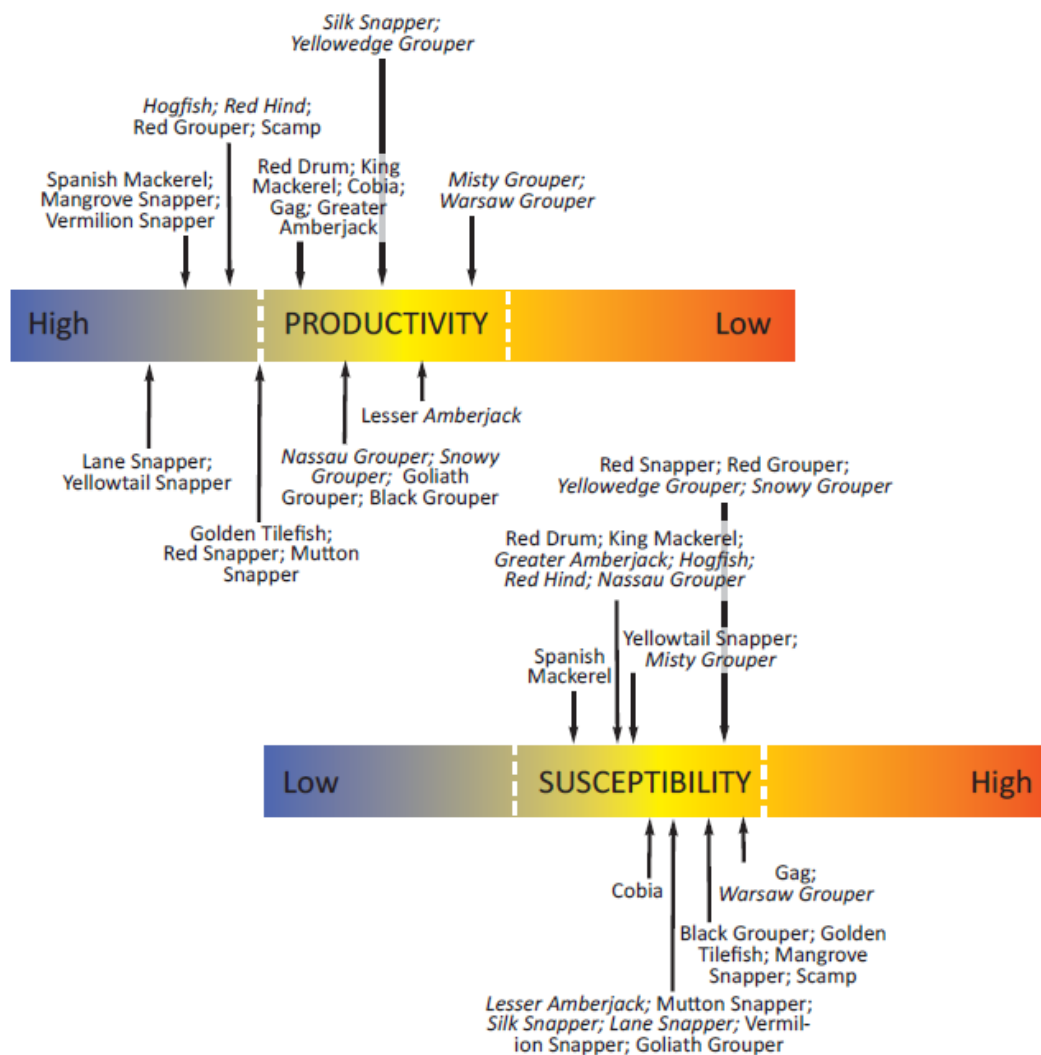
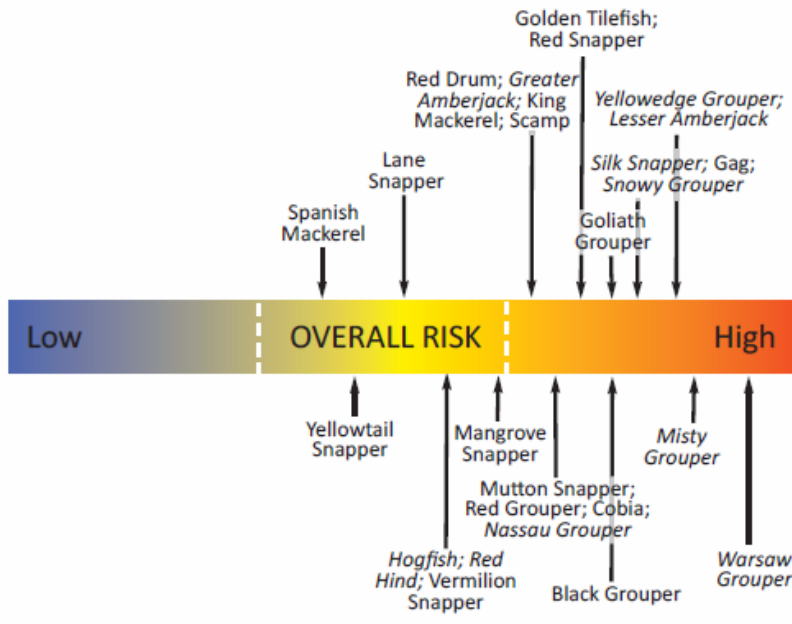


