



NOAA
FISHERIES
SERO

SBRM 5-Year Review

January 2022 Gulf SSC Meeting
January 10-11, 2022

Standardized Bycatch Reporting Methodology

What are SBRMs?

- Definition of a Standardized Bycatch Review Methodology (SBRM)
 - An established, consistent procedure or procedures used to collect, record, and report bycatch data in a fishery
- Purpose of SBRM
 - Collect, record, and report bycatch data that, in conjunction with other information, are used to assess the amount and type of bycatch.

The Council has SBRMs for each FMP

What is bycatch?

- According to the Magnuson-Steven Act:
 - The term "bycatch" means fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards.
 - Does not include fish released alive *under a recreational catch and release fishery management program*.
 - The term "fish" includes turtles but does not include marine mammals or seabirds.
- Bycatch does not include incidental catch. Incidental catch are non-targeted species that are kept/landed while fishing for other species.
- Therefore, ***bycatch is composed of discarded species.***

The purpose of this presentation is to:

- Inform the SSC of the requirement to review SBRMs
 - Outline what should be in a SBRM review
 - Discuss specific fisheries and SBRMs
 - Discuss progress and timing of review
 - Assess the adequacy of current SBRMs in each fishery.
 - For each fishery:
 - Are SBRMs adequate to assess the scope of bycatch (based on the four criteria)?
- Or:**
- Do current SBRM require changes/amendments?

Councils must review SBRMs by February 21, 2022 (and review once every 5 years)

- (1) Characteristics of bycatch occurring in the fishery
- (2) Feasibility of the methodology from cost, technical and operational perspectives,
- (3) Uncertainty of the data resulting from the methodology, and
- (4) How the data resulting from the methodology are used to assess the amount and type of bycatch occurring in the fishery.

What questions do we want the SSC to answer?

- **For each FMP:**
 - Is the bycatch reporting methodology feasible from cost, technical and operational perspectives?
 - Can the uncertainty associated with bycatch data be described, quantitatively or qualitatively?
 - Are the data resulting from an SBRM adequate to assess the amount and type of bycatch occurring in the fishery?
 - Are the data we collect useful in management of these FMPs?

Gulf Council Managed FMPs

- Reef Fish
- Shrimp
- Coastal Migratory Pelagics (Joint with SA)
- Spiny Lobster (Joint with SA)
- Red Drum (No allowable harvest in federal waters; bycatch does occur in federal waters)
- Coral- (No allowable harvest)

Reef Fish FMP



- **31 Species In Gulf**
- **837 Federally Permitted Commercial Vessels (NMFS 2020)**
- **1289 Federally Permitted For-Hire Vessels (NMFS 2020)**
- **Primary Gears: Longline, Vertical Line, Modified Buoy Gear**

Reef Fish FMP- Review Criteria #1

Characteristics of Bycatch

- Bycatch Reporting Methodology
 - Commercial Vessels
 - **Logbooks:** Required for all vessels, must include quantity (lb) of all species, area caught, gear, etc.
 - **Supplementary Discard Data Program:** If selected, must report number and average size of fish being discarded by species and reasons for discards (rolling 20% of permitted fishermen/year; each vessel/5yrs).
 - **Reef Fish Observer Program:** Observers report all catch, including protected resources (~2% of annual trips)
 - **Shark Longline Observer Program:** Observers record all catch, including protected resources (**Not technically a reef fish SBRM, but provides important bycatch data**)

Reef Fish FMP- Characteristics of Bycatch (Cont.)

- **For-Hire Vessels**

- **MRIP APAIS/CHTS/FES:** Estimates catch rates and effort for captured species.
- **Southeast Regional Headboat Survey:** Does not collect information on Discards.
- **Southeast For-Hire Electronic Reporting Program** (Implemented in 2021): Mandatory electronic reporting of all catch and effort data (including all discards) for all permitted Gulf and South Atlantic for-hire trips.

