

Scomberomorus cavalla (King Mackerel or Kingfish)

Family: Scombridae (Mackerel, Tunas and Bonitos)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Kingfish, *Scomberomorus cavalla*.

[<http://www.predatorconservation.com/kingfish.htm>, downloaded 30 January 30 2015]

TRAITS. The kingfish is elongated and compressed in shape (Fig. 1). It grows to 1.7m in length and weighs as much as 45kg. The body is entirely scaled except the pectoral fins and the colour of the scales are a combination of white and silver. Colouration of the body is olive on the back fading gradually to silver with an iridescent white on the sides. Kingfish at a young age are marked laterally with yellow spots which fade as the animal grows and reaches maturity (Berrien and Finan, 1977). There are two dorsal fins present, separated by a gap. The first dorsal fin is colourless and folds into a groove while there are 7-10 finlets posterior to the second dorsal fin (Collette and Nauen, 1983). The lateral line starts high on the shoulder and approximately at mid body it dips abruptly and then towards the tail it exists as a wavy horizontal line. The mouth is large and extends to just beneath the eye sockets. The jaw contains 30 large, closely spaced, triangular and uniform teeth on each side (Godcharles and Murphy, 1986).

DISTRIBUTION. The king mackerel is located along the western coast of the Atlantic Ocean (Fig. 2) from North Carolina and sometimes even Massachusetts and Rio de Janeiro in Brazil and also in the Gulf of Mexico (Beaumariage, 1973).

HABITAT AND ACTIVITY. The king mackerel prefers warm and clear waters which are found on outer reefs and coastal waters. It is a schooling fish which migrates seasonally by spending the winter months in south Florida and moving towards more northerly waters in the

summer. Resident populations are found in some waters, but the populations of the Gulf of Mexico and the Atlantic are known to migrate separately. Adult kingfish inhabit green oceanic waters of high salinity near the surface or at depths of 15-200m. This large range is due to the adult kingfish moving into the shallows to hunt, and also because they move inshore during the summer and on higher tides. They are often associated with outer reefs, wrecks, towers, and buoys and even in inlets and harbours, and at the edge of the Gulf Stream. Juvenile kingfish reside from mid-shelf to inshore waters and from the surface to moderate depths in the water column with depths ranging from 15-100m (Johnson et al., 1983).

FOOD AND FEEDING. King mackerel are carnivores and are opportunistic and voracious as they feed basically on fish, preferably fish in schools, but also eat crustaceans and rarely molluscs by biting with their sharp teeth (Fig. 3). Examples of some fish consumed are the jack mackerels, menhaden, weakfish, cutlass fish, blue runners, threadfin, cigar minnows, striped anchovies, halfbeaks, grunts and snappers. Penaeid shrimp as well as squid are also consumed. The size of the kingfish determines what they eat as the adult king mackerel mainly consume fish of 10-15cm in length. The population of the Atlantic and Gulf of Mexico vary significantly in how they eat as the Gulf population displays more diversity compared to that of the Atlantic. Its favourite food is the ballyhoo, and also likes drums, flying fish, anchovies and jacks (Beaumariage, 1973).

POPULATION ECOLOGY. They are not solitary but are found in large schools which migrate for survival. The method used for determining population size and where they migrate was the mark and recapture method. The resident population of larger king mackerel in the north-western gulf moves to Mexico to a certain extent in the warmer months with smaller migrants from South Florida. Some smaller migrant fish may reside year round in the north-western Gulf as they grow older. As shown in Fig. 4, out of 1,968 tagged king mackerel released, only 55 have been recaptured. Of these, 39 were tagged from November to January and 16 were from June to September (Williams and Sutherland, 1979). These fish are very abundant with 598,000 being caught by fishermen in 1979 and 1,370,000 caught in 1980 (Trent et al., 1983). Females live longer than males with the oldest female being 14 years and the oldest male being 12 years old. The females also grow faster than the males after age two (Johnson et al., 1983).

