

## 2.1 Action 1: Determine the Species to be Included for Management in the Puerto Rico Fishery Management Plan (FMP)

### Proposed Alternatives for Action 1

**Alternative 1.** No action. The Puerto Rico FMP is composed of all species within the fishery management units (FMUs) presently managed under the Spiny Lobster FMP, Reef Fish FMP, Queen Conch FMP, and the Corals and Reef Associated Plants and Invertebrates (Coral) FMP.

**Alternative 2 (Preliminary Preferred).** For those species for which landings data are available, indicating the species is in the fishery, the Caribbean Fishery Management Council (Council) will follow a stepwise application of a set of criteria to determine if a species should be managed under the Puerto Rico FMP. The criteria under consideration include, in order:

**Criterion A.** Include for management those species that are presently classified as overfished in U.S. Caribbean federal waters based on NMFS determination, or for which historically identified harvest is now prohibited due to their ecological importance as habitat (corals presently included in the Corals and Reef Associated Plants and Invertebrates FMP) or habitat engineers (midnight, blue, rainbow parrotfish), or those species for which seasonal closures or size limits apply.

**Table 2.1.1.** Draft list of species proposed to be included in the Puerto Rico Fishery Management Plan based on **Alternative 2, Criterion A.**

Family	Scientific Name	Common Name
<b>Lutjanidae -- Snappers</b>	<i>Apsilus dentatus</i>	Black snapper
	<i>Lutjanus buccanella</i>	Blackfin snapper
	<i>Lutjanus vivanus</i>	Silk snapper
	<i>Rhomboplites aurorubens</i>	Vermilion snapper
	<i>Lutjanus synagris</i>	Lane snapper
	<i>Lutjanus analis</i>	Mutton snapper
	<i>Ocyurus chrysurus</i>	Yellowtail snapper
<b>Serranidae -- Groupers</b>	<i>Epinephelus striatus</i>	Nassau Grouper
	<i>Epinephelus itajara</i>	Goliath grouper
	<i>Epinephelus guttatus</i>	Red hind
	<i>Mycteroperca bonaci</i>	Black grouper
	<i>Epinephelus morio</i>	Red grouper
	<i>Mycteroperca tigris</i>	Tiger grouper
	<i>Mycteroperca venenosa</i>	Yellowfin grouper
	<i>Epinephelus flavolimbatus</i>	Yellowedge grouper

Family	Scientific Name	Common Name
Scaridae -- Parrotfishes	<i>Scarus coeruleus</i>	Blue parrotfish
	<i>Scarus coelestinus</i>	Midnight parrotfish
	<i>Scarus guacamaia</i>	Rainbow parrotfish
Strombidae -- True conchs	<i>Lobatus gigas</i>	Queen conch
Palinuridae -- Spiny lobsters	<i>Panulirus argus</i>	Caribbean spiny lobster
All Coral Species (soft, hard, mesophotic, deep water)	See Appendix A	Corals

**Criterion B.** From the remainder species, exclude from federal management those species that have been determined to infrequently occur in federal waters based on expert analysis guided by available data.

**Table 2.1.2.** Draft list of species proposed to be excluded from the Puerto Rico Fishery Management Plan based on **Alternative 2, Criterion B.**

Family	Scientific Name	Common Name
Lutjanidae -- Snappers	<i>Lutjanus griseus</i>	Gray snapper
	<i>Lutjanus mahogani</i>	Mahogany snapper
Haemulidae -- Grunts	<i>Haemulon album</i>	Margate
	<i>Haemulon aurolineatum</i>	Tomtate
	<i>Haemulon sciurus</i>	Bluestriped grunt
	<i>Haemulon flavolineatum</i>	French grunt
	<i>Anisotremus virginicus</i>	Porkfish
Mullidae -- Goatfishes	<i>Pseudupeneus maculatus</i>	Spotted goatfish
	<i>Mulloidichthys martinicus</i>	Yellow goatfish
Sparidae -- Porgies	<i>Calamus bajonado</i>	Jolthead porgy
	<i>Archosargus rhomboidalis</i>	Sea bream
	<i>Calamus penna</i>	Sheepshead porgy
	<i>Calamus pennatula</i>	Pluma
Holocentridae -- Squirrelfishes	<i>Myripristis jacobus</i>	Blackbar soldierfish
	<i>Priacanthus arenatus</i>	Bigeye
	<i>Holocentrus rufus</i>	Longspine squirrelfish
	<i>Holocentrus adscensionis</i>	Squirrelfish
Malacanthidae -- Tilefishes	<i>Caulolatilus cyanops</i>	Blackline tilefish
	<i>Malacanthus plumieri</i>	Sand tilefish
Carangidae -- Jacks	<i>Caranx crysos</i>	Blue runner
	<i>Caranx latus</i>	Horse-eye jack
	<i>Caranx lugubris</i>	Black jack

Family	Scientific Name	Common Name
	<i>Seriola rivoliana</i>	Almaco jack
	<i>Caranx ruber</i>	Bar jack
	<i>Seriola dumerili</i>	Greater amberjack
	<i>Caranx bartholomaei</i>	Yellow jack
<b>Scaridae -- Parrotfish</b>	<i>Sparisoma rubripinne</i>	Redfin parrotfish
<b>Balistidae -- Triggerfishes</b>	<i>Xanthichthys rigens</i>	Sargassum triggerfish
<b>Monacanthidae -- Filefishes</b>	<i>Aluterus scriptus</i>	Scrawled filefish
	<i>Cantherhines macrocerus</i>	Whitespotted filefish
	<i>Melichthys niger</i>	Black durgon
<b>Ostraciidae -- Boxfishes</b>	<i>Lactophrys polygonia</i>	Honeycomb cowfish
	<i>Lactophrys quadricornis</i>	Scrawled cowfish
	<i>Lactophrys trigonus</i>	Trunkfish
	<i>Lactophrys bicaudalis</i>	Spotted trunkfish
	<i>Lactophrys triqueter</i>	Smooth trunkfish
<b>Aquarium Trade Fish Species FMU -- Reef Fish FMP</b>		
	<i>Antennarius spp.</i>	Frogfish
	<i>Apogon maculatus</i>	Flamefish
	<i>Astrapogen stellatus</i>	Conchfish
	<i>Ophioblennius atlanticus</i>	Redlip blenny
	<i>Bothus lunatus</i>	Peacock flounder
	<i>Chaetodon aculeatus</i>	Longsnout butterflyfish
	<i>Chaetodon capistratus</i>	Foureye butterflyfish
	<i>Chaetodon ocellatus</i>	Spotfin butterflyfish
	<i>Chaetodon striatus</i>	Banded butterflyfish
	<i>Amblycirrhitis pinos</i>	Redspotted hawkfish
	<i>Dactylopterus volitans</i>	Flying gurnard
	<i>Chaetodipterus faber</i>	Atlantic spadefish
	<i>Gobiosoma oceanops</i>	Neon goby
	<i>Priolepis hipoliti</i>	Rusty goby
	<i>Gramma loreto</i>	Royal gramma
	<i>Clepticus parrae</i>	Creole wrasse
	<i>Halichoeres cyanocephalus</i>	Yellowcheek wrasse
	<i>Halichoeres garnoti</i>	Yellowhead wrasse
	<i>Halichoeres maculipinna</i>	Clown wrasse
	<i>Hemipteronotus novacula</i>	Pearly razorfish
	<i>Hemipteronotus splendens</i>	Green razorfish
	<i>Thalassoma bifasciatum</i>	Bluehead wrasse
	<i>Echidna catenata</i>	Chain moray