Productivity and Susceptibility Analyses: Gulf of Mexico

Productivity and susceptibility analyses (PSA) were conducted for 26 species managed by the Gulf of Mexico Fishery Management Council (GMFMC). Of these, three are managed under the Coastal Migratory Pelagics Fishery Management Plan (FMP), one is red drum (Red Drum FMP) and the remaining 22 are managed through the Reef Fish FMP.

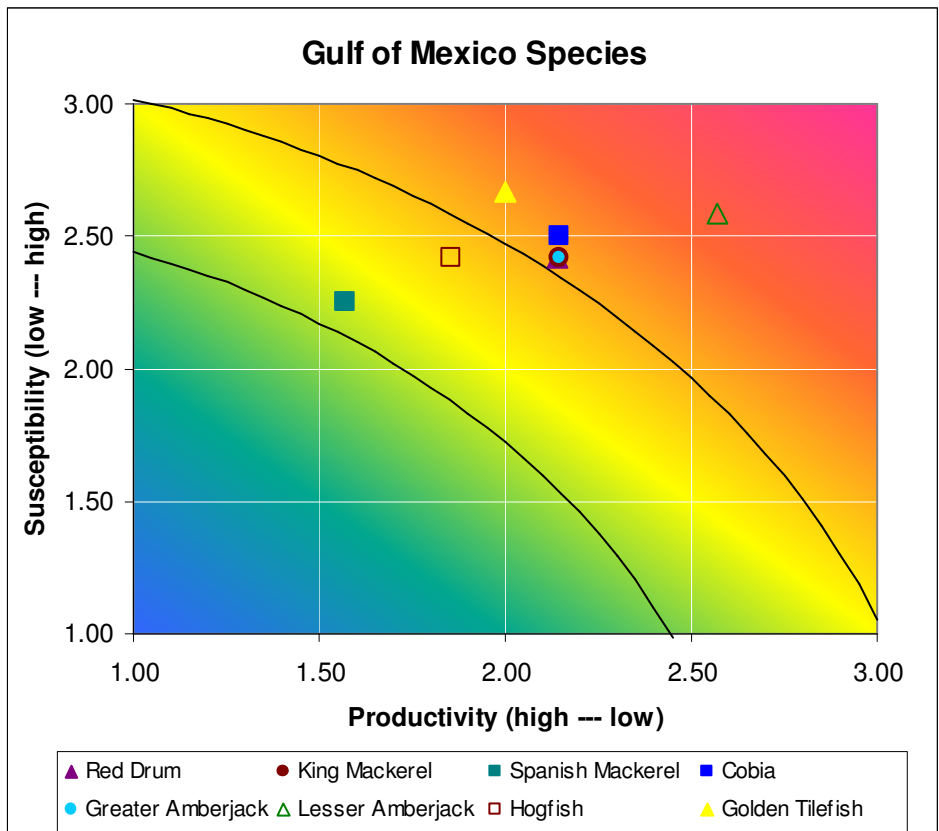
Of these 26, eight scored moderate overall risk, and eighteen scored high overall risk. Of those 18, seven are missing information for at least one attribute; of the seven, one is missing information for two attributes and two are missing information for three or more attributes. In the following figures, the italicized stock names are those stocks where at least one attribute is missing information and was given a high score due to that uncertainty, in accordance with the CSIRO's treatment of uncertainty in their ERAEF methodology. In the plotted results below, open symbols indicate uncertainty.



