

Summary Table of Stone Crab, (<u>Menippe adina</u>) life history for the Gulf of Mexico. Associations and interactions with environmental and habitat variables are listed with citations.												
							Trophic relationships		Habitat Associations and Interactions			
Life Stage	Season	Location	Temp(°C)	Salinity(ppt)	Oxygen	Depth(m)	Food	Predators	Habitat Selection	Growth	Mortality	Production
Eggs	Spring through Fall	Brooded extremely beneath female abdomen; ovigerous females subtidal to shallow shelf; northern Gulf of Mexico	Ovigerous females collected in temperatures from 18° to 29°C	Ovigerous females collected at salinities from 14% to 33%		Similar to spawning females; subtidal to shallow shelf						
Citation	1,2,3	1,3,4,5,6,7,8	1	1		1,3,6,7,8			1			
Larvae 5 zoeal stages	April through September. Most abundant in late spring and summer	Lower estuary to shallow shelf; northern Gulf of Mexico	22°C to 32°C in wild. Most collected between 27°C and 31°C. Highest survival in laboratory studies at 30°C	17ppt to 30ppt in wild. Most collected between 15ppt and 30ppt. Highest survival in laboratory studies at 30ppt		planktonic; lower estuary to shallow shelf	Assumed to be other meroplanktonic larvae and permanent 300 plankton laboratory reared specimen thrive on Artemia	Primary plankton feeding carnivores, larval fish, and other 300 plankton		Development through zoeal stages about 2 weeks; actual time dependent on temperature and salinity; fastest development time in laboratory studies at 30°C and 20ppt		
Citation	1	1,26	1,4	1,4		1	4,9	10		4,11		
Post Larvae -1- Megalopal Stage	May through October most abundant in Summer and early Fall	Subtidal to lower estuary; northern Gulf of Mexico	18°C to 34°C in wild-most collected between 27°C and 34°C. Highest survival in laboratory studies at 30°C	9ppt to 30ppt in wild. Most collected between 15ppt and 30ppt. Highest survival in laboratory studies at 30ppt		Semi-planktonic, more benthic near the end of megalopal stage; subtidal to lower estuary	Laboratory reared specimens thrive on Artemia	No data specific to this species	Rock jetties, oyster reefs, mud sediments near structures	Duration of megalopal stage 4 to 6 days. Larval development can be completed within the estuary		
Citation	1	11	1,4	1,45		12	4		1	1,11		Stone Crab, (<u>Menippe adina</u>) cont.
							Trophic relationships		Habitat Associations and Interactions			
Life Stage	Season	Location	Temp(°C)	Salinity(ppt)	Oxygen	Depth(m)	Food	Predators	Habitat Selection	Growth	Mortality	Production

Early Juveniles	Year-round. Most abundant from July through October	Intertidal to lower estuary; northern Gulf of Mexico	7° to 33°C in wild-most collected in temperatures at or above 25°C. Optimum survival temperatures from laboratory studies - 21° and 23°C	0ppt to 34ppt in wild-most collected from 15ppt to 34ppt can tolerate salinities below 5ppt for 3-4 weeks. Optimum survival salinity from laboratory studies = 33ppt		Intertidal to lower estuary	Opportunistic omnivores; feed on molluscs, crustaceans, flatworms, vegetative matter	<u>Sciaenops ocellatus</u> and other fish species, oyster drills and larger <u>Menippe adina</u>	Rock jetties, oyster reefs, rubble, mud sediments near structures.	Growth in small-scale culture systems estimated to be 0.186mm/day. Intermolt period increases with age		
Citation	1	1	1,13	1,13		1	7	7,14	1	11		
Late Juveniles 10mm and above CW	Year-round. More abundant late fall through spring	Intertidal to lower estuary; northern Gulf of Mexico	7° to 33°C in wild-most collected in temperatures at or above 25°C. Highest survival in laboratory studies at 15°C for salinities of 5,15,25 and 33ppt	0ppt to 34ppt in wild-most collected in salinities from 20 to 29ppt highly tolerant of environmental fluctuations in salinity		Intertidal to lower estuary	Opportunistic omnivores. Major food items include molluscs, crustaceans, flatworms, vegetative matter	<u>Scianenops ocellatus</u> and other fish species, oyster drills and larger <u>Menippe adina</u>	Rock jetties, oyster reefs, rubble, mud sediments near structures.		Fishing mortality rates are greatly in excess of those consistent with a healthy spawning stock	Commercial harvest has declined from around 7 mil lbs. in the 1960s and 1970s to 2 to 3 million lbs. in the early 1990's.
Citation	1	1	1,17	1,23		1	7	7,14	1		7	7Stone Crab, (<u>Menippe adina</u>)
Trophic relationships						Habitat Associations and Interactions						
Adults	Most abundant spring through fall. Peak abundance late summer and fall	Coastal and estuarine waters from northwest Florida to the state of Tamaulipas, Mexico	13°C to 29°C in wild. Highest survival in laboratory studies at 15°C and 25°C	0.1ppt to 39ppt in wild. Highest survival in laboratory studies at 15ppt, 25ppt, and 35ppt	Can tolerate reduced levels of dissolved oxygen	Intertidal to 40 meters	Opportunistic omnivores. Major food items include oysters, acorn barnacles, misc. molluscs, other crustaceans	No data specific to this species	Intertidal mud flats, oyster reefs, rock jetties, mud bottoms near structure and along the edge of channels in mild to lower estuarine waters	No data specific to this species on age-related size. Exhibites allometric growth between the sexes and between juveniles and adults		Large interannual fluctuations in abundance limited potential for development of large-scale directed fisheries
Citation	2,6	2				1			1			
Spawning Adults	March through September. Most abundant from May through July	Coastal and mid to lower estuarine waters; northern Gulf of Mexico	Ovigerous females not collected at temperatures below 18°C. Most collected in temperatures above 22°C	Ovigerous females collected in salinities from 14ppt to 33ppt		Subtidal estuarine waters to shallow shelf	Similar to non-spawning adults		Channels, mud and sand areas in mid to lower estuarine waters	Average size of ovigerous females differ seasonally - larger in August and September. Size at 50% sexual maturity for males=71 mm CW		
Citations	1,2,3	1,3,7	1	1		1,3,6	7,21,24		1,3	1,3,25		

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