Family	Scientific Name	Common Name
	<i>Gymnothorax funebris</i>	Green moray
	<i>Gymnothorax miliaris</i>	Goldentail moray
	<i>Ogcocephalus spp.</i>	Batfish
	<i>Myrichthys ocellatus</i>	Goldspotted eel
	<i>Opistognathus aurifrons</i>	Yellowhead jawfish
	<i>Opistognathus whitehursti</i>	Dusky jawfish
	<i>Centropyge argi</i>	Cherubfish
	<i>Holacanthus tricolor</i>	Rock beauty
	<i>Abudefduf saxatilis</i>	Sergeant major
	<i>Chromis cyanea</i>	Blue chromis
	<i>Chromis insolata</i>	Sunshinefish
	<i>Microspathodon chrysurus</i>	Yellowtail damselfish
	<i>Pomacentrus fuscus</i>	Dusky damselfish
	<i>Pomacentrus leucostictus</i>	Beaugregory
	<i>Pomacentrus partitus</i>	Bicolor damselfish
	<i>Pomacentrus planifrons</i>	Threespot damselfish
	<i>Priacanthus cruentatus</i>	Glasseye snapper
	<i>Equetus acuminatus</i>	High-hat
	<i>Equetus lanceolatus</i>	Jackknife-fish
	<i>Equetus punctatus</i>	Spotted drum
	<i>Scorpaenidae</i>	Scorpionfishes
	<i>Hypoplectrus unicolor</i>	Butter hamlet
	<i>Liopropoma rubre</i>	Swissguard basslet
	<i>Rypticus saponaceus</i>	Greater soapfish
	<i>Serranus annularis</i>	Orangeback bass
	<i>Serranus baldwini</i>	Lantern bass
	<i>Serranus tabacarius</i>	Tobaccofish
	<i>Serranus tigrinus</i>	Harlequin bass
	<i>Serranus tortugarum</i>	Chalk bass
	<i>Symphurus arawak</i>	Caribbean tonguefish
	<i>Hippocampus spp.</i>	Seahorses
	<i>Syngnathus spp.</i>	Pipefishes
	<i>Synodus intermedius</i>	Sand diver
	<i>Canthigaster rostrata</i>	Sharpnose puffer
	<i>Diodon hystrix</i>	Porcupinefish
<b>Aquarium Trade Fish Species (FMU) -- Coral Reef FMP</b>		
	<i>Aphimedes compressa</i>	Erect rope sponge
	<i>Chondrilla nucula</i>	Chicken liver sponge

Family	Scientific Name	Common Name
	<i>Cynachirella alloclada</i>	
	<i>Geodia neptuni</i>	Potato sponge
	<i>Haliclona</i> spp.	Finger sponge
	<i>Myriastr</i> a spp.	
	<i>Niphates digitalis</i>	Pink vase sponge
	<i>N. erecta</i>	Lavender rope sponge
	<i>Spinosella polycifera</i>	
	<i>S. vaginalis</i>	
	<i>Tethya crypta</i>	
	<i>Aiptasia tagetes</i>	Pale anemone
	<i>Bartholomea annulata</i>	Corkscrew anemone
	<i>Condylactis gigantea</i>	Giant pink-tipped anemone
	<i>Hereractis lucida</i>	Knobby anemone
	<i>Lebrunia</i> spp.	Staghorn anemone
	<i>Stichodactyla helianthus</i>	Sun anemone
	<i>Zoanthus</i> spp.	Sea mat
	<i>Discosoma</i> spp. (formerly <i>Rhodactis</i> )	False coral
	<i>Ricordia florida</i>	Florida false coral
	<i>Sabellastarte</i> spp.	Tube worms
	<i>S. magnifica</i>	Magnificent duster
	<i>Spirobranchus giganteus</i>	Christmas tree worm
	<i>Tridachia crispata</i>	Lettuce sea slug
	<i>Oliva reticularis</i>	Netted olive
	<i>Cyphoma gibbosum</i>	Flamingo tongue
	<i>Lima</i> spp.	Fileclams
	<i>L. scabra</i>	Rough fileclam
	<i>Spondylus americanus</i>	Atlantic thorny oyster
	<i>Octopus</i> spp. (except the Common octopus, <i>O. vulgaris</i> )	
	<i>Alpheaus armatus</i>	Snapping shrimp
	<i>Paguristes</i> spp.	Hermit crabs
	<i>P. cadenati</i>	Red reef hermit
	<i>Percnon gibbesi</i>	Nimble spray crab
	<i>Lysmata</i> spp.	Peppermint shrimp
	<i>Thor amboinensis</i>	Anemone shrimp
	<i>Mithrax</i> spp.	Clinging crabs
	<i>M. cinctimanus</i>	Banded clinging
	<i>M. sculptus</i>	Green clinging

Family	Scientific Name	Common Name
	<i>Stenorhynchus seticornis</i>	Yellowline arrow
	<i>Periclimenes</i> spp.	Cleaner shrimp
	<i>Gonodactylus</i> spp.	
	<i>Lysiosquilla</i> spp.	
	<i>Stenopus hispidus</i>	Banded shrimp
	<i>S. scutellatus</i>	Golden shrimp
	<i>Analcidometra armata</i>	Swimming crinoid
	<i>Davidaster</i> spp.	Crinoids
	<i>Nemaster</i> spp.	Crinoids
	<i>Astropecten</i> spp.	Sand stars
	<i>Linckia guildingii</i>	Common comet star
	<i>Ophidiaster guildingii</i>	Comet star
	<i>Oreaster reticulatus</i>	Cushion sea star
	<i>Astrophyton muricatum</i>	Giant basket star
	<i>Ophiocoma</i> spp.	Brittlestars
	<i>Ophioderma</i> spp.	Brittlestars
	<i>O. rubicundum</i>	Ruby brittlestar

**Criterion C.** From the remainder species, include for management those species that are biologically vulnerable, constrained to a specific habitat that renders them particularly vulnerable, or have an essential ecological value, as determined by expert analysis.

**Table 2.1.3.** Draft list of species proposed to be included in the Puerto Rico Fishery Management Plan based on **Alternative 2, Criterion C.**

Family	Scientific Name	Common Name
<b>Lutjanidae -- Snappers</b>	<i>Lutjanus jocu</i>	Dog snapper
	<i>Lutjanus apodus</i>	Schoolmaster
	<i>Lutjanus cyanopterus</i>	Cubera snapper
<b>Serranidae -- Groupers</b>	<i>Epinephelus fulvus</i>	Coney
	<i>Epinephelus cruentatus</i>	Graysby
	<i>Epinephelus adscensionis</i>	Rock hind
	<i>Epinephelus mystacinus</i>	Misty grouper
	<i>Mycteroperca interstitialis</i>	Yellowmouth grouper
<b>Scaridae -- Parrotfishes<sup>1</sup></b>	<i>Scarus vetula</i>	Queen parrotfish
	<i>Scarus taeniopterus</i>	Princess parrotfish
	<i>Sparisoma chrysopterus</i>	Redtail parrotfish
	<i>Sparisoma viride</i>	Stoplight parrotfish

Family	Scientific Name	Common Name
	<i>Sparisoma aurofrenatum</i>	Redband parrotfish
	<i>Scarus croicensis</i>	Striped parrotfish
<b>Acanthuridae -- Surgeonfishes</b>	<i>Acanthurus coeruleus</i>	Blue tang
	<i>Acanthurus bahianus</i>	Ocean surgeonfish
	<i>Acanthurus chirurgus</i>	Doctorfish
<b>Balistidae -- Triggerfishes</b>	<i>Canthidermis sufflamen</i>	Ocean triggerfish
	<i>Balistes vetula</i>	Queen triggerfish (Old Wife)
	<i>Balistes capriscus</i>	Gray triggerfish
<b>Labridae -- Wrasses</b>	<i>Lachnolaimus maximus</i>	Hogfish
	<i>Halichoeres radiatus</i>	Puddingwife
	<i>Bodianus rufus</i>	Spanish hogfish
<b>Pomacanthidae -- Angelfishes</b>	<i>Holacanthus ciliaris</i>	Queen angelfish
	<i>Pomacanthus arcuatus</i>	Gray angelfish
	<i>Pomacanthus paru</i>	French angelfish
<b>Sphyraenidae -- Barracudas</b>	<i>Sphyraena guachancho</i>	Guaguanche
	<i>Sphyraena barracuda</i>	Great barracuda
<b>Lobotidae -- Tripletail</b>	<i>Lobotes surinamensis</i>	Tripletail
<b>Myliobatidae -- Eagle and Manta</b>	<i>Manta birostris</i>	Manta
	<i>Aetobatus narinari</i>	Spotted eagle ray (chucho)
	<i>Dasyatis americana</i>	Sting ray

<sup>1</sup>The Council added the parrotfish species for all the islands in their first motion at the 153<sup>rd</sup> Council Meeting, but they correspond to this Criterion.

**Criterion D.** From the remainder species, include those species possessing economic importance to the nation or regional economy based on a threshold of landings or value separately determined for each of the recreational, commercial, and aquarium trade sectors as appropriate (e.g., top 90%) and those representing an important component of bycatch, as established by expert analysis.