- **Private Recreational Vessels**

- **MRFSS/MRIP CHTS or FES:** Estimates of catch and effort for captured species.

- **Amount and Type of Bycatch:**

- Summarized in subsequent slides. However, the numbers are less important than whether our SBRMs are adequate to accurately estimate bycatch.

Reef Fish FMP- Characteristics of Bycatch (Cont.)

Amount and type of bycatch (Commercial)

- Top ten species by gear type on commercial trips that land reef fish

VERTICAL LINE		LONGLINE		All	
Stock	# Mean discards / year	Stock	# Mean discards / year	Stock	Reason for Discard
Red Snapper	25,667	Red Grouper	30,835	Red Grouper	Not legal size (98%)
Red Grouper	12,016	Red Snapper	14,420	Red Snapper	Other Regs (63%)
Gray Triggerfish	9,522	Blueline Tilefish	545	Gray Trigger	Other Regs (55%)
Vermilion Snapper	8,145	Gag	241	Vermillion Snapper	Size (96%)
Gag	1,628	Yellowedge Grouper	76	Gag	Size (97%)
Yellowtail Snapper	546	Gray Triggerfish	67	Yellowtail Snapper	Size (97%)
Greater Amberjack	507	Greater Amberjack	64	Blueline Tilefish	Market (56%)
Lane Snapper	275	Lane Snapper	53	Greater AJ	Out of Season (45%)
Gray Snapper	227	Gray Snapper	52	Lane Snapper	Size (83%)
Scamp	216	Scamp	41	Gray Snapper	Size (93%)

Source: SEFSC Discard Logbook (accessed May 2021).

Reef Fish FMP- Characteristics of Bycatch (Cont.)

Amount and type of bycatch (Recreational)

Species	Headboat			Charter			Private		
	Landings (1000s)	Discards (1000s)	Ratio (D:L)	Landings (1000s)	Discards (1000s)	Ratio (D:L)	Landings (1000s)	Discards (1000s)	Ratio (D:L)
Gag	2.9	19	629%	21	110	528%	245	2,189	893%
Gray Snapper	35	4.5	13%	268	282	105%	3,329	14,263	428%
Gray Triggerfish	66	101	1536%	30	339	1139%	114	1,899	1658%
Greater Amberjack	1.7	5.2	314%	25	54	216%	60	292	490%
Hogfish	1.8	1.2	67%	11	6.1	53%	191	63	33%
Lane Snapper	80	9	11%	128	61	48%	766	1,194	156%
Mutton Snapper	.6	.03	5%	16	12	77%	74	261	354%
Red Grouper	3.9	64	1631%	60	283	470%	307	2,400	782%
Red Snapper	115	106	92%	280	489	174%	1,900	5,988	315%
Vermilion Snapper	438	35	8%	591	59	10%	1,052	498	47%
Yellowtail Snapper	6.5	1.5	24%	238	105	44%	555	1281	231%

Sources: SEFSC Recreational MRIP-FES ACL Dataset (September 2020), SEFSC Headboat Logbook CRNF files (expanded; July 2020).

Note: Discards from Louisiana (2015-2018) and Texas are not included in charter and private modes.



Importance of Bycatch in Estimating Fishing Mortality / Effect of Bycatch on Ecosystems

- Discard mortality estimates are species dependent, variable, and highly uncertain.
- discard mortality correlated with:
 - increased depths,
 - seasons associated with warmer water temperatures,
 - bottom longline gear, and
 - external evidence of barotrauma (Pulver, 2017).
- Discard mortality is accounted for in stock assessments. The accuracy of bycatch estimates are fundamental to appropriate management.
- If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to an unsustainable level.