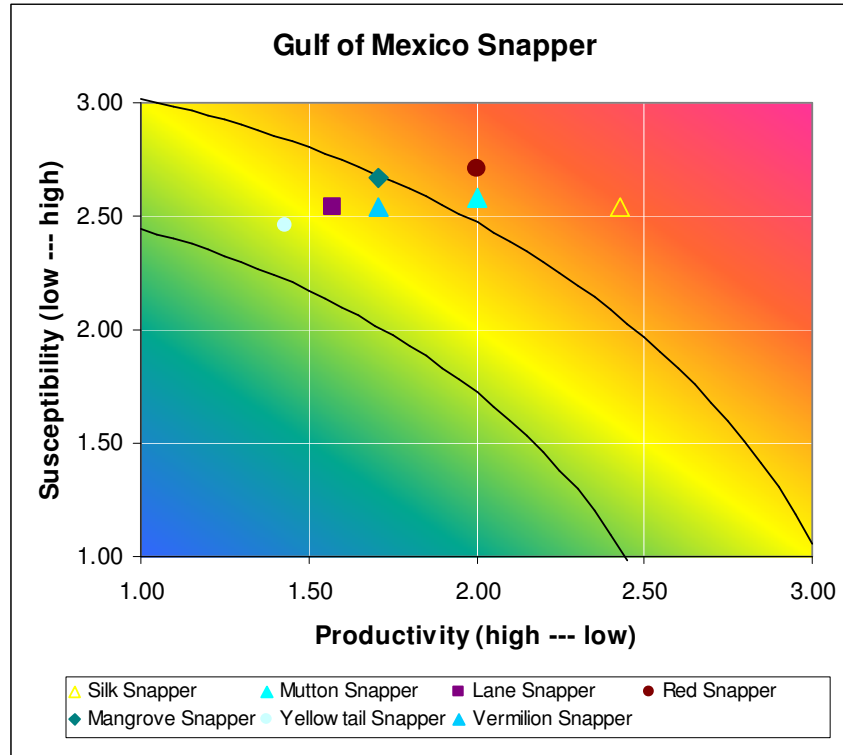


Coastal Migratory Pelagics: King Mackerel, Spanish Mackerel, Cobia

Red Drum and Reef Fish Resources: Red Drum, Greater Amberjack, Lesser Amberjack, Hogfish and Golden Tilefish



Reef Fish Resources, Snapper: Silk Snapper, Mutton Snapper, Lane Snapper, Red Snapper, Mangrove Snapper, Yellowtail Snapper, Vermilion Snapper



		Migratory Pelagics			Reef Fish Resources					
		King Mackerel	Spanish Mackerel	Cobia	Red Drum	Greater Amberjack	Lesser Amberjack	Hogfish	Tilefish	
Productivity	Age at maturity	high	low	high	med	med	unk	unk	high	
	Size at maturity	med	med	med	high	high	unk	low	med	
	Maximum age	med	low	med	high	med	unk	med	high	
	Maximum size	high	med	high	med	high	med	med	med	
	Fecundity	low	low	low	low	low	unk	low	low	
	Reproductive strategy	low	low	low	low	low	low	low	low	
	Trophic level	high	high	high	high	high	high	high	med	
	Productivity Score	2.14	1.57	2.14	2.14	2.14	2.57	1.86	2.00	
Susceptibility	Availability	Global Dist	med	high	low	high	low	high	high	high
		Behavior	med	high	high	high	high	med	high	high
	Encounterability	Habitat	low	low	low	high	low	m	high	high
		Bathymetry	high	high	high	high	high	high	high	high
	Selectivity	Size at Mat	med	med	med	med	med	unk	unk	high
		Max Size	high	med	high	med	high	med	med	med
		Desirability	med	low	high	med	med	med	low	med
	Post Capture Mortality	high	high	high	high	high	high	high	high	
	Susceptibility Score	2.42	2.25	2.50	2.42	2.42	2.58	2.42	2.67	
	Overall Risk Score	3.23	2.74	3.29	3.23	3.23	3.64	3.05	3.33	
Risk Ranking	High	Med	High	High	High	High	Med	High		
Overfishing	no	no	no	no	yes	unk	unk	unk		
Overfished (Depleted)	no	no	no	undef	yes	undef	undef	undef		

unk = unknown attribute values are treated with precaution and assigned high risk; stock status unknown
 undef = status determination criteria not defined low, med, high = risk score for attribute value
RED = overfished and overfishing is occurring