**Table 2.1.4.** Draft list of species proposed to be included in the Puerto Rico Fishery Management Plan based on **Alternative 2, Criterion D.**

Family	Scientific Name	Common Name
<b>Lutjanidae - Snappers</b>	<i>Pristipomoides aquilonaris</i>	Wenchman
	<i>Pristipomoides macrophthalmus</i>	Cardinal
	<i>Etelis oculatus</i>	Queen snapper
<b>Haemulidae--Grunts</b>	<i>Haemulon plumieri</i>	White grunt

Family	Scientific Name	Common Name
<b>Carangidae--Jacks</b>	<i>Caranx hippos</i>	Crevalle jack
	<i>Alectis ciliaris</i>	African pompano
	<i>Elagatis bipinnulata</i>	Rainbow runner
<b>Coryphaenidae - Dolphin fish</b>	<i>Coryphaena hippurus</i>	Dolphin
	<i>Coryphaena equiselis</i>	Pompano dolphin
<b>Scombridae -- Mackerels and tunas</b>	<i>Euthynnus alletteratus</i>	Little tunny
	<i>Thunnus atlanticus</i>	Blackfin tuna
	<i>Scomberomorus cavalla</i>	King mackerel
	<i>Scomberomorus regalis</i>	Cero
	<i>Acanthocybium solandri</i>	Wahoo

Table 2.1.5 below summarizes the resulting species from all criteria.

**Table 1.1.5.** Consolidated list of species under **Alternative 2** recommended for inclusion in the Puerto Rico Fishery Management Plan. The Caribbean Fishery Management Council proposed these species for management at their 153<sup>rd</sup> Regular Meeting, held in August 2015. The Puerto Rico FMP draft list of species includes queen conch (1 species), spiny lobster (1 species), sea cucumbers, sea urchins, all species of coral, and 63 species of finfish.

Family or Class	#	Species Name	Common Name	Criterion
<b>Strombidae -- True conchs</b>	1	<i>Lobatus (Strombus) gigas</i>	Queen conch	A
<b>Palinuridae -- Spiny lobster</b>	2	<i>Panulirus argus</i>	Caribbean spiny lobster	A
<b>Lutjanidae -- Snappers</b>	3	<i>Apsilus dentatus</i>	Black snapper	A
	4	<i>Lutjanus buccanella</i>	Blackfin snapper	A
	5	<i>Lutjanus vivanus</i>	Silk snapper	A
	6	<i>Rhomboplites aurorubens</i>	Vermilion snapper	A
	7	<i>Lutjanus synagris</i>	Lane snapper	A
	8	<i>Lutjanus analis</i>	Mutton snapper	A
	9	<i>Ocyurus chrysurus</i>	Yellowtail snapper	A
	10	<i>Pristipomoides aquilonaris</i>	Wenchman	D
	11	<i>Pristipomoides macrophthalmus</i>	Cardinal snapper	D
	12	<i>Etelis oculatus</i>	Queen snapper	D
	13	<i>Lutjanus jocu</i>	Dog snapper	C
	14	<i>Lutjanus apodus</i>	Schoolmaster	C
	15	<i>Lutjanus cyanopterus</i>	Cubera snapper	C
<b>Serranidae -- Groupers</b>	16	<i>Epinephelus striatus</i>	Nassau Grouper	A

Family or Class	#	Species Name	Common Name	Criterion
	17	<i>Epinephelus itajara</i>	Goliath grouper	A
	18	<i>Epinephelus guttatus</i>	Red hind	A
	19	<i>Mycteroperca bonaci</i>	Black grouper	A
	20	<i>Epinephelus morio</i>	Red grouper	A
	21	<i>Mycteroperca tigris</i>	Tiger grouper	A
	22	<i>Mycteroperca venenosa</i>	Yellowfin grouper	A
	23	<i>Hyporthodus flavolimbatus</i>	Yellowedge grouper	A
	24	<i>Cephalopholis fulva</i>	Coney	C
	25	<i>Cephalopholis cruentatus</i>	Graysby	C
	26	<i>Epinephelus adscensionis</i>	Rock hind	C
	27	<i>Hyporthodus mystacinus</i>	Misty grouper	C
	28	<i>Mycteroperca interstitialis</i>	Yellowmouth grouper	C
	<b>Scaridae -- Parrotfishes</b>	29	<i>Scarus coeruleus</i>	Blue parrotfish
30		<i>Scarus coelestinus</i>	Midnight parrotfish	A
31		<i>Scarus guacamaia</i>	Rainbow parrotfish	A
32		<i>Scarus vetula</i>	Queen parrotfish	C
33		<i>Scarus taeniopterus</i>	Princess parrotfish	C
34		<i>Sparisoma chrysopterygum</i>	Redtail parrotfish	C
35		<i>Sparisoma viride</i>	Stoplight parrotfish	C
36		<i>Sparisoma aurofrenatum</i>	Redband parrotfish	C
<b>Acanthuridae -- Surgeonfishes</b>	37	<i>Scarus iseri</i>	Striped parrotfish	C
	38	<i>Acanthurus coeruleus</i>	Blue tang	C
	39	<i>Acanthurus tractus</i>	Ocean surgeonfish	C
<b>Balistidae -- Triggerfishes</b>	40	<i>Acanthurus chirurgus</i>	Doctorfish	C
	41	<i>Canthidermis sufflamen</i>	Ocean triggerfish	C
	42	<i>Balistes vetula</i>	Queen triggerfish	C
<b>Labridae -- Wrasses</b>	43	<i>Balistes capriscaus</i>	Gray triggerfish	C
	44	<i>Lachnolaimus maximus</i>	Hogfish	C
	45	<i>Halichoeres radiatus</i>	Puddingwife	C
<b>Pomacanthidae -- Angelfishes</b>	46	<i>Bodianus rufus</i>	Spanish hogfish	C
	47	<i>Holacanthus ciliaris</i>	Queen angelfish	C
	48	<i>Pomacanthus arcuatus</i>	Gray angelfish	C
<b>Sphyraenidae -- Barracudas<sup>1</sup></b>	49	<i>Pomacanthus paru</i>	French angelfish	C
	50	<i>Sphyraena barracuda</i>	Great barracuda	C

<sup>1</sup> The guaguanche (*Sphyraena guachancho*) was eliminated from the list of species to be considered by Council motion at the 154<sup>th</sup> Regular Meeting in December 2015. The distribution of this species is more coastal, and it is not expected to be found in federal waters of Puerto Rico.



Family or Class	#	Species Name	Common Name	Criterion
<b>Lobotidae -- Tripletail</b>	51	<i>Lobotes surinamensis</i>	Tripletail	C
<b>Myliobatidae -- Eagle and Manta</b>	52	<i>Manta birostris</i>	Manta	C
	53	<i>Aetobatus narinari</i>	Spotted eagle ray (chucho)	C
	54	<i>Dasyatis americana</i>	Sting ray	C
<b>Haemulidae -- Grunts</b>	55	<i>Haemulon plumieri</i>	White grunt	D
<b>Carangidae -- Jacks</b>	56	<i>Caranx hippos</i>	Crevalle jack	D
	57	<i>Alectis ciliaris</i>	African pompano	D
	58	<i>Elagatis bipinnulata</i>	Rainbow runner	D
<b>Coryphaenidae -- Dolphin fish</b>	59	<i>Coryphaena hippurus</i>	Dolphin	D
	60	<i>Coryphaena equiselis</i>	Pompano dolphin	D
<b>Scombridae -- Mackerels and tunas</b>	61	<i>Euthynnus alletteratus</i>	Little tunny	D
	62	<i>Thunnus atlanticus</i>	Blackfin tuna	D
	63	<i>Scomberomorus cavalla</i>	King mackerel	D
	64	<i>Scomberomorus regalis</i>	Cero	D
	65	<i>Acanthocybium solandri</i>	Wahoo	D
<b>Class Holothuroidea -- Sea Cucumbers</b>	66	All (several families and species)	Sea cucumbers	Council Motion
<b>Class Echinoidea -- Sea Urchins</b>	67	All (several families and species)	Sea urchins	Council Motion
<b>All Corals (soft, hard, mesophotic, deep-water)</b>	68	Several families and species ( <i>see Appendix A</i> )	Corals	A

**Alternative 3.** Identify species to be managed by the Council in waters of the exclusive economic zone (EEZ) off Puerto Rico using all or some of the criteria listed below. For those species for which landings data are available, indicating the species is in the fishery, the Council will choose a set of criteria to determine if a species should be managed under the Puerto Rico FMP. The criteria under consideration include, (A) the status of the stock and/or if it currently has a harvest prohibition, size limit, or seasonal closure in federal waters, (B) the degree to which the species occurs in state rather than in federal waters and can therefore be affected by federal management, (C) the ecological importance of a species within the coral reef ecosystem, and (D) the extent of harvest relative to a pre-established threshold. The selected criteria will identify the species to be managed.

**Criterion A.** Include for management those species that are presently classified as overfished in U.S. Caribbean waters based on National Marine Fisheries Service (NMFS) determination, or for which historically identified harvest is now prohibited due to their ecological importance as habitat (corals presently included in the Corals and Reef Associated Plants and Invertebrates



FMP) or habitat engineers (midnight, blue, rainbow parrotfish), or those species for which seasonal closures or size limits apply.