Reef Fish FMP- Review Criteria #2

Feasibility of the methodology from cost, technical and operational perspectives

- **Are these SBRMs feasible from a cost, operational, and technical standpoint?**
 - **Commercial SBRMs:**
 - Logbooks – Long-term program, appears feasible. Modernization possible.
 - Supplementary Discard Data Program – Long term program, appears feasible. Data Utility questionable?
 - Reef Fish Observer Program – Feasible provided funding continues.
 - Shark Longline Observer Program- Ancillary data, not an SBRM
 - **Recreational SBRMs:**
 - For-Hire
 - MRIP – Long-term program, appears feasible
 - SEFHIER – New program, infrastructure in place, appears feasible and funding appears stable
 - Private
 - MRFSS/MRIP/APAIS/FES – Long-term program, appears feasible

Reef Fish FMP- Review Criteria #3

Uncertainty of the data resulting from the methodology

Is level of uncertainty understood/acceptable given obstacles (financial, legal, etc.)?

- **Commercial SBRMs:**
 - **Logbooks:** High Uncertainty with discard CVs often exceeding 100%. Rare species may not be identified before discard. Protected species potentially not reported.
 - **Supplementary Discard Data Program:** Non-reporting is an issue. Vessels may check “no discards” box on form and still be in compliance (50%+ of trips).
 - **Reef Fish Observer Program:** At ~ 2% coverage, less accurate in estimating capture of rare species. RFOP indicates that self-reported discard rates are consistently lower than observer reported rates.
 - **Shark Longline Observer Program:** Ancillary data on reef fish discards in this fishery.
- **Recreational SBRMs:**
 - **For-Hire**
 - **MRIP (APAIS/CHTS/FES):** Self reported by fishermen, includes dockside surveys.
 - **SRHS:** Dockside sampling, discard reporting. Provides a measure to estimate accuracy of self-reported headboat landings.
 - **SEFHIER:** Data forthcoming, but expected to improve data on for-hire vessels in Gulf. Data collected on all discards (including sea turtles, ESA listed fish)
 - **Private**
 - **MRFSS/MRIP:** Self-reported from Rec fishermen, including dockside surveys.
 - **LA Creel/TPWD:** Estimates of landed fish, but bycatch not reported

Reef Fish FMP- Review Criteria #4

How the data resulting from the methodology are used to assess the amount and type of bycatch occurring in the fishery

How are we using the SBRM data that is collected in this fishery?

- SEFSC uses these data in stock assessments to incorporate bycatch into estimates of total fishing mortality.
- SSC uses information as they review the status of the fisheries and develop acceptable biological catch recommendations.
- The Councils use SBRM-derived bycatch information to:
 - assess if new management measures are necessary
 - develop measures/evaluate the potential impacts of measures.

All aspects of fishery management in the region that have bycatch implications use data from the SBRM.

Questions?

Discussion on Adequacy of Fishery SBRMs

Shrimp FMP



- Four managed shrimp species (brown, white, pink, rock)
- Currently 1,467 federally permitted vessels in Gulf
- Primary gear: Trawls

Shrimp FMP- Review Criteria #1

Characteristics of Bycatch

- **Bycatch Reporting Methodology-Commercial vessels**
 - **Electronic Logbooks (Including cELB):** Required for all vessels; accurate calculation of vessel effort, CPUE at fishing locations. Must provide size/number of trawls, types of BRDs and TEDs.
 - **Gulf of Mexico Shrimp Observer Program:** Observers report all catch, including protected resources (~2.5% of annual trips; Scott-Denton et al., 2020)
 - **Other Programs (Not SBRMs):**
 - SEFSC cooperates with states to monitor fishing effort
 - NMFS OLE maintains spreadsheet with boarding details
 - Sea Turtle Salvage and Stranding Network: Maintains database of sea turtle strandings in the Gulf. Uses that along with observer data and other data to monitor sea turtle mortalities from fishery interactions.

Shrimp FMP- Characteristics of Bycatch (Cont.)

- Amount and type of bycatch
 - Note that while bycatch will be summarized in the report, the focus of this document is to analyze whether our SBRMs are adequate to accurately estimate bycatch.

