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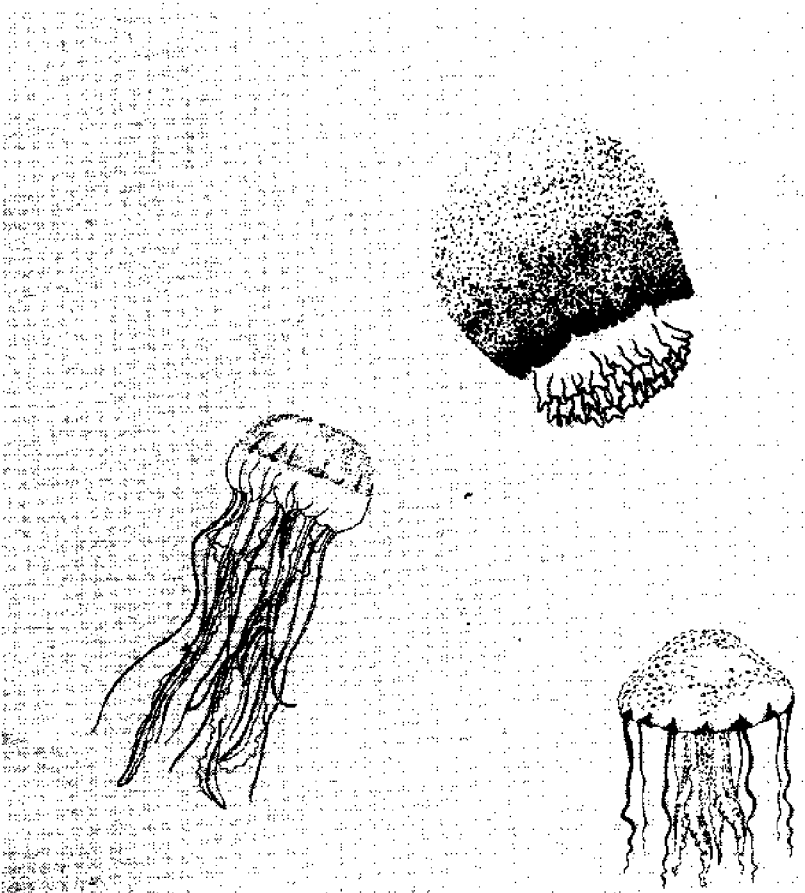
Guide to Common Jellyfishes of South Carolina



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Text by: Dale R. Calder, Ph.D., Royal Ontario Museum, Toronto, and Margaret Callison Pridgen, Director of News Services, Clemson University

Artwork and design by: Shirley Owens and Eve Gibson, Clemson University

The South Carolina Sea Grant Consortium is a state agency that supports the wise use of our coastal resources through research, education, and extension activities. Member institutions include: The Citadel, Clemson University, College of Charleston, Medical University of South Carolina, South Carolina State College, South Carolina Wildlife and Marine Resources Department, and the University of South Carolina.

Guide to Common Jellyfishes of South Carolina

JELLYFISH . . .

. . few other common inhabitants of South Carolina's coastal waters are so easily recognized, yet so little understood. Like snakes and sharks, all jellyfish look alike to most people, and they all look vaguely sinister.

The truth is, most species of jellyfish found in South Carolina are harmless to humans. A few are capable of inflicting a sting which can be described as mild at worst, and only one can be regarded as highly venomous.