**Criterion B.** Exclude from federal management those species that have been determined to infrequently occur in federal waters based on expert analysis guided by available data.

**Criterion C.** Include for management those species that are biologically vulnerable, constrained to a specific habitat that renders them particularly vulnerable, or have an essential ecological value, as determined by expert analysis.

**Criterion D.** Include those species possessing economic importance to the nation or regional economy based on a threshold of landings or value separately determined for each of the recreational, commercial, and aquarium trade sectors as appropriate (e.g., top 90%) and those representing an important component of bycatch, as established by expert analysis.

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## 2.2 Action 2: Establish Stocks or Stock Complexes in the Puerto Rico Fishery Management Plan (FMP)

### Proposed Alternatives for Action 2

**Alternative 1.** No Action. In the Puerto Rico FMP, retain the stocks/stock complexes presently used for management in the Puerto Rico exclusive economic zone under the Reef Fish, Spiny Lobster, Queen Conch, and Corals and Reef Associated Plants and Invertebrates (Coral) FMPs (Table 2.2.1). For species that were not previously managed in federal waters, no stock/stock complexes are established (Table 2.2.2).

**Alternative 2.** Do not organize the species in the Puerto Rico FMP in stock complexes. Species would be managed as individual stocks.

**Alternative 3.** Manage species in the Puerto Rico FMP as individual stocks or as stock complexes, based on scientific analysis, including one or more of the following: cluster analysis based on landings patterns; outcomes from the SEDAR Caribbean Data Evaluation Workshop (2009) (only for species previously managed that will remain in the FMP); biological/life history similarities and vulnerability (for all species); and, expert opinion from the scientific and fishing communities (for all species). Table 2.2.3 shows the species groupings resulting from this alternative.

**Alternative 4.** Where there are stock complexes, select an indicator stock based on any of the following (*SSC input needed*):

**Sub-Alternative 4a.** TBD

**Sub-Alternative 4b.** TBD

**Sub-Alternative 4c.** TBD

**Table 2.2.1. Alternative 1 - Current stock/stock complexes under the Reef Fish, Spiny Lobster, Queen Conch, and Coral FMPs that would be included for management under the Puerto Rico FMP as selected in Action 1, Alternative 2.**

<b>Stocks/Stock complexes</b>	<b>Species included in the Reef Fish, Spiny Lobster, Queen Conch, and Coral FMPs</b>
<b>Snappers</b>	
Snapper Unit 1	Black, blackfin, silk, vermillion, wenchman
Snapper Unit 2	Cardinal, queen
Snapper Unit 3 <sup>1</sup>	Lane, mutton, dog, schoolmaster
Snapper Unit 4	Yellowtail
<b>Groupers</b>	
Grouper Unit 1	Nassau
Grouper Unit 2	Goliath
Grouper Unit 3	Red hind, coney, graysby, rock hind
Grouper Unit 4	Black, red, tiger, yellowfin
Grouper Unit 5	Misty, yellowedge
<b>Acanthuridae – Surgeonfishes</b>	Blue tang, ocean surgeonfish, doctorfish
<b>Balistidae – Triggerfishes<sup>2</sup></b>	Ocean triggerfish Queen triggerfish
<b>Haemulidae – Grunts<sup>3</sup></b>	White grunt
<b>Labridae – Wrasses</b>	Hogfish, puddingwife, Spanish hogfish
<b>Pomacanthidae - Angelfishes</b>	Queen, gray, French angelfish
<b>Scaridae – Parrotfishes<sup>4</sup></b>	Blue, midnight, rainbow, queen princess, redband, stoplight, redband, striped
<b>Class Holothuroidea - Sea Cucumbers<sup>5</sup></b>	All (several species)
<b>Class Echinoidea - Sea Urchins<sup>5</sup></b>	All (several species)
<b>Queen conch</b>	Queen conch
<b>Spiny lobster</b>	Spiny lobster
<b>Corals</b>	Corals

<sup>1</sup>The SU3 currently also includes gray and mahogany snapper. These species are proposed to be removed from management in Action 1, Preferred Alternative 2.

<sup>2</sup>Triggerfish currently also includes sargassum triggerfish and the black durgon. These species are proposed to be removed from management in Action 1, Preferred Alternative 2.

<sup>3</sup>Grunts currently also include margate, tomtate, bluestriped, and the French porkfish. These species are proposed to be removed from management in Action 1, Preferred Alternative 2.

<sup>4</sup>Parrotfish currently also include redband parrotfish. This species is proposed to be removed from management in Action 1, Preferred Alternative 2.

<sup>5</sup>Sea cucumbers and some sea urchins species are currently included in the Coral FMP as part of the aquarium trade FMU. The aquarium trade FMU is proposed to be removed from management under Action 1, Preferred Alternative 2, however, sea cucumbers and sea urchins would remain under management in the Puerto Rico FMP.

**Table 2.2.2.** New species proposed to be included for management under the Puerto Rico FMP based on Action 1, Alternative 2 that do not have an assigned stock/stock complex under Action 2, **Alternative 1**.

Family	Species common name
Snappers	Cubera snapper
Groupers	Yellowmouth
Triggerfishes	Gray triggerfish
Jacks	Creville jack, African pompano, Rainbow runner
Eagle and Manta	Manta, spotted eagle ray, sting ray
Mackerels and Tunas	Little tunny, Blackfin tuna, King mackerel, Cero, Wahoo
Tripletail	Tripletail
Barracudas	Great barracuda
Dolphin fishes	Dolphin, Pompano dolphin
Class Holothuroidea - Sea Cucumbers <sup>1</sup>	All (several species)
Class Echinoidea - Sea Urchins <sup>1</sup>	All (several species)

<sup>1</sup>Sea cucumbers and Sea urchins currently belong to the aquarium trade FMU in the Coral FMP. These species will need to be assigned into a new stock/stock complexes.

**Table 2.2.3.** Stocks and stock complexes for **Alternative 3**, Action 2 in the Puerto Rico Fishery Management Plan. Indicator species resulting from the preferred sub-alternative in **Alternative 4**, are marked with an asterisk (*Note this may change*).

Family or Class	Stock/Stock Complexes	Species Name	Common Name; Nombre en español
<b>Strombidae -- True conchs</b>	Queen conch	<i>Lobatus (Strombus) gigas</i>	Queen conch; carrucho
<b>Palinuridae -- Spiny lobster</b>	Spiny Lobster	<i>Panulirus argus</i>	Caribbean spiny lobster; langosta espinosa
<b>Lutjanidae -- Snappers</b>	SU1	<i>Apsilus dentatus</i>	Black snapper; pargo prieto
		<i>Lutjanus buccanella</i>	Blackfin snapper; alinegra
		<i>Lutjanus vivanus</i> *	Silk snapper*; chillo (ojo amarillo)
		<i>Rhomboplites aurorubens</i>	Vermilion snapper; chilla rubia, besugo
		<i>Pristipomoides aquilonaris</i>	Wenchman; limosnera, muniama de adentro
	SU2	<i>Pristipomoides macrophthalmus</i>	Cardinal snapper; muniama de afuera

		<i>Etelis oculatus*</i>	Queen snapper*; cartucho
	SU3	<i>Lutjanus synagris</i>	Lane snapper; arrayao
	SU4	<i>Lutjanus analis*</i>	Mutton snapper*; sama
		<i>Lutjanus jocu</i>	Dog snapper; pargo colorao
		<i>Lutjanus apodus</i>	Schoolmaster; pargo amarillo
	SU5	<i>Ocyurus chrysurus</i>	Yellowtail snapper; colirubia
	SU6	<i>Lutjanus cyanopterus</i>	Cubera snapper; pargo mulato
<b>Serranidae -- Groupers</b>	GU1	<i>Epinephelus striatus</i>	Nassau Grouper; mero cherna
	GU2	<i>Epinephelus itajara</i>	Goliath grouper; mero batata
	GU6	<i>Epinephelus guttatus*</i>	Red hind*; cabrilla
		<i>Epinephelus adscensionis</i>	Rock hind; cabra mora
	GU3	<i>Cephalopholis cruentata</i>	Graysby; mantequilla
		<i>Cephalopholis fulva*</i>	Coney*; mantequilla
GU4	<i>Mycteroperca bonaci</i>	Black grouper; mero prieto	
	<i>Epinephelus morio</i>	Red grouper; mero rojo	
	<i>Mycteroperca tigris</i>	Tiger grouper; tigre	
	<i>Mycteroperca venenosa</i>	Yellowfin grouper; guajil	
	<i>Mycteroperca interstitialis</i>	Yellowmouth grouper; guajil boquiamarillo	
GU5	<i>Hyporthodus flavolimbatus</i>	Yellowedge grouper; guajil amarillo	
	<i>Hyporthodus mystacinus</i>	Misty grouper; guasa	
<b>Scaridae -- Parrotfishes</b>	Parrotfish 1	<i>Scarus coeruleus</i>	Blue parrotfish; brindao
		<i>Scarus coelestinus</i>	Midnight parrotfish; judío
		<i>Scarus guacamaia</i>	Rainbow parrotfish; guacamayo
	Parrotfish 2	<i>Scarus vetula</i>	Queen parrotfish; loro reina
		<i>Scarus taeniopterus</i>	Princess parrotfish; princesa
		<i>Sparisoma chrysopterygum</i>	Redtail parrotfish; loro colirrojo
		<i>Sparisoma viride</i>	Stoplight parrotfish ; loro verde
		<i>Sparisoma aurofrenatum</i>	Redband parrotfish; loro banda colorada