		Reef Fish Resources (Snapper Species)							
		Silk Snapper	Mutton Snapper	Lane Snapper	Red Snapper	Mangrove Snapper	Yellowtail Snapper	Vermilion Snapper	
Productivity	Age at maturity	high	med	low	med	med	low	med	
	Size at maturity	med	med	low	med	low	low	low	
	Maximum age	high	high	med	high	med	med	med	
	Maximum size	med	med	med	low	med	med	med	
	Fecundity	unk	low	low	low	low	low	low	
	Reproductive strategy	low	low	low	low	low	low	low	
	Trophic level	high	high	high	high	high	med	high	
	Productivity Score	2.43	2.00	1.57	2.00	1.71	1.43	1.71	
Susceptibility	Availability	Global Dist	med	high	med	med	high	med	med
		Behavior	high	high	high	high	high	high	high
	Encounterability	Habitat	high	high	high	high	high	high	high
		Bathymetry	high	high	high	high	high	high	high
	Selectivity	Size at Mat	med	med	med	low	med	low	low
		Max Size	med	med	med	low	med	med	med
		Desirability	high	med	med	high	med	high	med
	Post Capture Mortality	high	high	high	high	high	high	high	
Susceptibility Score	2.54	2.58	2.54	2.71	2.67	2.46	2.54		
Overall Risk Score	3.52	3.27	2.99	3.37	3.17	2.84	3.07		
Risk Ranking	High	High	Med	High	Med	Med	Med		
Overfishing	unk	no	unk	yes	unk	no	no		
Overfished (Depleted)	undef	no	undef	yes	undef	no	no		

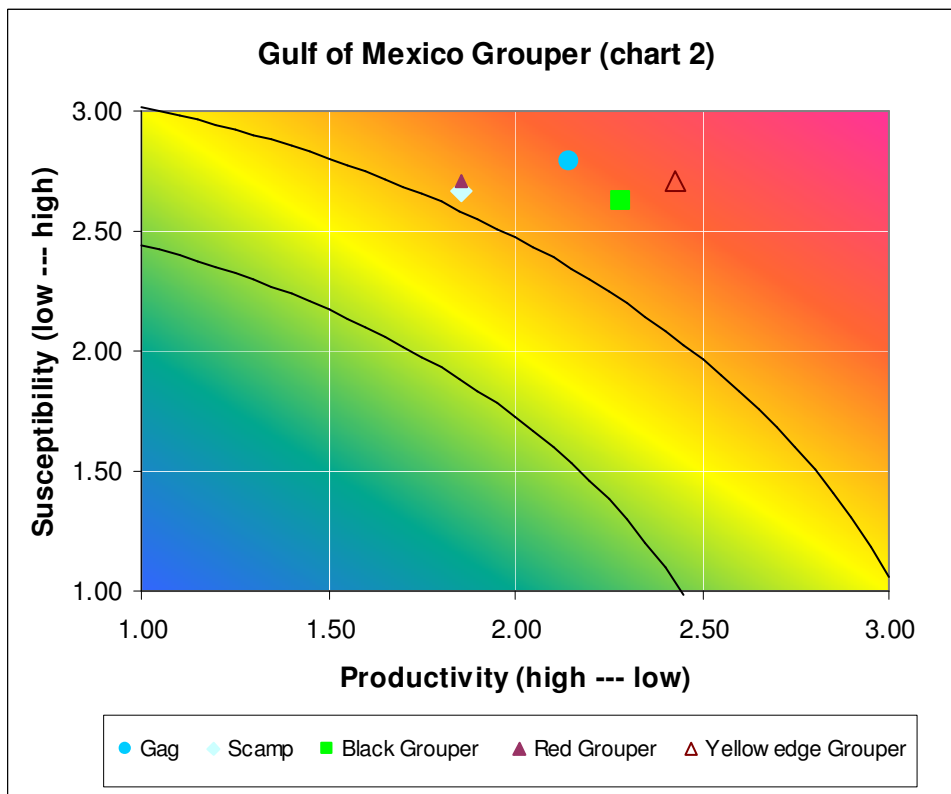
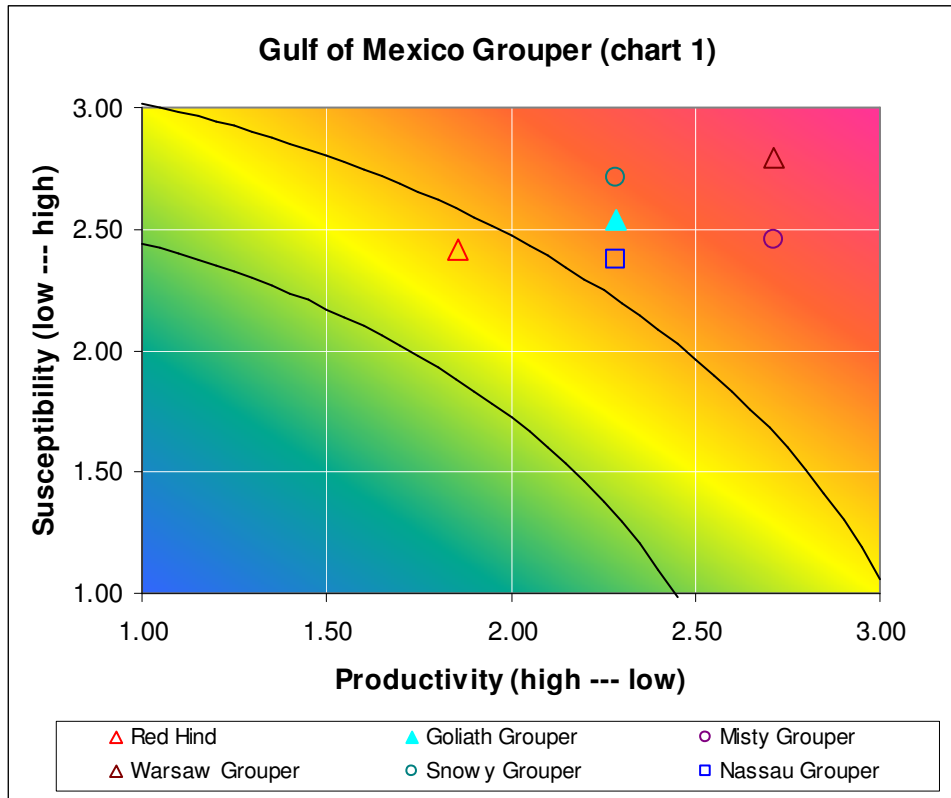
unk = unknown attribute values are treated with precaution and assigned high risk; stock status unknown