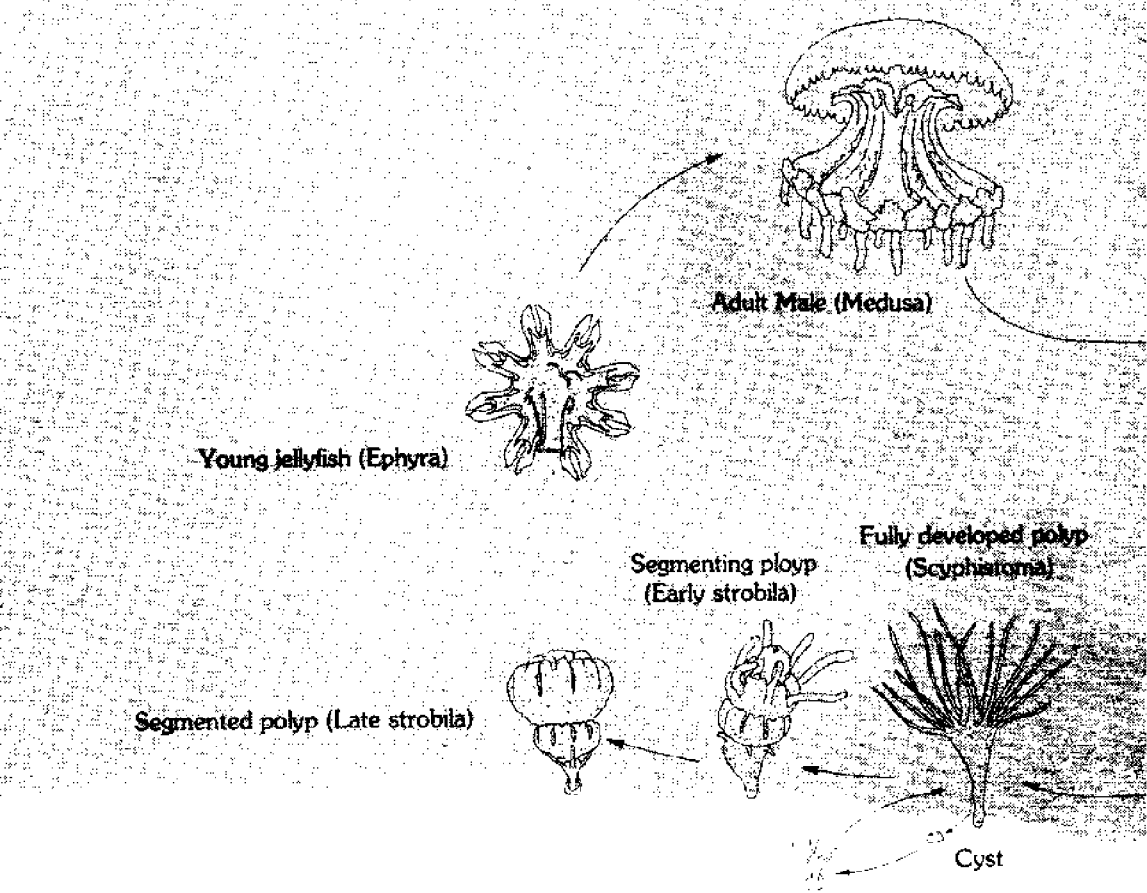
This *"Guide to Common Jellyfishes of South Carolina"* was prepared to help coastal residents and vacationers learn the difference between the jellyfish to beware and the ones you can safely ignore.

You may find you have little to fear but fear itself.

LIFE HISTORY

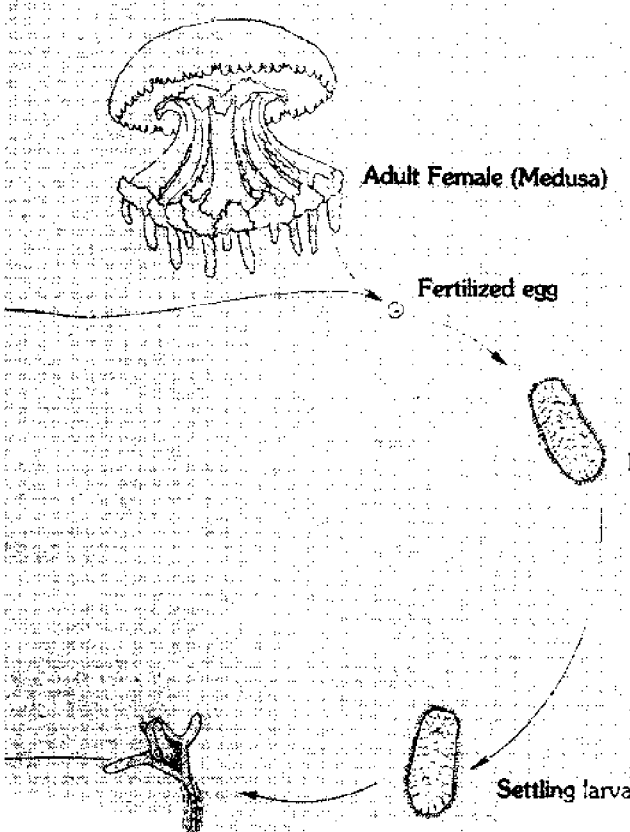
Most species of jellyfishes undergo a rather complex life cycle. The fertilized egg develops into a microscopic, free-swimming, cigar-shaped larva called a PLANULA. After several days in the water, the larva attaches to a firm substrate such as rock or shell and gradually transforms into a flower-like polyp or SCYPHISTOMA, through the addition of tentacles. The polyp consumes microscopic organisms in the water, ultimately reaching a maximum size of about one-eighth inch.