		<i>Scarus iseri</i>	Striped parrotfish; loro rayado
<b>Acanthuridae -- Surgeonfishes</b>	Surgeonfish	<i>Acanthurus coeruleus</i>	Blue tang; barbero
		<i>Acanthurus tractus</i>	Ocean surgeonfish, médico
		<i>Acanthurus chirurgus</i>	Doctorfish; cirujano
<b>Balistidae -- Triggerfishes</b>	Triggerfish	<i>Canthidermis sufflamen</i>	Ocean triggerfish; turco
		<i>Balistes vetula</i> *	Queen triggerfish*; peje puerco
		<i>Balistes caprisiscus</i>	Gray triggerfish; peje puerco blanco
<b>Labridae -- Wrasses</b>	Wrasse 1	<i>Lachnolaimus maximus</i>	Hogfish; capitán
	Wrasse 2	<i>Halichoeres radiatus</i> <i>Bodianus rufus</i>	Puddingwife; capitán de piedra Spanish hogfish' loro capitán
<b>Pomacanthidae -- Angelfishes</b>	Angelfish	<i>Holacanthus ciliaris</i>	Queen angelfish; isabelita
		<i>Pomacanthus arcuatus</i>	Gray angelfish; isabelita gris
		<i>Pomacanthus paru</i>	French angelfish; isabelita negra
<b>Sphyraenidae -- Barracudas</b>	Barracuda	<i>Sphyraena barracuda</i>	Great barracuda; picúa
<b>Lobotidae -- Tripletail</b>	Tripletail	<i>Lobotes surinamensis</i>	Tripletail; viajacas del mar
<b>Myliobatidae – Eagle and Manta</b>	Manta	<i>Manta birostris</i>	Manta; manta
	Spot Eagle	<i>Aetobatus narinari</i>	Spotted eagle ray; chucho
	Sting ray	<i>Dasyatis americana</i>	Sting ray; raya
<b>Haemulidae -- Grunts</b>	Grunts	<i>Haemulon plumieri</i>	White grunt; cachicata, boquicolorao
<b>Carangidae -- Jacks</b>	Jack Unit 1	<i>Caranx hippos</i>	Crevalle Jack; jurel amarillo
	Jack Unit 2	<i>Alectis ciliaris</i>	African pompano; pampano
	Jack Unit 3	<i>Elagatis bipinnulata</i>	Rainbow runner; salmon
<b>Coryphaenidae – Dolphin fish</b>	Dorado/Dolphin	<i>Coryphaena hippurus</i> *	Dolphin*; dorado
		<i>Coryphaena equiselis</i>	Pompano dolphin; doradito
<b>Scombridae – Mackerels and tunas</b>	Tuna	<i>Euthynnus alletteratus</i>	Little tunny; bonito
		<i>Thunnus atlanticus</i>	Blackfin tuna; albacora
	Mackerel	<i>Scomberomorus cavalla</i>	King mackerel; sierra carite
		<i>Scomberomorus regalis</i>	Cero; sierra alasana
	Wahoo	<i>Acanthocybium solandri</i>	Wahoo; peto



<b>Class Holothuroidea – Sea Cucumbers</b>	Cucumbers	All (several families and species)	Sea cucumbers; pepinos de mar
<b>Class Echinoidea -- Sea Urchins</b>	Urchins	All (several families and species)	Sea urchins; erizos
<b>All Corals (soft, hard, mesophotic, deep-water)</b>	Corals	Several families and species	Corals; corales

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## 2.3 Action 3: Management Reference Points for Stocks/Stock Complexes in the Puerto Rico FMP

### Proposed Alternatives for Action 3

\*Each of **Alternatives 1, 2, and 3** below are intended to be applied to individual stocks/stock complexes, as appropriate. Choose an alternative and sub-alternative (if applicable) for each stock/stock complex.

**Alternative 1.** No action. For those stocks/stock complexes for which species-specific landings data is not available, retain the management reference point values (maximum sustainable yield (MSY), overfishing limit (OFL), acceptable biological catch (ABC), optimum yield (OY), annual catch limit (ACL)) specified in the 2010 and 2011 Caribbean ACL Amendments, as applicable.

**Alternative 2.** Apply the stepwise process used in the 2010 Caribbean ACL Amendment and/or the 2011 Caribbean ACL Amendment, as applicable, to set management reference points for a stock/stock complex in the Puerto Rico FMP as described in the sub-alternatives on each of sections A-D below. Choose a sub-alternative from each section, in order (A-D), for each stock/stock complex.

**A. Time Series** - select a time series of landings data to establish management reference points for a stock/stock complex, as applicable. A different sub-alternative can be chosen for each stock/stock complex.

**Sub-Alternative 2a.** Use the longest year sequence of reliable<sup>2</sup> landings data available to set management reference points, as applicable.

**Sub-Alternative 2b.** Use the longest time series of pre-Caribbean Sustainable Fisheries Act (SFA) Amendment landings data that is considered to be consistently reliable<sup>3</sup> to set management reference points.

**Sub-Alternative 2c.** Use 2012-2016 as the most recent five years of available landings data to set management reference points for a stock/stock complex.

**Sub-Alternative 2d.** Use another year sequence, as recommended by the Council's SSC, to set management reference points for a stock/stock complex.

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<sup>2</sup> Defined in both the 2010 and 2011 Caribbean ACL Amendments: more recent time-series landings data that are more reliable than baseline but that are affected by recent regulatory changes.

<sup>3</sup> Defined in both the 2010 and 2011 Caribbean ACL Amendments: reflects landings prior to implementation of the Caribbean SFA Amendment in 2006, thereby approximating sustainable yield.

**B. MSY Proxy** - Establish the MSY proxy as described by any of the sub-alternatives below. A different sub-alternative can be chosen for each stock/stock complex. The MSY proxy resulting from this alternative would be set equal to the OFL (MSY proxy = OFL). (*Note: process for each of the commercial and recreational sectors would need to be determined in this section*)

**Sub-Alternative 2e.** Median annual landings from year sequence selected in Alternative 2.A.

**Sub-Alternative 2f.** Mean annual landings for year sequence selected in Alternative 2.A.

**Sub-Alternative 2g.** For the recreational sector, use the maximum of a single year of recreational landings x 3.

**Sub-Alternative 2h.** For the recreational sector, use the mean recreational catch (i.e., landings and bycatch) from MRFSS/MRIP during year sequence in **Alternative 2.A.**

### C. Acceptable Biological Catch

**Sub-Alternative 2i.** Do not specify an ABC Control Rule. Adopt the ABC recommended by the Council's Scientific and Statistic Committee (SSC). The SSC will develop the ABC on an ad hoc basis for each stock/stock complex.

**Sub-Alternative 2j.** Adopt an ABC Control Rule where  $ABC = OFL$

**Sub-Alternative 2k.** Adopt an ABC Control Rule where  $ABC = OFL \times 0.90$

**Sub-Alternative 2l.** Adopt an ABC Control Rule where  $ABC = OFL \times 0.85$

**Sub-Alternative 2m.** Adopt an ABC Control Rule where  $ABC = OFL \times 0.75$

### D. Annual Catch Limit Sector Separation

**Sub-Alternative 2n.** Do not specify separate commercial and recreational ACLs for a stock/stock complex in the Puerto Rico FMP.

**Sub-Alternative 2o.** Specify separate commercial and recreational ACLs for a stock/stock complex in the Puerto Rico FMP.

