

Summary Table of Dolphin, (*Coryphaena hippurus*) life history for the Gulf of Mexico. Associations and interactions with environmental and habitat variables are listed with citations.

Life Stage	Season	Location	Temp(°C)	Salinity(ppt)	Oxygen	Depth(m)	Trophic relationships		Habitat Associations and Interactions			Production
							Food	Predators	Habitat Selection	Growth	Mortality	
Eggs	Nearly year-round; peaks in spring or summer, depending on location	Pelagic	Hatch in 40 h at 26 C; 38 h at 25 C	Oceanic	Near saturation (6 mg/L)							
Citation	1,4,11,18	6	9,18	9	9							
Larvae	Throughout year; peak in early summer	Pelagic; offshore. Particularly abundant around Mississippi River delta	Most abundant at 24 C and above. Reared at 25-29 in hatchery	Most abundant at 33 ppt and above. Reared at 30-35 in hatchery	Prefer 6 mg/L; sensitive to low DO	Usually found at >50 m depths; most abundant over 180 m contour	Mainly planktonic crustaceans; fish larvae appear in stomachs of dolphins >20 mm SL	Considered to be a significant food source for young billfish	Abundant in <u>Sargassum</u> communities		Very high in first 15 days of hatching; sensitive to environmental conditions and food availability	Mississippi River delta an important area of larval abundance
Citation	4,11	12,18	9,12,18	9,12,18	9	12,18	11,15	11	18		5	18
Early Juveniles	Throughout year, peaking in summer		26-29 C in culture experiments		5.8 mg/l or higher; show signs of distress at <5.5 mg/L			Larger fish, including larger dolphin	Associated with <u>Sargassum</u> communities			
Citation	11		9		7,9			14	13			
Late Juveniles		Inshore and Offshore					Fish, including larger dolphin; squid and crustaceans	Larger pelagic fishes.	Closely associated with <u>Sargassum</u> communities and drifting objects			
Citation	4,6						8	11,14	6,13			Dolphin, (<i>Coryphaena hippurus</i>) 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

Adults	Highest catches are reported in summer; makes seasonal north-south migrations	Oceanic pelagic; both offshore and coastal inshore	20 C isotherm considered northern distributional limitation; more numerous at 25-28 C	Oceanic; 32-35ppt used in culture experiments	Poor tolerance for low oxygen conditions; ideally 6 mg/L	Out to 1800 m depths; most common at 40-200 m	Pelagic fishes, such as carangids, scombrids and flying fishes; also crustaceans and cephalopods	Larger pelagic fishes, such as billfish	Closely associated with <u>Sargassum</u> communities and drifting objects	Grow rapidly throughout life cycle; grow fastest at temperatures of 23.9-29.4 C	Have a short life span (2-4 yrs). Have high natural mortality due to predation. Small dolphin vulnerable to fishing pressure due to formation of close-knit schools	
Citation	10,11,13	4,11	1,4,9,11	9	9,17	4,16	4,8,13,14	3,11	11	1,11	1,2,11,13	
Spawning Adults	Multiple spawning occurs nearly throughout year, peaking at various times of year depending on location: Jan-Mar in the Florida current; spring and early fall in Gulf	Offshore; continental shelf and upper slope waters	Usually at >24 C; successfully spawned at 24-29C in culture experiments.	Oceanic								
Citation	1,2,11,13,18	12,13	9,18	9								

