources: TIP, HB, FWRI, MRFSS, RECFIN (1999-2002), CO-OP (exception: W.Ward reported in TIP, see collection comments) No – Sources: Alliance, CO-OP (see above comment), EASA, GOP, LADWF, MSLAB, PCLAB, SBLOP, USGS GulfFIN Yes – Sources: HB, MRFSS, TIP No – Sources – FIN_OBS, FWRI_OBS, GRFS, RECFIN LDWF_Lang Yes_UF: 19 records also provided in UF AMRD Yes_DISL/USA – 339 records also provided by DISL/USA UF Yes_aged_NMFS_PC: 312 records also provided by NMFS_PC_AGR Yes_aged_LDWF_Lang: 19 records also provided by LDWF_Lang
#_of_Annuli	Yes	Reader(s) consensus of annuli count
Edge_Type	Yes	Reader(s) consensus of edge type FWRI-FIM, GulfFIN, DISL/USA, AMRD, LDWF_Lang, UF, LDWF_SEAMAP, TAMUCC, USF (2014) 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 NMFS Panama City (AGR and BSD), USF (2011-2014 Codes Description 2_PC opaque zone complete 4_PC translucent zone forming to ½ complete 6_PC translucent zone ½ to fully complete NMFS Panama City (AGR: only in 1991, 1992, 1998, 2001), LSU Codes Description 1_RS opaque zone on edge to roughly 1/3 complete 2_RS opaque zone on edge roughly 1/3 to 2/3 complete 3_RS opaque zone on edge roughly 2/3 to entirely complete 4_RS translucent zone initial forming to 1/3 complete 5_RS translucent zone from 1/3 to 2/3 complete 6_RS translucent zone from 2/3 to entirely complete
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

Field	Data Provided	Definitions and Codes
		advanced based on the degree of completion of the translucent zone. Edge Types: 2_PC, 4_PC, 6_PC If capture data < July 1 and Edge = 6_PC, Calendar_Age = # of annuli +1 Edge Types: 1, 2, 3, 4 If capture data < July 1 and Edge = 3 and 4, Calendar_Age = # of annuli +1 Edge Types: 1_RS, 2_RS, 3_RS, 4_RS, 5_RS, 6_RS If capture data < July 1 and Edge = 6_RS, Calendar_Age = # of annuli +1 Else # of Annuli = Calendar_Age
Fractional_Age	Yes	Fractional age assigned to an individual fish based on the fraction of a year calculated between date of birth and collection date. Date of Birth (DOB) = peak spawning month (7), peak spawning day (1), Year-Calendar_Age If Collection Date < DOB, then Fractional Age = Calendar_Age-(Collection Date – DOB/365.25), else Calendar_Age + (Collection Date - DOB/365.25)
Sub_Sampled	Yes	Specific to data provider: NMFS Panama City-AGR and NMFS Panama City-BSD, only pertains to Commercial records Sub-sampling based on the proportion of commercial landings by year, gear, and NMFS statistical grid
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 U – unknown
Histo_Sex	Yes	Sex assigned after histology reading of gonad tissue: F - female M - male
Secondary_Sex	No	Does not apply to gonochoristic species
Repro_Phase	Yes	Reference document (Brown-Peterson 2011); see table in Lowerre-Barbieri et al. 2015.
Macro_Maturity	Yes	Maturity based on macroscopic reading of reproductive tissue; Mature or Immature based on appearance of yolked (VTG) oocytes.
Histo_Maturity	Yes	Maturity based on histology reading; Mature or Immature based on CA + VTG oocytes or based only on VTG.
Spawner	Yes	Yes: refers only to mature fish with spawning markers; leave blank if immature fish
Batch_Fecundity_Estimate	Yes	# of oocytes in a batch for an individual specimen

Field	Data Provided	Definitions and Codes
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 not in SEDAR Template		
Samples	Yes	Biological Sample Type: NMFS Panama City – BSD 1 – otolith NMFS Panama City – AGR, USF O = Otolith G = Gonad S = Spine F = Fin FWRI – Fisheries Independent Monitoring 1 = Otolith, section 2 = Spine
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
DISL_#_Annuli_2	Yes	Specific to data provider: DISL/USA 2nd Reader # of Annuli, most likely from AMRD
DISL_Edge_Type_2	Yes	Specific to data provider: DISL/USA 2nd Reader edge type, most likely from AMRD 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
TAMUCC_Habitat	Yes	Specific to data provider: TAMUCC Habitat from which fish was sampled from. Artificial = decommissioned platform artificial reef; Standing = standing oil/gas platform; Natural = natural bank
FWRI_Project	Yes	Specific to data provider: FWRI_FIM and GulfFIN FWRI_FIM (correspond to RS data file) BF Offshore GOM, Baitfish Trawling CA Offshore GOM, CRP - FIM vs FDM DX Offshore GOM. DACS Hook & Line Sampling NA NFW Artificial Reef Monitoring SM Offshore GOM, SEAMap Trawling WA Offshore GOM, Middle Grounds Sampling WC Offshore GOM, CRP - Hooked Gear Sampling WE Offshore GOM, Elbow Sampling WM Offshore GOM, West Florida Shelf Monitoring ZZ Offshore Gear Testing in 2006 & 2007 GulfFIN