Polyps multiply by producing buds, which separate from the parent, or by the formation of cysts, which hatch into tiny new polyps. Under favorable environmental conditions the fully developed polyp develops a number of constrictions in its body, eventually resembling a stack of



saucers. This stage is known as a STROBILA. Each of the saucers develops into a minute jellyfish, called an EPHYRA, which is liberated into the water. In a few weeks, the tiny free-swimming ephyra grows from less than a quarter inch in diameter to the familiar adult jellyfish or MEDUSA, thereby completing the life cycle.

After release of the young jellyfish, a small part of the strobila grows tentacles and returns to the polyp stage. After a few weeks, more jellyfish may be produced. A single polyp therefore can give rise to a large number of jellyfish each year. While a jellyfish seldom lives more than a few months, the attached polyp stage potentially is perennial.



Based on figures of the mushroom jelly (*Rhopilema verrilli*) by Mayer (1910) and Calder (1973).

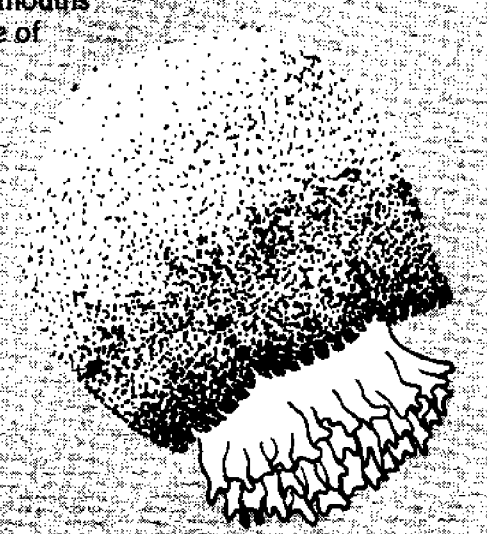
JELLYBALL *(Stomolophus meleagris)*

No other species of jellyfish is as detrimental to commercial fishing in South Carolina as the jellyball, cannonball, or cabbagehead (*Stomolophus meleagris*). Although their numbers vary greatly from season to season and from year to year, they are a definite hindrance at times to shrimp trawling and other fishing activities. Large numbers of jellyballs may clog and damage nets, slow down sorting of the catch, and shorten the length of time trawls can be set. The animals may also litter the beaches during periods of abundance.

Because the jelly of *Stomolophus meleagris* is very firm, specimens washed ashore deteriorate slowly compared with most other jellyfishes. Fortunately, while *Stomolophus meleagris* is the most abundant jellyfish in South Carolina, it is one of the least venomous; jellyballs generally can be handled safely by humans.

The umbrella of the jellyball is hemispherical, bordered with brownish pigment, and seldom over 8-10 inches in diameter. Unlike the mushroom jelly (*Rhopilema verrilli*), jellyballs have no finger-like appendages on the underside. They occur sporadically throughout the year, being most common along the coast and near the mouths of the estuaries. Despite the abundance of the medusa stage, little is known about the ecology of the species.