undef = status determination criteria not defined

low, med, high = risk score for attribute value

RED = overfished and overfishing is occurring

Reef Fish Resources, Grouper: Red Hind, Goliath Grouper, Misty Grouper, Warsaw Grouper, Snowy Grouper, Nassau Grouper, Gag, Scamp, Black Grouper, Red Grouper, Yellowedge Grouper



		Reef Fish Resources (Grouper Species)											
		Red Grouper	Yellowedge Grouper	Red Hind	Goliath Grouper	Misty Grouper	Warsaw Grouper	Snowy Grouper	Nassau Grouper	Gag	Scamp	Black Grouper	
Productivity	Age at maturity	med	high	unk	med	unk	high	high	high	med	med	high	
	Size at maturity	med	med	low	high	high	unk	med	med	high	med	high	
	Maximum age	med	high	med	high	unk	high	med	med	high	med	high	
	Maximum size	med	med	med	high	high	high	med	med	med	med	med	
	Fecundity	low	unk	low	low	unk	unk	unk	unk	low	low	low	
	Reproductive strategy	low	low	low	low	low	low	low	low	low	low	low	
	Trophic level	high	high	high	high	high	high	high	high	high	high	high	
Productivity Score		1.86	2.43	1.86	2.29	2.71	2.71	2.29	2.29	2.14	1.86	2.29	
Susceptibility	Availability	Global Dist	med	med	high	med	high	med	med	med	med	high	med
		Behavior	high	high	high	high	unk	high	high	high	high	high	high
	Encounterability	Habitat	high	high	high	high	high	high	high	high	high	high	high
		Bathymetry	high	high	high	high	high	high	high	high	high	high	high
	Selectivity	Size at Mat	med	med	low	high	high	unk	med	med	high	med	med
		Max Size	med	med	med	high	high	high	med	med	med	med	med
		Desirability	high	high	low	low	low	med	high	low	high	high	high
	Post Capture Mortality		high	high	high	high	high	high	high	high	high	high	high
Susceptibility Score		2.71	2.71	2.42	2.54	2.46	2.79	2.71	2.38	2.79	2.67	2.63	
Overall Risk Score		3.28	3.64	3.05	3.42	3.66	3.89	3.54	3.30	3.52	3.25	3.48	
Risk Ranking		High	High	Med	High	High	High	High	High	High	High	High	
Overfishing		no	unk	unk	no	unk	unk	unk	no	yes	unk	unk	
Overfished (Depleted)		no	undef	undef	unk	undef	undef	undef	undef	undef	undef	undef	

unk = unknown attribute values are treated with precaution and assigned high risk; stock status unknown

undef = status determination criteria not defined low, med, high = risk score for attribute value