Field	Data Provided	Definitions and Codes
		FIN-OBS FIN-BIOS FWRI-OBS GRFS HB 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 NS RANDOM INTERCEPT TARGETED BIOLOGICAL 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 Unknown or NA
UF_Samples_Provided_By	Yes	Specific to data provider: UF Defined as the facility that provided samples to UF Kulaw (2012) NMFS_PC LDWF UF
UF_Source_Fecundity_Estimate	Yes	Specific to data provider: UF Kulaw (2012) NMFS_PC (also indicated as NOAA_PC, PCLAB) Univ_Florida
UF_Fecundity_Estimate	Yes	Specific to data provider: UF D_Flawd D_Murie Kulaw (2012)

Appendix. Metadata for each data provider.

Data Provider: NMFS Panama City – AGR

Year(s) collected	1980-2016
Species	*Lutjanus campechanus*
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	n = 95917, otoliths
# samples aged	n = 77308; sub-sampled 1998-2010
Age assignment	Ages were assigned based on the count of annuli, the degree of marginal edge completion, and the capture date
Reader agreement	Based on reference set (n=200), APE = 3.22%
# of reproductive tissues	15,301
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 file	1980-2016_RS_AGR_SEDAR52_revised_09082017.xlsx

Data Provider: NMFS Panama City – BSD

Year(s) collected	2011-2016
Species	*Lutjanus campechanus*
Describe sampling	Data from Trip Interview Program dockside sampling
Type of data	Age, length
Spatial coverage	Gulf of Mexico
# and type age structures	n = 19,991; otoliths
# samples aged	n = 19,521; sub-sampled 2011-2016
Age assignment	Ages were assigned based on the count of annuli, the degree of marginal edge completion, and the capture date
Reader agreement	Based on reference set (n=200), APE = 3.22%
# of reproductive tissues	NA
Reproductive staging assignment	NA
Funding source	NOAA/SEFSC
Contact person	Linda Lombardi, Linda.Lombardi@noaa.gov
Data file	2011-2016_RS_BSD_SEDAR52_revised.xlsx

Data Provider: GulfFIN

Field	Field Description
Year(s) collected	2003-2016
Species	*Lutjanus campechanus*
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	n = 84,982; otoliths
# samples aged	n = 82,326
Age assignment	Ages were assigned based on the count of annuli, the degree of marginal edge completion, and the capture date
Reader agreement	Reference set (n = 200). FL, APE = 1.58%; AL, APE= 2.24%; MS, APE = 6.11%; LA, APE = 1.62%; TX, APE = 5.90%; overall APE, n = 6.34%
# of reproductive tissues	Not applicable
Reproductive staging assignment	Not applicable
Funding source	Multiple
Contact person	Gregg Bray, 228-875-5912, gbray@gsmfc.org
Data file	Red_snapper_2017_age_REVISED_08292017_LLedits.xlsx

Data Provider: FWRI-FIM

Year(s) collected	2006-2016
Species	*Lutjanus campechanus*
Describe sampling	Fishery independent surveys Project Code and Description BF Offshore GOM, Baitfish Trawling CA Offshore GOM, CRP - FIM vs FDM DX Offshore GOM. DACS Hook & Line Sampling NA NFW Artifical Reef Monitoring SM Offshore GOM, SEAMap Trawling WA Offshore GOM, Middle Grounds Sampling WC Offshore GOM, CRP - Hooked Gear Sampling WE Offshore GOM, Elbow Sampling WM Offshore GOM, West Florida Shelf Monitoring ZZ Offshore Gear Testing in 2006 & 2007
Type of data	Age, lengths, Macro Sex ID
Spatial coverage	Gulf of Mexico
# and type age structures	n = 3676; otoliths and spines
# samples aged	n = 3614
Age assignment	Ages were assigned based on the count of annuli, the degree of marginal edge completion, and the capture date
Reader agreement	Reference set (n = 200), APE = 1.58%
# of reproductive tissues	Not applicable
Reproductive staging assignment	Not applicable
Funding source	Multiple
Contact person	Tim MacDonald, tim.macdonald@myfwc.com
File Name	FWRI-FIM_Lcamp_deliverable_20170714_edited07292017.xlsx