**E. Optimum Yield and Annual Catch Limit** – Determine the OY and the ACL based on the formula in one of the sub-alternatives below and the ABC established in **Alternative 2.C.**

**Sub-Alternative 2p.**  $OY = ACL = ABC$

**Sub-Alternative 2q.**  $OY = ACL = ABC \times 0.90$

**Sub-Alternative 2r.**  $OY = ACL = ABC \times 0.85$

**Sub-Alternative 2s.**  $OY = ACL = ABC \times 0.75$

**Sub-Alternative 2t.**  $OY = ACL = 0$

**Alternative 3.** For those stocks/stock complexes with valid assessments (Tiers 1-3) or those for which landings and/or ancillary information (Tier 4) are available: (A) adopt the ABC Control Rule described in Table 2.3.1 below. For stocks/stock complexes in Tiers 4A and 4B, the reference period of landings is the year sequence recommended by the Council’s SSC and the MSY proxy = OFL defined in the ABC CR; and (B) establish an ACL and OY by choosing any of the sub-alternatives in Section B. below.

**A. Acceptable Biological Catch Control Rule**

**Table 2.3.1.** Acceptable Biological Catch Control Rule from Alternative 3.

<b>Tier 1 ABC CR (“Data Rich”)</b>	
<b>Condition for Use</b>	<p>Full stage-structured assessment where reliable time series on (1) catch, (2) stage composition and (3) index of abundance are available and the assessment provides estimates of MSST, MFMT, and PDF of OFL</p> <p>Minimum Stock Size Threshold (MSST) = <math>0.75 * SSB_{MSY}</math> (or proxy)                      Maximum Fishing Mortality Threshold (MFMT) = <math>F_{MSY}</math> (or proxy)  <math>MFMT = F_{MSY}</math>                      MSY = Long-term Yield at MFMT; (Assuming the spawner-recruit relationship is well estimated, otherwise undefined.)</p>
<b>OFL<sup>1</sup></b>	Yield at MFMT
<b>ABC</b>	<p><math>ABC = x = OFL</math> as reduced by scientific uncertainty<sup>†</sup> and risk of overfishing<sup>††</sup>. The reduction factor is applied to the PDF of OFL, where the PDF is determined from the assessment (where <math>\sigma &gt; \sigma_{min}^{†††}</math>)</p> <p><math>ABC = d(x)</math> where <math>d = \begin{cases} \text{Scalar} &amp; \text{if } B \geq B_{msy} \\ \text{Scalar} * (B - B_{critical}) / (B_{msy} - B_{critical}) &amp; \text{if } B &lt; B_{msy} \end{cases}</math></p> <p><u>Where:</u>                      Scalar is = 1 if risk of overfishing is specified (&lt;0.5), &lt;1 if not specified (=0.5)                      B<sub>critical</sub> is defined as the minimum level of depletion at which fishing would be allowed.  <sup>†</sup>Scientific uncertainty would take into account, but not be limited to, the species life history and ecological function.  <sup>††</sup>Risk of overfishing determined by Council  <sup>†††</sup> <math>\sigma_{min}</math> could be equal to coefficient of variation; <math>\sigma_{min}</math> is in a log scale</p>
<b>Tier 2 ABC CR (“Data Moderate”)</b>	
<b>Condition for Use</b>	Data-moderate approaches where two of the three time series (catch, stage composition and index of abundance) are deemed informative by the assessment process, and the assessment can provide MSST, MFMT, and PDF of OFL

	Same as Tier 1, but variation of the PDF of OFL ( $\sigma$ ) must be greater than $1.5 \sigma_{\min}$ (in principle there should be more uncertainty with data-moderate approaches than data-rich approaches).
<b>Tier 3 ABC CR (“Data Limited Quantitative Assessments”)</b>	
<b>Conditions for Use</b>	Relatively data-limited or out-of-date assessments
	MFMT = $F_{MSY}$ (or proxy such as $F_{40\%}$ )
	MSST = <i>unknown</i>
<b>OFL</b>	OFL = catch at MFMT
<b>ABC</b>	<p>ABC determined from OFL as reduced by scientific uncertainty<sup>†</sup> and risk of overfishing<sup>††</sup></p> <p>a. Where the reduction factor is applied to the PDF of OFL when the PDF is determined from the assessment (with <math>\sigma \geq 2\sigma_{\min}</math>)</p> <p><b>OR</b></p> <p>b. Where <math>ABC = \text{reduction factor} * OFL</math>, where <i>reduction factor</i> must be <math>\leq 0.9</math></p> <p><sup>†</sup>Scientific uncertainty would take into account, but not be limited to, the species life history and ecological function, the perceived level of depletion, and vulnerability of the stock to collapse.</p> <p><sup>††</sup>Risk of overfishing determined by Council</p>
<b>Tier 4 ABC CR (Landings and Ancillary Information (e.g., Productivity-Susceptibility Analyses, Expert opinion))</b>	
<b>4A</b>	
<b>Conditions for use</b>	No accepted assessment, but stock <u>unlikely</u> to be subject to overfishing. If SSC consensus cannot be reached on the use of Tier 4A, Tier 4B should be used.
<b>OFL</b>	OFL = Scalar * 75 <sup>th</sup> percentile of reference period landings Scalar $\leq 2$ depending on perceived degree of exploitation, life history and ecological function
<b>ABC</b>	ABC = <i>buffer</i> * OFL, where <i>buffer</i> must be $\leq 0.9$ (e.g., 0.9, 0.8, 0.75, 0.70...).
<b>4B</b>	
<b>Conditions for use</b>	No accepted assessment, but stock <u>likely</u> subject to overfishing.
<b>OFL</b>	OFL = Scalar * <i>mean</i> of the reference period landings Scalar $< 1$ depending on perceived degree of exploitation, life history, and ecological function.
<b>ABC</b>	ABC = <i>buffer</i> * OFL, where <i>buffer</i> must be $\leq 0.9$ (e.g., 0.9, 0.8, 0.75, 0.70...)

**B. Annual Catch Limit Sector Separation**

**Sub-Alternative 3a.** Do not specify separate commercial and recreational ACLs for a stock/stock complex in the Puerto Rico FMP.



**Sub-Alternative 3b.** Specify separate commercial and recreational ACLs for a stock/stock complex in the Puerto Rico FMP.

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### **C. Optimum Yield and Annual Catch Limit**

Determine the OY and the ACL based on the formula in one of the sub-alternatives below and the ABC established in Alternative 3, Section A above.

**Sub-Alternative 3c.**  $OY = ACL = ABC$

**Sub-Alternative 3d.**  $OY = ACL = ABC \times 0.90$

**Sub-Alternative 3e.**  $OY = ACL = ABC \times 0.85$

**Sub-Alternative 3f.**  $OY = ACL = ABC \times 0.75$

**Sub-Alternative 3g.**  $OY = ACL = 0$

## **2.4 Action 4: Essential Fish Habitat (EFH) Description and Identification for Species Not Previously Managed in Federal Waters of Puerto Rico**

### **Background**

As identified in Action 1 (Preferred Alternative 2), the draft list of species to be managed under the Puerto Rico FMP includes queen conch (1 species), spiny lobster (1 species), 63 finfish species, sea cucumbers, sea urchins, and all species of coral. From these, 18 species of finfish are new to federal management. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires that each FMP describe and identify EFH for each fishery. Thus, this action would identify and describe EFH for the 18 finfish species new to federal management: cubera snapper, yellowmouth grouper, gray triggerfish, crevalle jack, African pompano, rainbow runner, manta, spotted eagle ray, sting ray, little tunny, blackfin tuna, king mackerel, cero, wahoo, tripletail, great barracuda, dolphin, and pompano dolphin. The remaining species identified for inclusion in the Puerto Rico FMP in Action 1 (Preferred Alternative 2) were previously managed under the Council FMPs and already have existing EFH designations. These existing designations will be evaluated during the ongoing EFH 5-year Review.<sup>4</sup>

### **Proposed Alternatives for Action 4**

**Alternative 1.** No action. Do not describe and identify EFH for species not previously managed in federal waters of Puerto Rico.

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<sup>4</sup> Under the MSA, the FMP is required to both identify EFH and minimize to the extent practicable adverse effects on such habitat caused by fishing. The need to include an action to prevent, mitigate, or minimize adverse effects on EFH for species not previously managed in Puerto Rico federal waters will depend on the results of the analysis of the gears and techniques used to fish for those new species.

**Alternative 2.** Describe and identify EFH according to functional relationships between life history stages of federally-managed species and Puerto Rico marine and estuarine habitats.