	Gulf Penaeid Mandatory Observer Percentage	Gulf Mandatory Rock Shrimp Percentage	Gulf Mandatory Skimmer Percentage
Fish (Unspecified)	31.8	22.0	32.7
Atlantic Croaker	15.7	0.3	10.6
Brown Shrimp	12.6	1.3	32.5
White Shrimp	11.4	0.0	9.6
Arthropod Other	6.2	3.9	4.2
Seatrout	5.4	0.1	1.5
Invertebrates	5.2	7.6	0.6
Pink Shrimp	3.4	1.7	-
Longspine Porgy	3.1	-	-
Rock Shrimp	0.3	35.6	-
Other Important Species			
Red Snapper	0.3	0.0	0.0
Spanish Mackerel	0.2	0.0	0.3
Red Drum	0.2	-	0.0
Lane Snapper	0.2	0.0	0.0

*Protected species bycatch includes 131 sea turtles (73% released alive) and 2 smalltooth sawfish (release condition unknown)

Source: Scott-Denton et al., 2020 (Observer data from 2011-2016)



Importance of Bycatch in Estimating Fishing Mortality / Effect of Bycatch on Ecosystems

- Shrimp trawl gear can affect the abundance of species that are targeted by other fisheries.
- Little is known about the status of finfish and invertebrate species that are present in shrimp trawl bycatch in the greatest numbers, because they aren't generally targeted in any fisheries.

Shrimp FMP- Review Criteria #2

Feasibility of the methodology from cost, technical and operational perspectives

Are the SBRMs implemented and in use feasible from a cost, operational, and technical standpoint?

- **Electronic Logbooks (Including cELB):** Modification currently being discussed by Council, program is expected to be maintained
- **Gulf of Mexico Shrimp Observer Program:** Expected to continue at approximate current coverage level
- **Other Programs:** Expected to continue largely independent of Council
 - SEFSC cooperates with states to monitor fishing effort
 - NMFS OLE boardings
 - Sea Turtle Salvage and Stranding Network

Shrimp FMP- Review Criteria #3

Uncertainty of the data resulting from the methodology

Is the level of uncertainty understood/acceptable given obstacles (financial, legal, etc.)?

- Gulf of Mexico Shrimp Observer Program is best method for estimating discard rates/species
- Generally low CVs (<0.2 associated w/ bycatch species)
- Logbook data:
 - Some biases (inaccurate reporting of bycatch, protected species; low compliance rates)
 - Very useful for effort by area; info on capture of rare species.
- Using observer program (catch/discard rates) combined with logbook data (for effort) is best method overall for estimating bycatch.

Shrimp FMP- Review Criteria #4

How the data resulting from the methodology are used to assess the amount and type of bycatch occurring in the fishery

How are we using the SBRM data that is collected in this fishery?

- SEFSC uses these data in stock assessments to incorporate bycatch into estimates of total fishing mortality.
- SSC uses information as they review the status of the fisheries and develop overfishing limit and acceptable biological catch recommendations.
- The Councils use SBRM-derived bycatch information to:
 - assess if new management measures are necessary
 - develop measures/evaluate the potential impacts of measures.

All aspects of fishery management in the region that have bycatch implications use data from the SBRM.

Questions?

Discussion on Adequacy of Fishery SBRMs

Coastal Migratory Pelagics (CMP) FMP



- Jointly managed with South Atlantic
- King mackerel, Spanish mackerel, cobia
- Primary gear: Trolling, handline, gillnet

CMP FMP- Review Criteria #1

Characteristics of Bycatch

- **Bycatch Reporting Methodology**
 - **Commercial Vessels**
 - **Logbooks:** Required for all vessels, must include quantity (lb) of all species, area caught, gear, etc.
 - **Supplementary Discard Data Program:** If selected, must report number and average size of fish being discarded by species and reasons for discards (rolling 20% of permitted fishermen/year; each vessel/5yrs). Must also report reason.
 - **Southeast Gillnet Observer Program:** Covers all anchored, strike, or drift gillnet fishing, regardless of species, year round in Gulf
 - **Recreational Vessels**
 - **Charter/Headboat:**
 - MRIP (APAIS/CHTS/FES)
 - SRHS
 - SEFHIER (2021)
 - **Private angler:**
 - MRIP
 - LA Creel/TPWD: No bycatch reporting



CMP FMP- Characteristics of Bycatch (Cont.)