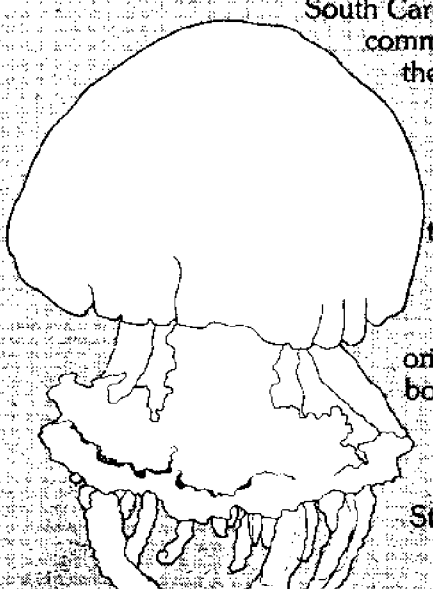
Jellyballs have been reported from southern New England to Venezuela, and occur in large numbers along the southeastern and Gulf coasts of the United States.



MUSHROOM JELLY *(Rhopilema verrilli)*

The mushroom jelly (*Rhopilema verrilli*) is often mistaken for the more abundant and widely despised jellyball (*Stomolophus meleagris*). Although closely related, the two species differ in a number of ways. The finger-like projections or "appendages" hanging down from the lower surface of mushroom jellies are lacking in the jellyball. The umbrella is flatter and the jelly less firm in medusae of *Rhopilema verrilli*, and pigmentation patterns are different. The distinct brown band of pigment around the umbrella of the jellyball is lacking in the mushroom jelly.

While the jellyball seldom exceeds 8-10 inches in diameter, mushroom jellies measuring 10-12 inches are fairly common and they occasionally may attain a diameter of 20 inches or more. The umbrella of *Rhopilema verrilli* is translucent or yellowish, while the frilly underparts are brown. Greatest numbers of mushroom jellies usually are seen in South Carolina during winter and spring. Adults are fairly common in the lower reaches of estuaries and along the coast, and they frequently are washed ashore on beaches. While they may be a nuisance to commercial fishermen because of their large size, they are much less of a problem than the jellyball because they are less abundant. Their toxin is non-venomous to humans, and despite their size mushroom jellies do not represent a hazard to bathers.



Related species are eaten by humans in the orient, particularly in China. Coastal Chinese use both fresh and pickled jellyfish in the preparation of cold plates and inland Chinese enjoy the pickled or otherwise processed product.

This species is known only from the United States, occurring from southern New England to Florida and along the Gulf coast.

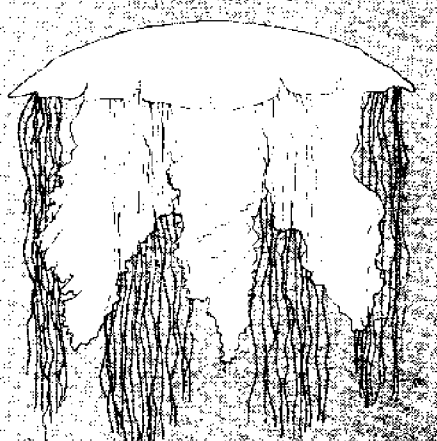
THE LION'S MANE *(Cyanea capillata)*

The lion's mane jelly or "winter jellyfish" is common to abundant in South Carolina during the colder months of the year. Adults usually appear in late December or early January and reach maximum abundance in the estuaries and nearshore coastal waters in late winter and early spring. By mid-May, water temperatures usually rise above the level tolerated by these jellyfishes and they disappear from inshore areas, although individuals may be observed in offshore waters at other times of the year.

The lion's mane differs from other jellyfishes of South Carolina in having the marginal tentacles in eight U-shaped clusters on the underside of the umbrella, rather than around the umbrella margin. The umbrella and oral arms of this species vary from orange to red or purple in color. Specimens in South Carolina seldom exceed 5-6 inches in diameter, but individuals of six feet or more have been observed in colder waters of the North Atlantic.