**Alternative 3.** Use other method(s) to describe and identify EFH for species not previously managed in federal waters of Puerto Rico. The March 2004 Final Environmental Impact Statement for the Generic EFH Amendment explored a number of concepts that could be used depending on data availability. Some of these methods for describing EFH include:

- 1) Designating EFH based on distribution data (distribution of habitat types, fish species and fishing effort) (*Level 1 data – surveys of presence/absence; simple habitat/species associations.*)
- 2) Designating EFH based on habitat-related densities of the species (EFH would be defined as the area where the density or relative abundance of a species life stage is above a threshold level) (*Level 2 – Survey/fishery related CPUE as proxy for density; or spatial modeling of probability of occurrence, or other forms of habitat suitability models.*)
- 3) Using spatial data to designate EFH (*would use spatially explicit, qualitative or quantitative information that link fish distributions and habitat to describe and identify EFH.*) (*Level 2*)
- 4) Habitat suitability models (uses habitat suitability modeling prepared by NOS to infer information about species distribution, and possibly relative density (i.e. assuming that habitats with a higher suitability support greater abundances of a species life stage).
- 5) Designating EFH based on data on growth, reproduction, or survival rates within habitats (obtained from tagging data (growth), fecundity data by area).
- 6) Designating EFH based on production rates by habitat.

## 2.5 Action 5: Framework Procedures for the Puerto Rico FMP

### Proposed Alternatives for Action 5

**Alternative 1.** No action. Retain the framework procedures presently included under the Reef Fish, Spiny Lobster, Queen Conch, and Corals and Reef Associated Plants and Invertebrates FMPs (Table 2.5.1 below).

**Alternative 2.** Adopt the base Framework Procedure listed in Table 2.5.2.

**Alternative 3.** Adopt the more broad Framework Procedure listed in Table 2.5.3.

**Alternative 4.** Adopt the more narrow Framework Procedure listed in Table 2.5.4.

**Table 2.5.1. Alternative 1.** Current framework measures in the Reef Fish, Spiny Lobster, Coral, and Queen Conch FMPs.

<b>Framework Measures in the Reef Fish, Spiny Lobster, Queen Conch, and Coral FMPs</b>
<ul style="list-style-type: none"> <li>a) Quota Requirements</li> <li>b) Seasonal Closures</li> <li>c) Area Closures</li> <li>d) Fishing Year</li> <li>e) Trip/Bag Limit</li> <li>f) Size Limits</li> <li>g) Gear Restrictions or Prohibitions</li> <li>h) Fishery Management Unit (FMU)</li> <li>i) Total Allowable Catch (TAC)</li> <li>j) Annual Catch Limits (ACLs)</li> <li>k) Accountability Measures (AMs)</li> <li>l) Annual Catch Targets (ACTs)</li> <li>m) Maximum Sustainable Yield (MSY)</li> <li>n) Optimum Yield (OY)</li> <li>o) Minimum Stock Size Threshold (MSST)</li> <li>p) Maximum Fishing Mortality Threshold (MFMT)</li> <li>q) Overfishing Limit (OFL)</li> <li>r) Acceptable Biological Catch (ABC) control rules</li> <li>s) Actions to Minimize the Interaction of Fishing Gear with Endangered Species or Marine Mammals</li> </ul>
<p><b>Establish an assessment group and adjustments:</b>                      The following discussion outlines the procedure by which the Council may make management changes through regulatory amendment. As previously discussed, the purpose of frameworks and regulatory amendments is to provide the most responsive and efficient modifications to management measures. If an additional review process</p>

was included, there could be substantial delays, thus resulting in a longer lag time between identification of a problem and implementation of a response.

1. When the Council determines that management measures require modification, the Council will appoint an advisory panel (Group) that will assess the condition of species in the management units (including periodic economic and sociological assessments as needed). The Group will present a report of its recommendations to the Council.
2. The Council will consider the report and recommendations of the Group and may hold public hearings at a time and place of the Council's choosing to discuss the Group's report. The Council may convene its Scientific and Statistical Committee to provide advice prior to taking final action. After receiving public input, the Council will make decisions on the need for change.
3. If changes to management regulations are needed, the Council will advise the Regional Administrator (RA) in writing of its recommendations accompanied by the Group's report (where appropriate), relevant background material, draft regulations, Regulatory Impact Review, and public comments.
4. The RA will review the Council's recommendations, supporting rationale, public comments, and other relevant information. If the RA concurs that the Council's recommendations are consistent with the goals and objectives of the fishery management plan, the national standards, and other applicable laws, the RA will recommend that the Secretary take appropriate regulatory action for the fisheries on such date as may be agreed upon with the Council.
5. Should the RA reject the recommendations, the RA will provide written reasons to the Council for the rejection, and existing measures will remain in effect until the issue is resolved.
6. Appropriate adjustments that may be implemented by the Secretary include:
  - a. Specification of MSY or MSY proxy and subsequent adjustment where this information is available;
  - b. Specification of an ABC control rule and subsequent adjustment where this information is available;
  - c. Specification of TAC and subsequent adjustment where this information is available;
  - d. Specification of ACLs and Annual Catch Targets (ACTs), and subsequent adjustment;
  - e. Specification of AMs and subsequent adjustment;
  - f. Specification of OY and subsequent adjustment where this information is available;
  - g. Specification of Minimum Stock Size Threshold (MSST) and subsequent adjustment;
  - h. Specification of Maximum Fishing Mortality Threshold (MFMT) or OFL and subsequent adjustment;
  - i. Specification (or modification) of quotas (including zero quotas), trip limits, bag limits (including zero bag limits), size limits, gear restrictions (ranging from modifying current regulations to a complete prohibition, including to respond to interactions with listed species), season/area closures (including spawning closures), and fishing year;
  - j. Initial specification and subsequent adjustment of biomass levels and age structured analyses;
  - k. Adjustments to the composition of Fishery Management Units (FMUs).

Authority is granted to the RA to close any fishery (i.e. revert any bag limit to zero and close any commercial fishery), once a quota has been established through the procedure described above, and such quota has been filled.

If NMFS decides not to publish the proposed rule of the recommended management measures, or to otherwise

hold the measures in abeyance, then the RA must notify the Council of its intended action and the reasons for NMFS' concern, along with suggested changes to the proposed management measures that would alleviate the concerns. Such notice shall specify: 1) The applicable law with which the amendment is inconsistent; 2) the nature of such inconsistencies; and 3) recommendations concerning the action that could be taken by the Council to conform the amendment to the requirements of applicable law.

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**Table 2.5.2. Alternative 2.** Adopt the following base framework procedure:

<b>OPEN FRAMEWORK</b>					
<p><b>1. Situations under which it can be used:</b></p> <p><b>A. A new stock assessment or other information indicates changes should be made to: the OFL, ABC, or other associated management parameters.</b></p> <p>The Council may, as part of a proposed framework action:</p> <ul style="list-style-type: none"> <li>- Propose an ACL and any corresponding adjustments to OY</li> <li>- Propose adjustments to: MSY proxy</li> </ul>					
<p><b>B. New information or circumstances</b></p> <ul style="list-style-type: none"> <li>- The Council will as part of a proposed framework action, identify the new information and provide rationale as to why this new information indicates that management measures should be changed.</li> </ul>					
<p><b>C. Changes are required to comply with applicable laws such as MSA, ESA, MMPA, or are required as a result of a court order.</b></p> <ul style="list-style-type: none"> <li>- In such instances, the RA will notify the Council in writing of the issue and that action is required. If there is a legal deadline for taking action, the deadline will be included in the notification.</li> </ul>					
<p><b>2. Types of Open Frameworks:</b></p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: center; border: none;"><u>Abbreviated Framework</u></th> <th style="text-align: center; border: none;"><u>Standard Framework</u></th> </tr> </thead> <tbody> <tr> <td style="border: none;"> <p>Can be used for routine or insignificant changes</p> <p>Request is made with letter or memo from the Council to the RA with supporting analyses (biological, social, economic).</p> <p>If RA concurs and approves action, it will be implemented through publication of FR Notice.</p> </td> <td style="border: none;"> <p>Regulatory changes that do not qualify as routine or insignificant.</p> <p>Requires a completed framework document with supporting analyses.</p> </td> </tr> </tbody> </table>		<u>Abbreviated Framework</u>	<u>Standard Framework</u>	<p>Can be used for routine or insignificant changes</p> <p>Request is made with letter or memo from the Council to the RA with supporting analyses (biological, social, economic).</p> <p>If RA concurs and approves action, it will be implemented through publication of FR Notice.</p>	<p>Regulatory changes that do not qualify as routine or insignificant.</p> <p>Requires a completed framework document with supporting analyses.</p>
<u>Abbreviated Framework</u>	<u>Standard Framework</u>				
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<b>Actions that can be taken under each Framework</b>					
<p style="text-align: center;"><u>Abbreviated Framework</u></p> <ol style="list-style-type: none"> <li>i. Gear marking requirements</li> <li>ii. Vessel marking requirements</li> <li>iii. Restrictions related to maintaining fish in a specific condition (whole condition, filleting, use as bait, etc.)</li> <li>iv. Recreational bag and possession limit changes of not more than 1 fish.</li> <li>v. Size limit changes of not more than one inch of the prior size limit for reef fish.</li> <li>vi. Commercial vessel trip limit changes of not more than 10% of the prior trip limit</li> <li>vii. Changes to the length of an established closed season by no more than 1 day of the existing season.</li> <li>viii. Minor changes to gear modifications, to address conservation issues including to respond to interactions with listed species.</li> </ol>	<p style="text-align: center;"><u>Standard Framework</u></p> <ol style="list-style-type: none"> <li>i. Specification of ABC and other measures (MSY Proxy) included in the ABC control rule (CR) according to mechanism approved control rule or based on any of the approved methods, or if using a different ABC CR based on one of the approved methods in the FMP.</li> <li>ii. Specification of MSST and subsequent adjustment</li> <li>iii. Specification of MFMT or OFL and subsequent adjustment</li> <li>iv. Re-specification of ACLs based on existing approved methods in the FMP.</li> <li>v. Specification (or modification) of trip limits and bag limits</li> <li>vi. Specification (or modification) of size limits</li> <li>vii. Specification (or modification ) of gear restrictions (ranging from modifying current</li> </ol>				