- Amount and type of bycatch (Commercial)
 - Characterized by low discards

Gillnet		Handline		Trolling	
American Shad	272	Red Snapper	136	King Mackerel	725
Sharks Unclassified	108	King Mackerel	128	Crevalle Jack	216
Grass Porgy	74	Spanish Mackerel	94	Red Snapper	141
Sea Catfishes	50	Bluefish	80	Sharks Unclassified	97
Bonnethead Shark	29	Gray Triggerfish	76	Little Tunny	64
Grunts Unclassified	29	Yellow Jack	62	Blacktip Shark	60
Ladyfish	26	Crevalle Jack	58	Cobia	44
Weakfish	25	Blue Runner	47	Red Drum	25
Blacktip Shark	15	Bony Fish Unclassified	24	Amberjacks Unclassified	19
Red Grouper	13	Sharks Unclassified	20	Greater Amberjack	15

Source: SEFSC Coastal Logbook (accessed May 2020) and Discard Logbook (accessed May 2020).

CMP FMP- Characteristics of Bycatch (Cont.)

- Amount and type of bycatch (Recreational)**

- Top ten species with discards reported on recreational trips capturing a CMP species, 2015-2019
- Private sector has greatest discards

Rank	HEADBOAT		CHARTER		PRIVATE	
	Species	Discards (N)	Species	Discards (N)	Species	Discards (N)
1	Red Snapper	135,074	Red Snapper	879,641	Spotted Seatrout	10,183,221
2	Gray Triggerfish	102,231	Gray Triggerfish	737,277	Ladyfish	6,469,167
3	Red Grouper	52,792	Spanish Mackerel	399,356	Spanish Mackerel	6,031,247
4	White Grunt	37,405	Red Grouper	354,287	Red Snapper	5,545,785
5	Vermilion Snapper	36,140	Spotted Seatrout	281,654	Gray Snapper	3,165,484
6	Tomtate	26,812	White Grunt	256,977	White Grunt	2,631,791
7	Gag	15,837	Blue Runner	243,670	Hardhead Catfish	2,310,774
8	Black Sea Bass	13,881	Gray Snapper	193,107	Blue Runner	2,034,310
9	Sand Perch	9,956	Hardhead Catfish	190,490	Pinfish	1,982,762
10	Greater Amberjack	8,588	Gag	182,702	Scaled Sardine	1,851,526

Note: Charter and private modes do not include data from LA and TX

Sources: MRIP FES survey data; Headboat data from SEFSC Headboat Logbook CRNF files (expanded; July 2020).



Importance of Bycatch in Estimating Fishing Mortality / Effect of Bycatch on Ecosystems

- Bycatch mortality rates vary from ~5% (cobia) to ~100% (king mackerel gillnet)



Photo Courtesy of NOAA Fisheries

CMP FMP- Review Criteria #2

Feasibility of the methodology from cost, technical and operational perspectives

Are the SBRMs implemented and in use feasible from a cost, operational, and technical standpoint?

- **Commercial**
 - **Logbooks** – Long-term program, appears feasible. Modernization possible.
 - **Supplementary Discard Data Program** – Long term program, appears feasible; Utility Questionable?
 - **Southeast Gillnet Observer Program** – Long term program, appears feasible
- **Recreational**
 - **Charter/Headboat:**
 - **MRIP (APAIS/CHTS/FES)** – Long-term program, appears feasible
 - **SRHS** – Long-term program, appears feasible
 - **SEFHIER (2021)** – New program, infrastructure in place, appears feasible and funding appears stable
 - **Private angler:**
 - **MRFSS/MRIP**– Long-term program, appears feasible



CMP FMP- Review Criteria #3

Uncertainty of the data resulting from the methodology

Is the level of uncertainty understood/acceptable given obstacles (financial, legal, etc.)?

