

Brown Shrimp (*Penaeus aztecus*) life history for the Gulf of Mexico. Associations and interactions with environmental and habitat variables are listed with citations as footnotes.

Life stage	Eco-region	Habitat Zone	Habitat Type	Season	Temp (°C)	Depth (m)	Prey	Predators	Mortality	Growth
fertilized eggs (0.26 mm diameter) _{1, 5, 12, 13, 24}	ER-3, ER-4, ER-5	offshore	soft bottom, sand/shell	fall and spring	>24	<i>18-110</i>				hatch 24 hrs after spawning
larvae, pre-settlement postlarvae (< 14 mm) _{1, 5, 13, 24, 25, 63, 84, 93, 109}	ER-3, ER-4, ER-5	estuarine, nearshore, offshore	WCA	year-round, peak: spring	28-30	0-82	phytoplankton and zooplankton	fish, some zooplankton		
late postlarvae, juveniles (14-80 mm) _{1⁻3, 6, 8⁻11, 13⁻16, 18, 21⁻24, 27⁻30, 32⁻37, 41⁻50, 54⁻61, 64⁻83, 85, 86, 94⁻98, 106, 110, 116, 118}	ER-3, ER-4, ER-5	estuarine	SAV, emergent marsh, oyster reef, soft bottom, sand/shell	spring-fall	7-35	< 1	benthic algae, polychaete worms, peracarid crustaceans	fish (southern flounder, spotted seatrout, red drum, Atlantic croaker, pinfish, sea catfish)	predation is major cause of mortality, cold temperatures in shallow water	Higher growth rates in salt marsh than soft bottom and with carnivorous feeding; reduced growth in low salinity due to increased metabolic costs and decreased food resources; 0.9 mm/day

sub-adults ₁ , 3, 4, 8, 9, 13, 24, 27, 34, 37, 40, 41, 52, 62, 65-81, 98, 101, 103, 119	ER-3, ER-4, ER-5	estuarine, nearshore	soft bottom, sand/shell	spring- fall	18-28	1-18	Polychaetes, amphipods, other benthic inverts	fish (southern flounder, spotted seatrout, red drum, Atlantic croaker, pinfish, sea catfish)	cold fronts, hypoxia	
non- spawning adults (females > 140 mm TL ₁ , 2, 3, 4, 12, 13, 24, 26, 38, 39, 40, 101, 104, 111, 112, 113	ER-3, ER-4, ER-5	offshore	soft bottom, sand/shell	summer and fall	10-37	14-110	omnivorous, feed at night	larger fish		
spawning adults ₁ , 4, 5, 12, 13, 24, 38, 39, 40	ER-3, ER-4, ER-5	offshore	soft bottom, sand/shell	fall and spring, year- round in depths > 64 m		18-110	omnivorous, feed at night	larger fish		

Notes: Larvae, pre-settlement postlarvae: salinity 24-36 ppt₁₃
Late postlarvae/
juveniles: population in shallow water habitats of Galveston Bay estimated at 1.3 billion₁₁₄
salinity = 2-40 ppt_{1, 2, 6, 13, 24, 47, 82, 83}
DO > 1 ppm_{2, 34, 85, 96-98}
production related to amount of marsh edge and elevation of marsh surface
research following the Deepwater Horizon oil spill showed decreased growth in heavily oil marsh shorelines₁₁₈

Sub-adults: salinity = 0.9-30.8 ppt₁₀₇
DO > 1 ppm_{2, 34, 87, 88, 89, 96-98, 102}
Impoundments of estuarine areas have been shown to decrease production.

Notes cont:

Correlations exist between abundance of sub-adults and landings offshore

Non-spawning adults:

salinity = 2-35 ppt₂

reducing discards from the fishery can affect shrimp productivity_{39, 111, 112, 113}

DO > 2 ppm₂

Hypoxia affects spatial distribution of brown shrimp₁₁₅

Brown shrimp populations have shown declines with wetland and marsh edge loss₁₁₇

Bold and italicized font indicates proxy data