While southern populations of *Cyanea capillata* also appear to be less venomous than those from New England and Atlantic Canada, they are still capable of producing a mild though generally harmless sting. As with most jellyfish stings, certain people appear to be more sensitive than others to the venom.

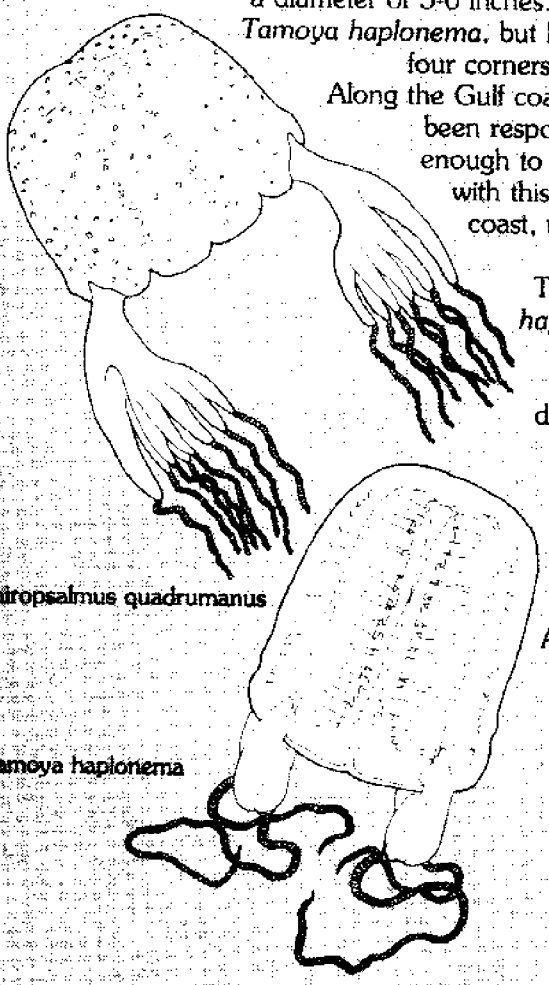
The lion's mane jelly ranges along the east coast from the Arctic Ocean to Florida.



BOX JELLIES *(Chiropsalmus quadrumanus and Tamoya haplonema)*

The common name "box jelly" or "sea wasp" is applied to an entire class of cube-shaped jellyfishes. Many of these are capable of inflicting a painful sting, a few are extremely dangerous, and one, the deadly box jelly of Australia, is regarded as one of the most venomous animals in the sea. Although neither is considered dangerous to humans, two species of box jellies occur in coastal South Carolina from May-November. The multi-tentacled box jelly *(Chiropsalmus quadrumanus)* is a common warm water inhabitant. Mature specimens are colorless and reach a height of 4-5 inches and a diameter of 5-6 inches. They resemble the related box jelly *Tamoya haplonema*, but have several tentacles at each of the four corners of the umbrella instead of just one. Along the Gulf coast, *Chiropsalmus quadrumanus* has been responsible for a number of stings severe enough to require medical attention so contact with this species should be avoided. On this coast, this jellyfish has been recorded from North Carolina to Brazil.

The four-tentacled box jelly *(Tamoya haplonema)* is a colorless, box-shaped jellyfish commonly measuring 4-5 inches in height and 2-3 inches in diameter when fully grown. The jelly of this species is very firm. It is not certain from the literature whether this species is venomous to humans. However, caution should be taken whenever a clear, box-shaped jellyfish is seen. Along the western Atlantic, *Tamoya* is known from southern New England to Brazil.