	<p>regulations to a complete prohibition, including to respond to interactions with listed species)</p> <ul style="list-style-type: none"> <li>viii. Rebuilding plans and revisions to approved rebuilding plans.</li> <li>ix. Implementation or changes to in-season accountability measures.</li> <li>x. Closure and closure procedures</li> <li>xi. Implementation or changes to post-season accountability measures                         <ul style="list-style-type: none"> <li>(1) Adjustment to season lengths</li> <li>(2) Changes to AM triggers and AM timing</li> </ul> </li> <li>xii. Reporting and monitoring requirements</li> <li>xiii. Stock complex composition (reorganization of species within stocks)</li> <li>xiv. Changes to established seasonal or year-round closures</li> <li>xv. Changes specified under Abbreviated Framework column (left) that exceed the established thresholds.</li> </ul>
<p>3. The Council will initiate the open framework process to inform the public of the issues and develop potential alternatives to address the issues. The framework process will include the development of documentation and public discussion during at least one council meeting.</p>	
<p>4. Prior to taking final action on the proposed framework action, the Council may convene its SSC or AP, as appropriate, to provide recommendations on the proposed actions.</p>	
<p>5. For all framework actions, the Council will provide the letter, memo, or the completed framework document along with proposed regulations to the Regional Administrator in a timely manner following final action by the Council.</p>	
<p>6. For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA and other applicable law.</p>	
<p><b>CLOSED FRAMEWORK</b></p>	
<p>Consistent with existing requirements in the FMP and implementing regulations, the RA is authorized to conduct the following framework actions through appropriate notification in the Federal Register:</p> <ul style="list-style-type: none"> <li>a. Close or adjust harvest of any sector of the fishery (i.e. revert any bag limit to zero and close any commercial fishery) for a stock or stock complex that has a quota.</li> <li>b. Reopen any sector of the fishery that had been prematurely closed.</li> <li>c. Implement accountability measures, either in-season or post-season. Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year.</li> </ul>	



**Table 2.5.3. Alternative 3.** Adopt the following framework procedure (Broad):

<b>OPEN FRAMEWORK</b>
<ol style="list-style-type: none"> <li>1. The council may utilize this framework procedure to implement management changes in response to any additional information or changed circumstances.                             <ol style="list-style-type: none"> <li>a. The Council will, as part of a proposed framework action, identify any new information and provide rationale as to why this new information requires that management measures be adjusted.</li> </ol> </li> <li>2. Open framework actions may be implemented at any time based on information supporting the need for adjustment of management measures or management parameters:</li> </ol>
<p><b>Actions that can be taken under Framework</b></p> <ol style="list-style-type: none"> <li>i. Specification of ABC and other measures (MSY Proxy) included in the ABC CR according to mechanism approved control rule or based on any of the approved methods, or if using a different ABC control rule based on one of the approved methods in the FMP.</li> <li>ii. Specification of MSST and subsequent adjustment</li> <li>iii. Specification of MFMT or OFL and subsequent adjustment</li> <li>iv. Re-specification of ACLs based on existing approved methods in the FMP.</li> <li>v. Recreational Bag and Possession Limits</li> <li>vi. Size Limits</li> <li>vii. Commercial Trip Limits</li> <li>viii. Changes to established seasonal or year-round closures</li> <li>ix. Stock complex composition (reorganization of species within stocks)</li> <li>x. Specification (or modification ) of gear restrictions (ranging from modifying current regulations to a complete prohibition, including to respond to interactions with listed species)</li> <li>xi. Rebuilding plans and revisions to approved rebuilding plans</li> <li>xii. Implementation or changes to in-season accountability measures.</li> <li>xiii. Closure and closure procedures</li> <li>xiv. Implementation or changes to post-season accountability measures                             <ol style="list-style-type: none"> <li>(1) Adjustment to season lengths</li> <li>(2) Changes to AM triggers and AM timing</li> </ol> </li> <li>xv. Reporting and monitoring requirements</li> <li>xvi. Any other measures deemed appropriate by the Council</li> </ol>
<ol style="list-style-type: none"> <li>3. The Council will initiate the open framework process to inform the public of the issues and develop potential alternatives to address the issue. The framework process will include the development of documentation and public discussion during one council meeting.</li> </ol>
<ol style="list-style-type: none"> <li>4. For all framework actions, the Council will provide the letter, memo, or the completed framework document along with proposed regulations to the Regional Administrator in a timely manner following final action by the Council.</li> </ol>
<ol style="list-style-type: none"> <li>5. For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA and other applicable law.</li> </ol>
<b>CLOSED FRAMEWORK</b>
<p>Consistent with existing requirements in the FMP and implementing regulations, the RA is authorized to conduct the</p>



- following framework actions through appropriate notification in the Federal Register:
- a. Close or adjust harvest any sector of the fishery (i.e. revert any bag limit to zero and close any commercial fishery) for a stock or stock complex that has a quota.
  - b. Reopen any sector of the fishery that had been prematurely closed.
  - c. Implement accountability measures, either in-season or post-season.
  - d. Take any other immediate action specified in the regulations.

**Table 2.5.4. Alternative 4.** Adopt the following framework procedure (Narrow):

<b>OPEN FRAMEWORK (ONLY THE FOLLOWING:)</b>
<p><b>A. A new stock assessment or other information indicates changes should be made to: the OFL, ABC, or other associated management parameters.</b></p> <p>In those instances, the Council may, as part of a proposed framework action:</p> <ul style="list-style-type: none"> <li>- Propose an ACL and any corresponding adjustments to OY.</li> <li>- Propose adjustments to the MSY proxy.</li> </ul>
<p><b>Open Framework actions may be implemented only in response to the above conditions. Actions that may be implemented via the framework include only the following:</b></p>
<ol style="list-style-type: none"> <li>i. Bag and Possession Limits</li> <li>ii. Size Limits</li> <li>iii. Changes to established seasonal or year-round closures</li> <li>iv. Reporting and monitoring requirements</li> </ol>
<p>The Council will initiate the open framework process to inform the public of the issues and develop potential alternatives to address the issue. The framework process will include the development of documentation and public discussion during at least three council meetings, and shall be discussed at separate public hearings within the areas most affected by the proposed measures.</p>
<p>Prior to taking final action on the proposed framework action, the Council shall convene its SSC and AP to provide recommendations on the proposed actions.</p>
<p>For all framework actions, the Council will provide the letter, memo, or the completed framework document and all supporting analyses, along with proposed regulations to the Regional Administrator in a timely manner following final action by the Council.</p>
<p>For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA and other applicable law. The RA will provide the Council weekly updates on the status of the proposed measures.</p>
<b>CLOSED FRAMEWORK</b>
<p>Consistent with existing requirements in the FMP and implementing regulations, the RA is authorized to conduct the following framework actions through appropriate notification in the Federal Register:</p> <ol style="list-style-type: none"> <li>a. Close or adjust harvest any sector of the fishery (i.e. revert any bag limit to zero and close any commercial fishery) for a stock or stock complex that has a quota.</li> <li>b. Reopen any sector of the fishery that had been prematurely closed.</li> <li>c. Implement accountability measures, either in-season or post-season.</li> </ol>