Dolphin References

1. Beardsley, G.L., Jr. 1964. Contribution to the biology of the dolphin-fish, *Coryphaena hippurus*, in the Straits of Florida. M.S. Thesis, Univ. Miami, 79 p.
2. Beardsley, G.L., Jr. 1967. Age, growth, and reproduction of the dolphin, *Coryphaena hippurus*, in the Straits of Florida. *Copeia* 1967(2):441-451.
3. Davies, J.H., and S.A. Bortone. 1976. Partial food list of three species of Istiophoridae (Pisces) from the northeastern Gulf of Mexico. *Fla. Sci.* 39(4):249-253.
4. Gibbs, R.H., Jr., and B.B. Collette. 1959. On the identification, distribution and biology of the dolphins, *Coryphaena hippurus* and *C. equiselis*. *Bull. Mar. Sci. Gulf Caribb.* 9(2):117-152.
5. Hassler, W.W., and R.P. Rainville. 1975. Techniques for hatching and rearing dolphin, *Coryphaena hippurus*, through larval and juvenile stages. Univ. North Carolina Sea Grant Prog. Pub. UNC-SG-75-31, 17 p.
6. Johnson, G.D. 1978. Development of fishes of the Mid-Atlantic Bight: an atlas of egg, larval and juvenile stages. U.S. Fish Wildl. Serv. Biol. Serv. Prog. 78/12, v. IV:124-128.
7. Lutnesky, M.M.F., and J.P. Szyper. 1990. Respiratory and behavioral responses of juvenile dolphin fish to dissolved oxygen concentration. *Prog. Fish. Cult.* 52:178-185.
8. Manooch, C.S., III, D.L. Mason, and R.S. Nelson. 1984. Food and gastrointestinal parasites of dolphin *Coryphaena hippurus* collected along the southeastern and Gulf coasts of the United States. *Bull. Jpn. Soc. Sci. Fish.* 50(9):1511-1525.
9. Oceanic Institute. 1993. Technical manual for culture of mahimahi (*Coryphaena hippurus*) at the Oceanic Institute. Oceanic Institute, Honolulu, HI, 77 p.
10. Oxenford, H.A., and W. Hunte. 1986. Migration of the dolphin (*Coryphaena hippurus*) and its implications for fisheries management in the western central Atlantic. *Proc. Gulf Caribb. Fish. Inst.* 37:95-111.
11. Palko, B.J., G.L. Beardsley, and W.J. Richards. 1982. Synopsis of the biological data on dolphin-fishes, *Coryphaena hippurus* Linnaeus and *Coryphaena equiselis* Linnaeus. U.S. Dep. Commer., NOAA Tech. Rep. NMFS Circ. 443, 28 p.
12. Powles, H. 1981. Distribution and movements of neustonic young of estuarine dependent (*Mugil* spp., *Pomatomus saltatrix*) and estuarine independent (*Coryphaena* spp.) fishes off the southeastern United States. *Rapp. P.-V. Reun. Cons. Intl. Explor. Mer* 178:207-209.
13. Rose, C.D. 1965. The biology and catch distribution of the dolphin, *Coryphaena hippurus* (Linnaeus), in North Carolina waters. Ph.D. Diss., North Carolina State Univ., Raleigh, NC, 153 p.
14. Rose, C.D., and W.W. Hassler. 1974. Food habits and sex ratios of dolphin *Coryphaena hippurus* captured in the Western Atlantic Ocean off Hatteras, North Carolina. *Trans. Am. Fish. Soc.* 103(1):94-100
15. Scheckter, R.C. 1972. Food habits of some larval and juvenile fishes from the Florida Current, near Miami, Florida. Tech. Rep. to the EPA. Univ. Miami, RSMAS, 85 p.

16. Schuck, H.A. 1951. Notes on the dolphin (*Coryphaena hippurus*) in North Carolina waters. *Copeia* 1951(1):35-39.
17. Waller, U. 1989. Respiration and low oxygen tolerance of two fish species from the Arabian Sea, *Cubiceps whiteleggi* and *Coryphaena hippurus*. *J. Appl. Ichthol.* 5:141-150.
18. Ditty, J.G., R.F. Shaw, G.B. Grimes, and J.S. Cope. 1994. Larval development, distribution, and abundance of common dolphin, *Coryphaena hippurus*, and pompano dolphin, *C. equiselis* (Family: Coryphaenidae), in the northern Gulf of Mexico. *Fish. Bull.* 92:275-291.