- **Commercial SBRMs:**
 - **Logbooks:** High Uncertainty. Protected species potentially not reported.
 - **Supplementary Discard Data Program:** Non-reporting is an issue. Vessels may check “no discards” box and still be in compliance (50% + CMP trips).
 - **Gillnet Observer Program:** Gives accurate estimates of bycatch for gillnet fisheries.
- **Recreational SBRMs:**
 - **For-Hire**
 - **MRIP (APAIS/CHTS/FES):** Self reported by fishermen, includes dockside surveys.
 - **SRHS:** Dockside sampling, discard reporting. Provides a measure to estimate accuracy of self-reported headboat landings.
 - **SEFHIER:** Data forthcoming, but expected to improve data on for-hire vessels in Gulf. All discards reported.
 - **Private**
 - **MRFSS/MRIP:** From Rec fishermen, including dockside surveys. Self-reported.

CMP FMP- Review Criteria #4

How the data resulting from the methodology are used to assess the amount and type of bycatch occurring in the fishery

How are we using the SBRM data that is collected in this fishery?

- SEFSC uses these data in stock assessments to incorporate bycatch into estimates of total fishing mortality.
- SSC uses information as they review the status of the fisheries and develop acceptable biological catch recommendations.
- The Councils use SBRM-derived bycatch information to:
 - assess if new management measures are necessary
 - develop measures/evaluate the potential impacts of measures.

All aspects of fishery management in the region that have bycatch implications use data from the SBRM.

Questions?

Discussion on Adequacy of Fishery SBRMs

Spiny Lobster FMP



- Jointly managed with South Atlantic
- Primary gear: Traps, diving, hoopnets/bullnets

Spiny Lobster FMP- Review Criteria #1

Characteristics of Bycatch

- **Bycatch Reporting Methodology**
 - **Commercial Fishery**
 - **Logbooks:** Required for all vessels, catch and discards (Monitored by FWC)
 - **Sea Turtle Strandings and Salvage Network** – Database of strandings
 - **Recreational Vessels**
 - FWC monitor bycatch of spiny lobster, low discards
- **Amount and type of bycatch**
 - Low discards (~8-15%)
 - Most of the finfish caught in commercial spiny lobster traps are juveniles that escape within 48 hours
 - “Ghost Fishing”– Discarded, lost, abandoned traps that keep fishing
 - 18% of traps lost annually in years without major storm
 - Traps estimated to fish for one year after loss (637,622 \pm 74,367 dead lobsters/year) (FWC, 2017)
 - After 2 weeks in trap, lobster survivability drops dramatically (Butler et al., 2018) .

Importance of Bycatch in Estimating Fishing Mortality / Effect of Bycatch on Ecosystems

- Mortality of commercially and recreationally important finfish is negligible (Matthews and Donahue 1997).
- Impacts of “ghost fishing” must be included in management decisions.