Data Provider: LDWF-SEAMAP

Year(s) collected	2011-2016
Species	*Lutjanus campechanus*
Describe sampling	Fishery independent vertical longline survey (SEAMAP)
Type of data	Age, lengths, Macro Sex ID
Spatial coverage	Gulf of Mexico
# and type age structures	n = 2939; otoliths
# samples aged	n = 2939
Age assignment	Ages were assigned based on the count of annuli, the degree of marginal edge completion, and the capture date
Reader agreement	Reference set (n = 200), APE = 1.62%
# of reproductive tissues	Not applicable
Reproductive staging assignment	Not applicable
Funding source	
Contact person	Jeff Rester (GSMFC, jrester@gsmfc.org), Nicole Smith (LDWF, nsmith@wlf.la.gov)
File Name	LDWF_SEAMAP_August152017.xlsx

Data Provider: AMRD

Years collected	VL 2010 -2016, BLL 2015-2016
Species	*Lutjanus campechanus*
Describe sampling	Stratified random, fishery independent
Type of data	Age data
Spatial coverage	Continental shelf off of Alabama, N30.16 W88.38, N30.25 W87.51, N29.43 W87.51, N29.19 W88.32
# and type age structures	5,269, otoliths
# samples aged	5,204 (339 duplicates, ages also provided by DISL/USA)
Age assignment	GSMFC protocols; Edge type: 1,2,3,4. One year aded to annuli count if edge 3 or 4 and date < July 1.
Reader agreement	VL APE ~ 0.0214, BLL APE~ 0.0444 between DISL and AMRD
# of reproductive tissues	N/A
Reproductive staging assignment	N/A
Funding source	NOAA/ SEAMAP and NFWF
Contact Person	John Mareska, 251-861-2882, john.mareska@dcnr.alabama.gov
File Name	Red Snapper_BLL_VL_ages_SEDAR52_edited07312017.xlsx

Data Provider: LDWF-Lang

Year(s) collected	2012
Species	*Lutjanus campechanus*
Describe sampling	Haphazard; collecting fish as they hit the dock in various 2012 fishing tournaments from Port Fourchon, LA to Dauphin Island, AL
Type of data	Age and Batch Fecundity
Spatial coverage	Port Fourchon to Dauphin Island
# and type age structures	509 Otoliths
# samples aged	509, (19 duplicates, also provided by UF)
Age assignment	All fish were caught after July, ring count = annual age
Reader agreement	Indices of precision, age bias plots provided
# of reproductive tissues	51 batch fecundity samples
Reproductive staging assignment	only batch fecundity information is provided, fecundity was estimated gravimetrically with three samples from randomly chosen regions of the ovary, fecundity was determined from scans
Funding source	All funding provided by LDWF
Contact person	Erik T. Lang, elang@wlf.la.gov, 225-765-3975 x1793
File Name	Panama City Data Request_edited07292017.xlsx

Data Provider: DISL/USA

Year(s) collected	2010 - 2016
Species	*Lutjanus campechanus*
Describe sampling	DISL Fisheries Ecology Lab Fishery Independent Bottom Longline survey at randomized grids in the Alabama Artificial Reef Zone
Type of data	Length, weight, age
Spatial coverage	Primarily inside the Alabama Artificial Reef Zone, as well as outside the AARZ to the west; see map
# and type age structures	Otolith; n = 923
# samples aged	923
Age assignment	Calendar Age: if Month & Day < July 1 and Edge Type = 3 or 4, then Calendar_Age = #_of_Annuli + 1; otherwise, Calendar_Age = #_of_Annuli; Fractional Age: if Month and Day < peak spawning date (July 1), then Fractional_Age = Calendar_Age – Fraction Year; otherwise, Fractional_Age = Calendar_Age + Fraction Year Calendar Age is based on a consensus age, in cases where Reader1 and Reader2 disagree.
Reader agreement	APE calculated; average APE = 1.00%; also see age bias plot
# of reproductive tissues	n = 912; macroscopically
Reproductive staging assignment	No reproductive staging completed
Funding source	See SEAMAP cruise reports, 2010 - 2016
Contact person	Dr. Sean Powers and Dr. J. Marcus Drymon; (251) 861-2141; spowers@disl.org; mdrymon@disl.org
File Name	RSN_BL_AgeData_FINAL_edited07292017.xlsx