REPRODUCTION. Breeding occurs between the months May to September, with peaks between late May and early in July and in late July and early August. The ovaries show five stages of development. The ovaries of stage 5 are very mature and known when the females are about 4 years old. Sexual maturity of males is around 3 years old and at a length of about 70cm. Females between 45-150cm long release from 69,000-12,200,000 eggs. Eggs and sperm are shed into the sea and their union is by chance. The eggs hatch in approximately 24 hrs. The newly hatched larva is about 2.5mm long with a large yolk sac, in waters of temperature ranging from 26-31°C. Larvae grow up to 0.5-1.25mm daily. This short larval stage lessens the vulnerability of the larva, and is linked to high metabolism associated with this species. Larvae remain in high salinity waters throughout development. Larvae may be present across the continental shelf, but are often most abundant in middle to outer shelf waters (Berrien and Finan, 1977).

BEHAVIOUR. King mackerel vibrate the swimbladder and make a popping, chirping and grunting sound so sometimes scare away other fish (Beaumariage, 1973).

APPLIED ECOLOGY. Kingfish are not endangered and are so numerous that there are fishing competitions specifically for them. The numbers have decreased over the past couple of decades but these fish are prevalent by the hundreds of thousands and are by no means endangered. Fishermen catch and sell these fish at markets to earn a living as they are constantly in demand due to its taste (Beaumariage, 1973).

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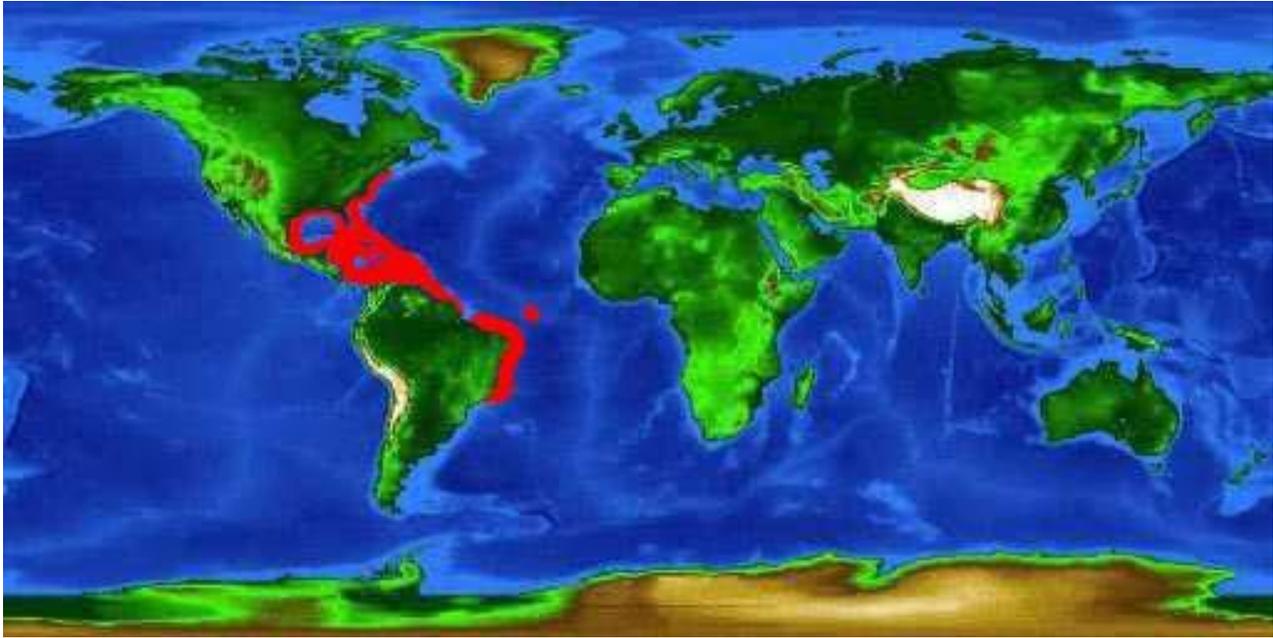


Fig. 2. King mackerel geographic distribution (red region).

[<http://www.flmnh.ufl.edu/fish/gallery/descript/kingmackerel/kingmackerel.html>, downloaded 30 January 2015]



Fig. 3. King Mackerel with mouth open for feeding in water.