Chiropsalmus quadrumanus

Tamoya haplonema

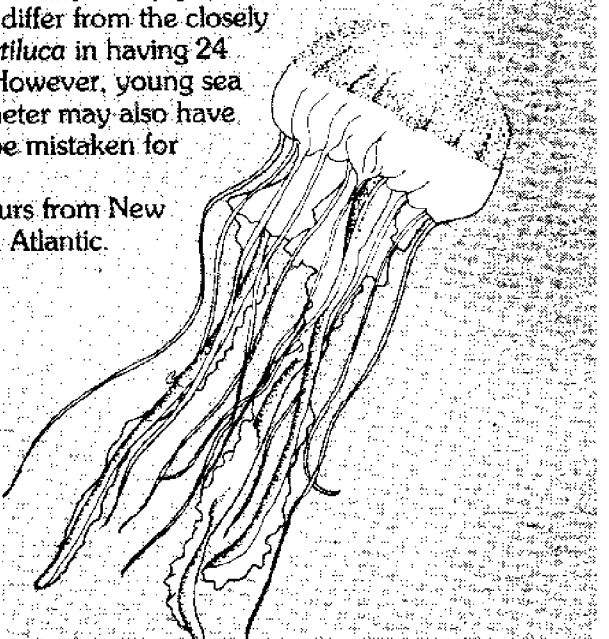
SEA NETTLE *(Chrysaora quinquecirrha)*

The most frequently encountered venomous jellyfish in South Carolina is the sea nettle (*Chrysaora quinquecirrha*). Fortunately, this species is generally much less abundant in South Carolina than in areas such as Chesapeake Bay, where it is a significant pest during the summer vacation season. However, it is frequently observed here both in brackish estuaries and in waters of high salinity along the coast. These medusae may be encountered almost any time of year in this state, although they are most common during the warmer months.

While the sea nettle cannot be regarded as an especially dangerous species, its sting is quite painful and in exceptional cases produces severe reactions. Exercise caution if sea nettles are observed in the water and do not swim if large numbers are present.

Most sea nettles are less than six inches in diameter, but the oral arms and tentacles when fully extended may reach several feet beyond the umbrella. In South Carolina most individuals of this species have brown or red pigment on the umbrella and oral arms, but some may lack pigmentation and appear whitish. Sea nettles differ from the closely related oceanic jelly *Pelagia noctiluca* in having 24 or more tentacles in the adult. However, young sea nettles less than an inch in diameter may also have eight tentacles and should not be mistaken for *Pelagia*.

Chrysaora quinquecirrha occurs from New England to Brazil in the western Atlantic.



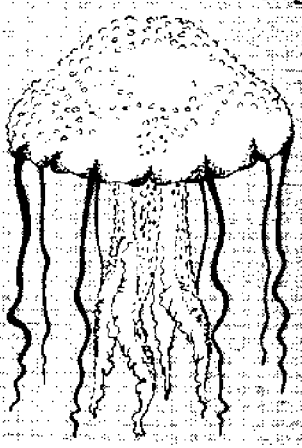
OCEANIC JELLY *(Pelagia noctiluca)*

As the common name suggests, the oceanic jelly (*Pelagia noctiluca*) is most often encountered in the open ocean, and is found infrequently in the inshore waters of South Carolina. While specimens occasionally are carried inshore by currents, particularly during summer and autumn, they more frequently are seen by those who fish or cruise offshore near the Gulf Stream or beyond.

Oceanic jellies are related to the sea nettle (*Chrysaora quinquecirrha*), and the two are similar in overall appearance. However, adult oceanic jellies are usually smaller (seldom more than three inches in diameter) and have only eight marginal tentacles in fully developed individuals. Their sting is milder than that of the sea nettle.

Pigmentation of oceanic jellies is variable. The umbrella and oral arms are usually brownish or brownish yellow, while the tentacles and gonads vary from pink to purple. The medusae are bioluminescent, that is, they produce light when mechanically, chemically, or electrically stimulated.

Pelagia noctiluca is uniquely adapted for existence in the open sea. The fertilized egg develops into a rather typical planktonic larva or planula. However, instead of attaching to the bottom, the larva metamorphoses directly into a young jellyfish, eliminating the sedentary polyp stage entirely. This species is carried northward to New England by the Gulf Stream from its normal habitat in warm and temperate ocean waters.



