Summary table of white shrimp (*Penaeus setiferus)* life history information 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 (ppm)**	**Depth (m)**	**Food**	**Predators**	**Selection**	**Growth**	**Mortality**	**Production**
Non-spawning adults	Most abundant in late summer and fall	Nearshore waters - overwinter offshore, then move inshore in spring; concentrated off LA, TX, and Tabasco; greatest densities occur	Tolerant of temperatures between 7 and 38 °	Survival is good between 2Ð35Êppt in ponds; adults usually exposed to less variability in nature	2 ppm or less causes stress	Usually inhabit nearshore waters <27 m deep; abundant at a depth of 14 m	Omnivorous	Few trawl-caught fish appear to eat white shrimp, major predators may be larger fish	Prefer soft bottom sediments with high organic matter content			Trophic models developed for bycatch management indicate that reducing discards from the fishery can affect shrimp productivity.
Citations:	1, 52	1, 3, 26, 27, 36, 52, 57	35, 83, 87	2	2	1, 3, 12, 52, 88	1	38, 39, 40	1			39, 78, 80, 99
Spawning adults	Mainly spring to late fall, but peaks in the summer (June-July)	Offshore; limited spawning also may occur within estuaries and bays		Prefer salinities for spawning of at least 27 ppt		Spawning occurs offshore over shelf in water 9 to 34 m deep, but mostly < 27 m deep; limited spawning may occur within estuaries and bays	Omnivorous	Few trawl-caught fish appear to eat white shrimp, major predators may be larger fish				
Citations:	17, 47, 52	3, 52		6		5, 12, 92	1	38, 39, 40				
Fertilized eggs (0.28 mm diameter)	Spring to fall; assumed similar to spawning adults above	Offshore-over shelf; also may occur within estuaries				Distribution assumed similar to spawning adults above; eggs are demersal and hatch 10-12 hrs after spawning						
Citations:	12, 52	12, 52				26						
Larvae and pre-settlement postlarvae	Present offshore spring through fall. Peak recruitment of postlarvae into estuaries occurs in June and September.	Mainly offshore-over shelf and in passes to estuaries; also within estuaries	*Penaeus*			Collected from shore out to 82 m deep	Phytoplankton and zooplankton; feeding begins at first protozoel stage	Fish and perhaps some zooplankton (e.g., Chaetognatha).	Postlarvae migrate through passes (upper 2m of water column at night and middepths during day) mainly from May-November with a peak in June and a second peak in September			
Citations:	1, 26, 52, 84	1, 25, 26, 52, 84	25			25	1, 52	52	1, 26, 84, 90, 91			

Late postlarvae and juveniles	Present late spring through fall; most abundant in late summer and early fall	Found in estuaries; concentrated in LA, TX, and MS	Postlarvae collected 13-31 °	Postlarvae collected between 0.4 and 37 ppt and survive at 40 ppt for 30 days, but growth less at 35 than 25 ppt; juveniles prefer <10 ppt and growth in laboratory is retarded at 35-40 ppt	Juveniles avoid 1.0 and 1.5 ppm water; not lethal until below 1.0 ppm	Generally occur in shallow water habitats (< 1 m)	Omnivorous; detritus is common in guts, but may be of little nutritional value; prey items include annelid worms, pericarid crustaceans, caridean shrimp, diatoms; lab reared grow and survive best on combination animal-vegetal	Fishes, including spot, killifish, silverperch, blackdrum, sand seatrout, southern flounder, spotted seatrout, red drum, inshore lizardfish, Atlantic croaker, and pinfish; blue crabs and seabirds	Densities usually highest in marsh edge and submerged aquatic vegetation followed by marsh ponds and channels, inner marsh, shallow subtidal , and oyster reefs; on nonvegetated bottom, muddy substrates with high organic content selected; turbid estuaries	Growth rates of postlarvae increase with temperature between 18 and 32.5 °	As for brown shrimp, predation is likely a major cause of mortality; because white shrimp burrow shallower and less frequently than brown shrimp, they may be more vulnerable to predation	No mechanistic production model available, but variables identified as important in brown shrimp models may also be important for white shrimp; coastal wetland area, amount of marsh edge, and elevation of the marsh surface appear related to production
Citations:	1, 52	3	2, 10, 11, 37, 47, 52, 53, 63, 83	2, 1, 52, 83, 86	2, 96, 97, 98	14, 33, 44, 56, 64, 75, 79	5, 7, 20-22, 24, 33, 52, 74, 92, 94, 95	5, 15, 21, 22, 33, 40, 52, 65-73, 76, 77, 81, 85, 89	1, 8, 9, 18, 19, 23, 28-31, 33, 34, 41, 42, 44-46, 50, 52, 54, 55, 58-61, 64, 75	1, 2, 21, 22	32, 33, 80	31, 43, 45, 48, 49, 51, 54, 56
Sub-adults	Present summer through fall; most abundant in August and September	Found in open water of bays and nearshore over shelf; concentrated in LA, TX, and MS	Cold fronts can cause mass mortality; in South Carolina, survival requires minimum temperature of > 6 °	Abundant from 1 to 21 ppt; salinity has little effect on distribution	Juveniles avoid 1.0 and 1.5 ppm water; oxygen requirement increases with temperature	Generally greater than 1 m and <30 m on the shelf	Omnivorous, scavengers; consume annelids, insects, detritus, gastropods, copepods, bryozoans, sponges, corals, fish, filamentous algae, vascular plant stems and roots	Fishes (same species listed above that prey on juveniles) are predators in estuaries; predation may be lower after leaving estuary	Select soft mud or silt substrate over sand and shell; migration from estuaries occurs in late August and September and appears related to shrimp size and environmental conditions in the estuary (e.g., sharp drops in temperature during fall and winter)			Impoundments of estuarine areas have been shown to reduce production
Citations:	1, 52	1, 3	10, 37, 47, 52, 53, 63, 70	2	2	1, 16, 52, 63, 82, 92	1, 67, 82, 92	5, 15, 21, 22, 40, 52, 65-73, 76, 77, 85, 89	13, 16, 26, 47, 52, 57, 63, 92, 93			62

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