[<http://www.globalfishmounts.com/king-mackerel-fishmount-p/kmac.htm>, downloaded 12 February 2015]

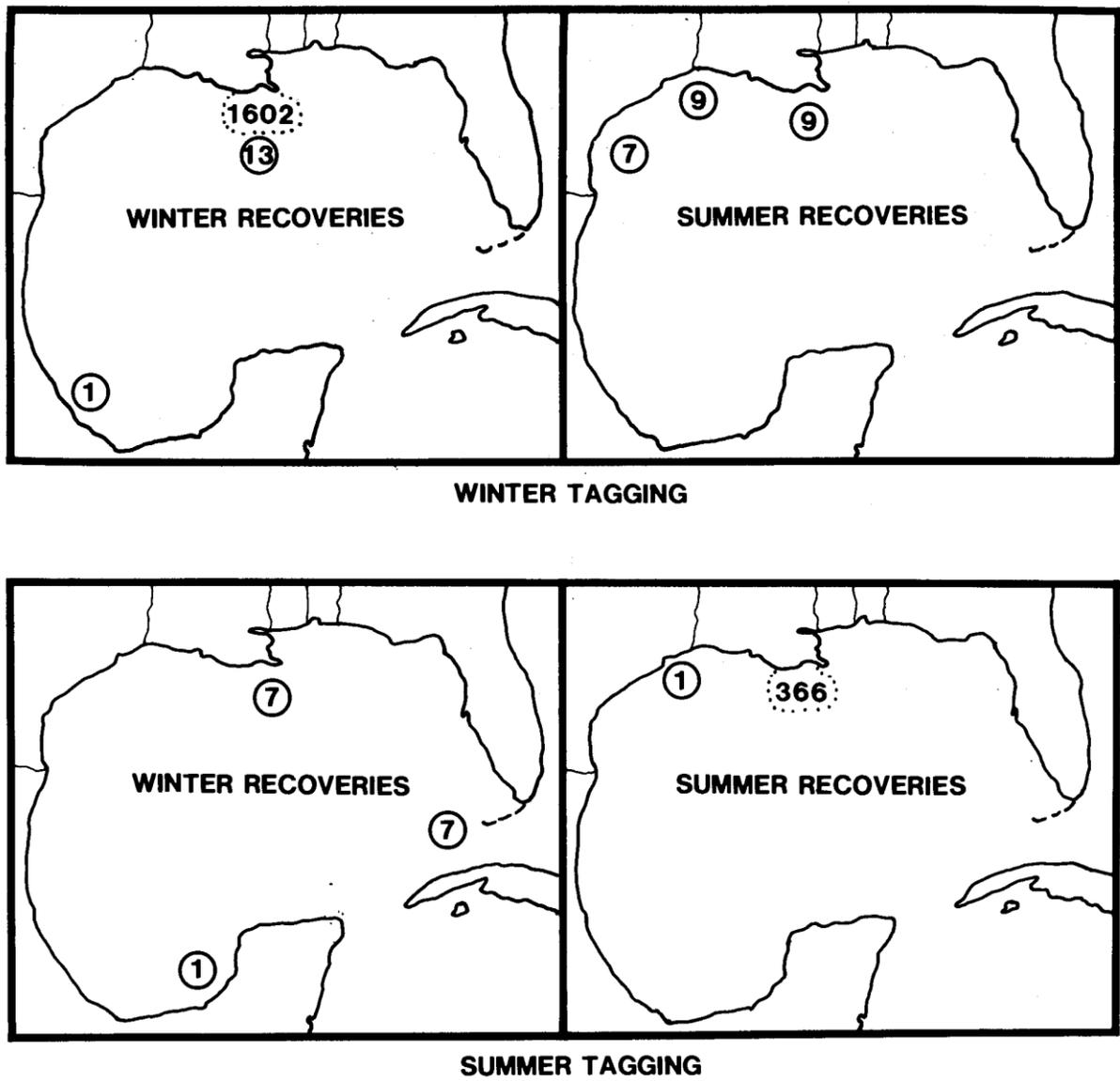


Figure 3.—Numbers of tagged king mackerel (in dots) and recovered king mackerel (in circles) by time period.

Fig. 4. Tagging and recovery of king mackerel in two seasons.

[Fig. 3 of Williams and Sutherland (1979)]

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