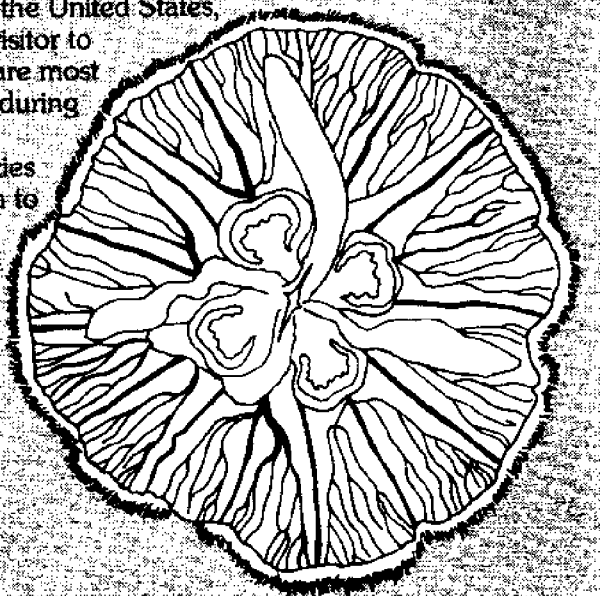
MOON JELLY *(Aurelia aurita)*

Of approximately 200 species of "true jellyfishes" recognized world-wide, the moon jelly (*Aurelia aurita*) is perhaps the most widely distributed and the best known. The umbrella of these medusae is rather flat and colorless, with numerous small tentacles fringing the margin. The species can be identified readily by its shape, as well as by the presence of four horseshoe-shaped gonads surrounding the center of the umbrella. The gonads vary in color from pink to yellow or gray. Whitish radial canals extend from the central region to the umbrella margin.

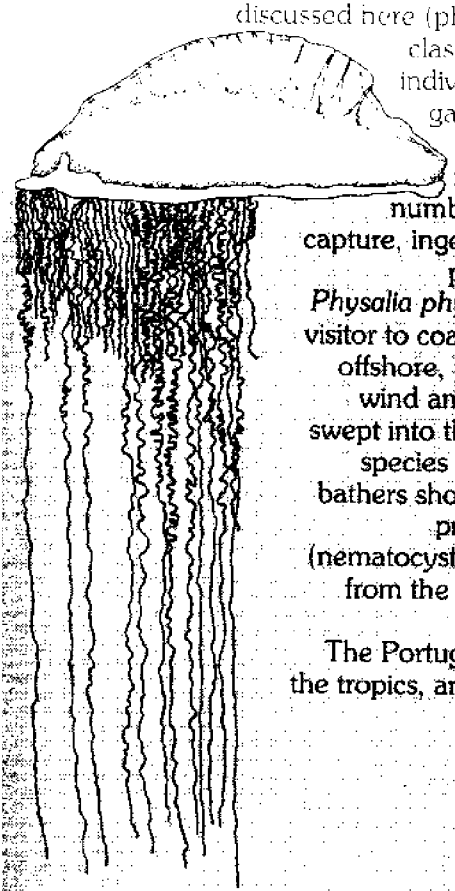
The umbrella of large moon jellies may exceed 15 inches in diameter. The size of such specimens may cause concern to bathers, but the species is non-venomous to humans. Records exist of bathers being stung by *Aurelia aurita* in Australian waters, but such reports are considered unusual. In areas where it is abundant, the moon jelly may hinder fishing activities or create a nuisance on beaches by washing ashore in large numbers. In some areas such as Japan they also have been known to clog the water intakes of electric power plants.

While the moon jelly is common to abundant in some areas along the east coast of the United States, it is evidently an infrequent visitor to South Carolina. Specimens are most likely to be seen in this state during summer and autumn.

On the east coast this species occurs from the Arctic Ocean to the tropics.



PORTUGUESE MAN-OF-WAR *(Physalia physalis)*



The Portuguese man-of-war (*Physalia physalis*) belongs to the same major group of animals as the other jellyfishes discussed here (phylum Cnidaria), but it is placed in a different class within that group and is actually a colony of individuals. Instead of an umbrella, it has an oval, gas-filled float that remains at the surface of the water. The blue float, which reaches a maximum size of about 10 inches, supports a number of structures variously specialized for food capture, ingestion, and reproduction. The entire colony is propelled by the wind and by ocean currents. *Physalia physalis* is an oceanic species and an infrequent visitor to coastal South Carolina. They are fairly common offshore, particularly in or near the Gulf Stream, and if wind and current patterns are favorable they may be swept into the inshore waters of this state. This notorious species is widely known to be highly venomous, and bathers should not go into the water if these animals are present. Since the microscopic stinging capsules (nematocysts) remain intact for long periods after removal from the water, even contact with dried remains on a beach may result in a painful sting.