Data Provider: USF

Years collected	2011-2016 (ages only for 2011-2014)
Species	*Lutjanus campechanus*
Describe sampling	fishery independent, demersal long line
Type of data	length, weight, age
Spatial range	Northern Gulf of Mexico, Southern Gulf of Mexico
Type of age structures	otoliths
# samples aged	845 were aged, 412 have not yet been
Age assignment	Birthdate was assumed Jan 1, if captured before Jun 30th edge codes of 6 resulted in rounding of calendar age. 2,4,6 edge code scheme was applied to samples 2011-2013, 1,2,3,4 were applied to 2014
Reader agreement	Reader agreement was calculated for ages from captures years 2011-2013. APE=1.74%±0.001 SE and Coefficient of Variation CV was 2.47%± 0.002 SE.
# of reproductive tissues	None
Reproductive stating assignment	NA
Funding source	NOAA NMFS Grant NA11NMF4720151- Systematic Survey of Finfish Diseases in the Gulf of Mexico
Contact Person	Steve Murawski, smurawski@usf.edu, Elizabeth Herdter, eherdter@mail.usf.edu
File Name	Age_Data_USF_Murawski_Herdter_edited07292017.xlsx

Data Provider: UF

Year(s) collected	1991-1994, 1998-2002, 2007-2016 (Red Snapper collected in 2013-2016 from LA and FL and fecundity estimated by UF; Red snapper collected in 2007-2013 by non-UF agencies but fecundity estimated by UF)
Species	*Lutjanus campechanus*
Describe sampling	Data from various fishery dependent sampling programs and fishery independent survey
Type of data	Age and reproduction
Spatial coverage	Gulf of Mexico, FL and LA waters
# and type age structures	n = 382, Otoliths
# samples aged	N = 287 (219 duplicates, ages also provided by NMFS PC- AGR, 20 duplicates, ages also provide by LDWF-Lang)
Age assignment	Ages were assigned based on the count of annuli, the degree of marginal edge completion, and the capture date
Reader agreement	
# of reproductive tissues	n = 382, histologically (219 duplicates, record also provided by NMFS PC- AGR, 20 duplicates, ages also provide by LDWF-Lang)
Reproductive staging assignment	Reproductive stage according to Brown-Peterson et al.; batch fecundity was estimated only for hydrated females with no POFs; fecundity estimates followed PC-Lab methods.
Funding source	
Contact person	Debra Murie, dmurie@ufl.edu
File Name	UF_MURIE_RED-SNAPPER_3-AUG-2017.xlsx

Data Provider: TAMUCC

Years collected	2012-2015
Species	*Lutjanus campechanus*
Describe sampling	Systematic, fishery-independent survey using VLL following SEAMAP specifications. Effort directed at 9 sites representing 3 habitats (3 sites/habitat type; habitats were decommissioned platform artificial reefs [artificial], standing platforms [standing], and natural banks [natural].
Type of data	Length, Age, Sex, Gonad weight
Spatial coverage	Artificial and natural reef habitats off the south Texas coast in federal waters (Port Aransas); map included in attached DW reference report (Streich et al. 2017)
# and type age structures	1627 fish; Sagittal otoliths
# samples aged	1363 of 1627 fish were aged. For 2015 fish, only females were aged.
Age assignment	Calendar and fractional ages determined following methods of Allman et al. (2002, 2005), Vanderkooy (2009), and Wilson and Nieland (2001).
Reader agreement	Reader agreement calculated for 2012-2014 ages. First read APE and ACV were 1.86% and 2.63 respectively. Second read APE and ACV were 0.8% and 1.12 respectively. Complete agreement achieved with final joint reading.
# of reproductive tissues	If possible, all fish were sexed macroscopically.
Reproductive staging assignment	Not applicable
Funding source	Texas Parks and Wildlife Department Artificial Reef Program contracts 415254, 439195, and 474362. MARFIN # NA14NMF4330219. Resulting manuscript covering 2012-2014 fish only attached as DW reference report (Streich et al. 2017). MARFIN final report also attached. See SEDAR52-RD-02, SEDAR52-RD-04
Contact person	Greg Stunz; 361-825-3254; greg.stunz@tamucc.edu or Matt Streich; 361-825-4126; matthew.streich@tamucc.edu
File Name	Streich&Stunz_SEDAR52Data.xlsx