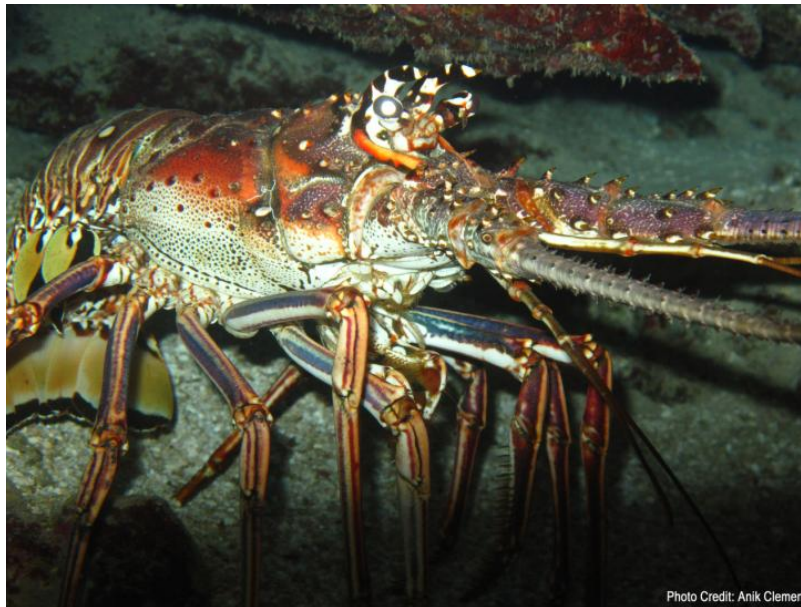


Photo Credit: Anik Clemens

Spiny Lobster FMP- Review Criteria #2

Feasibility of the methodology from cost, technical and operational perspectives

Are the SBRMs implemented and in use feasible from a cost, operational, and technical standpoint.

- **Commercial**
 - Logbooks
- **Recreational**
 - FWC Operates

Spiny Lobster FMP- Review Criteria #3

Uncertainty of the data resulting from the methodology

- The uncertainty of the data resulting from the SBRM has been evaluated through analyses associated with regulatory and FMP amendments implementing the Spiny Lobster FMP. Bycatch levels are low for both sectors.

Spiny Lobster FMP- Review Criteria #4

How the data resulting from the methodology are used to assess the amount and type of bycatch occurring in the fishery

- The Councils use SBRM-derived bycatch information to:
 - assess if new management measures are necessary
 - develop measures/evaluate the potential impacts of measures.

Questions?

Discussion on Adequacy of Fishery SBRMs

Red Drum FMP



Photo Courtesy of Gulf of Mexico Fisheries Management Council

- No active federal fishery in the Gulf of Mexico

Review Criteria #1: Characteristics of Bycatch

- Red drum may not be harvested in or from the Gulf Exclusive Economic Zone (EEZ).
 - Red Drum that are captured in the EEZ must be released immediately with as little harm done to the animal as possible.
- **There is currently no allowable catch and no federal fishery for red drum in the Gulf.**
- Red drum may be captured incidentally in other fisheries (e.g. reef fish), but this bycatch would be captured under the SBRMs in place for that fishery.

- Review Criteria #2 -- Feasibility of the methodology from cost, technical and operational perspectives
 - N/A: No allowable catch in fishery
- Review Criteria #3 -- Uncertainty of the data resulting from the methodology
 - N/A: No allowable catch in fishery
- Review Criteria #4 -- How the data resulting from the methodology are used to assess the amount and type of bycatch occurring in the fishery
 - N/A: No allowable catch in fishery

Questions?