The Portuguese man-of-war is common to abundant in the tropics, and is swept northward as far as New England on this coast by the Gulf Stream.

WHAT TO DO IF YOU ARE STUNG . . .

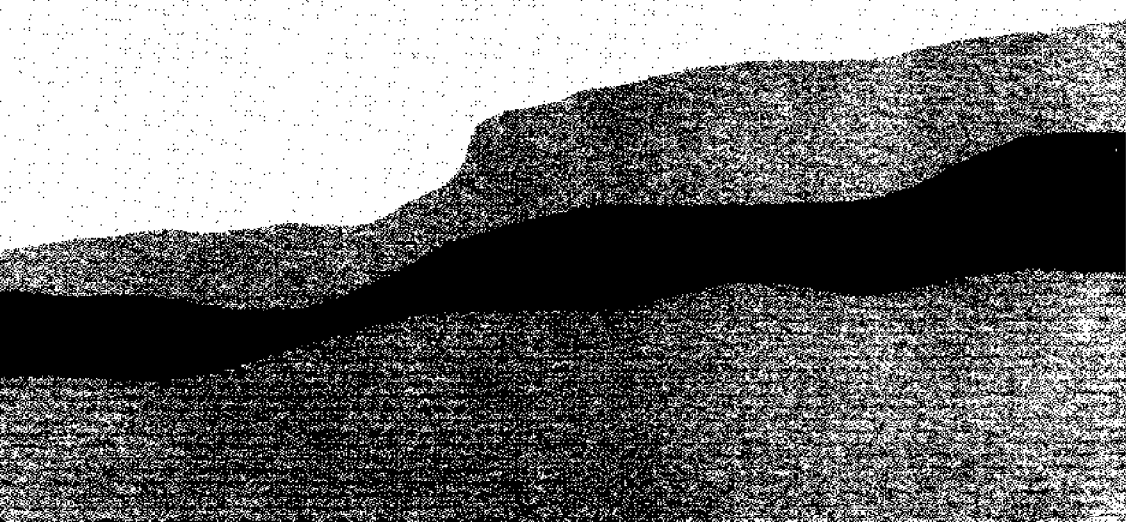
Severe jellyfish stings are extremely rare in South Carolina. Such stings generally can be prevented by knowing which jellyfishes are venomous and by exercising caution if venomous species are known to be present in the water.

Following contact with a venomous jellyfish, the victim should leave or be taken from the water to prevent panic and possible drowning. First aid may then be directed toward minimizing the extent of the sting, alleviating pain, and careful observation for any adverse reactions to the venom. Any tentacles adhering to the body should be **carefully** removed. Flooding the affected areas with alcohol, if available, prevents continued discharge of the stinging capsules (nematocysts).

A number of substances have been variously recommended for lessening the pain, including meat tenderizer, tannic acid, sodium bicarbonate, boric acid solution, soap, and vinegar, among others. Meat tenderizer is one of the more widely used remedies in the Chesapeake Bay area for treatment of sea nettle stings. If possible, an attempt should be made to identify the species of jellyfish responsible for the sting.

If the sting is severe, medical attention should be sought immediately, and, while waiting for the physician, the victim should be observed carefully for signs of cardiac or respiratory arrest or shock.

Further details on the treatment of jellyfish stings are outlined in the book POISONOUS AND VENOMOUS MARINE ANIMALS OF THE WORLD by Halstead (1978).



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FOR MORE INFORMATION...

Communications
S. C. Sea Grant Consortium
287 Meeting Street
Charleston, S.C. 29401
(803) 727-2078