Discussion on Adequacy of Fishery SBRMs

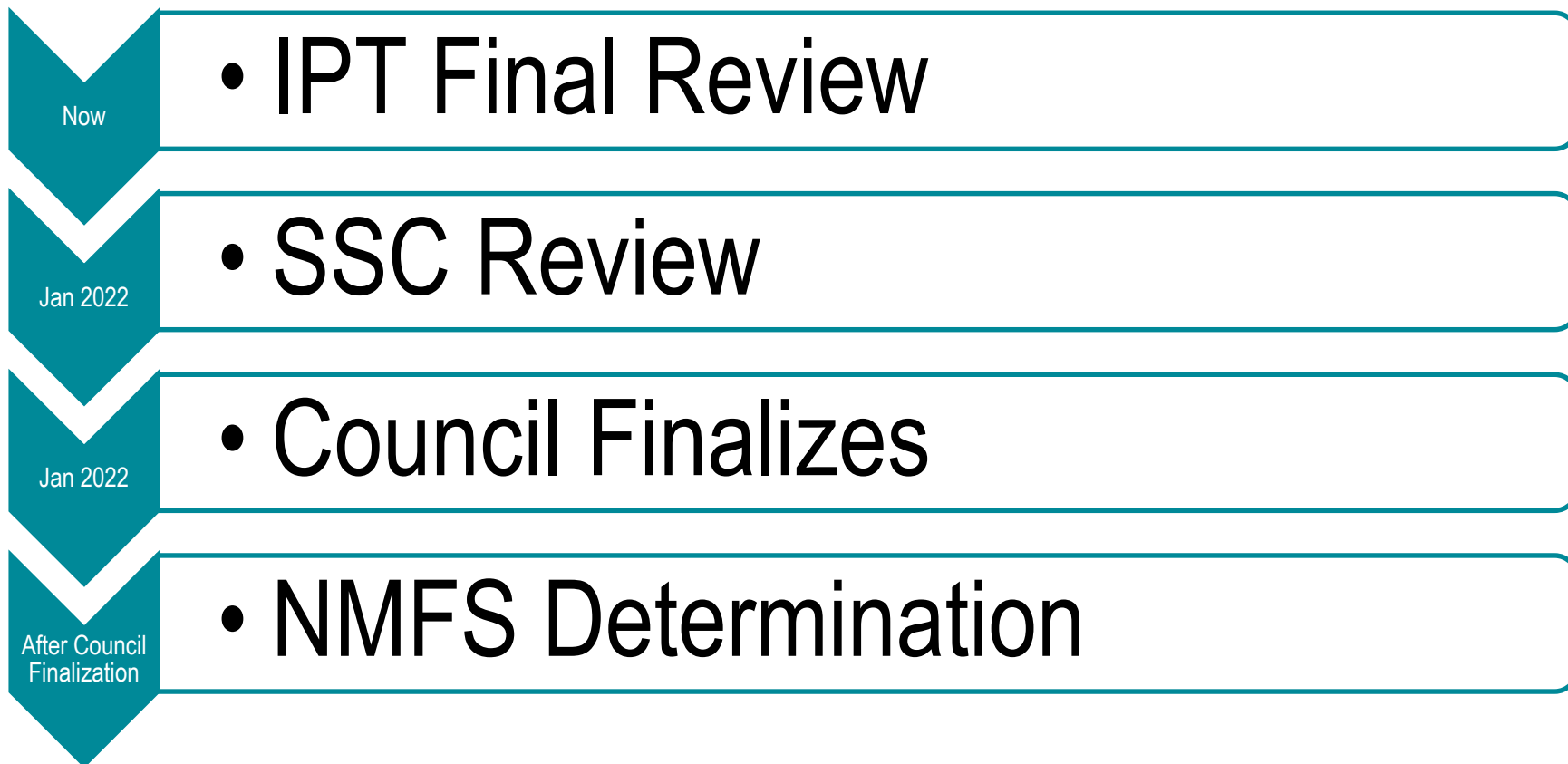
Coral and Coral Reefs FMP



- No black coral or stony coral harvest allowed in Gulf of Mexico
- Octocoral off Florida coast (and in EEZ bordering FL) managed by FL

- **Review Criteria #1: Characteristics of Bycatch**
 - Black coral and stony coral harvest prohibited in Gulf EEZ.
 - Octocorals may be harvested in FL waters and in the EEZ off FL. FL manages this octocoral harvest.
 - Coral captured in the EEZ must be released immediately with as little harm done to the animal as possible.
 - Because NMFS does not manage any coral harvest, there are no coral SBRMs.
- **Review Criteria #2 -- Feasibility of the methodology from cost, technical and operational perspectives**
 - N/A: No allowable harvest of coral (except aquaculture)
- **Review Criteria #3 -- Uncertainty of the data resulting from the methodology**
 - N/A: No allowable harvest of coral (except aquaculture)
- **Review Criteria #4 -- How the data resulting from the methodology are used to assess the amount and type of bycatch occurring in the fishery**
 - N/A: No allowable harvest of coral (except aquaculture)

Next Steps



FMP Amendment? Would need to be in place by February, 2022



Questions?

Discussion on Adequacy of Fishery SBRMs

