

## SCOMBRIDAE

by Steven H. Kramer

<b>Valid name</b>	<i>Acanthocybium solandri</i> (Cuvier 1831) (Fig. 71)
<b>Synonymy</b>	<i>Cybiium Solandri</i> Cuvier 1831 <i>Scomber lanceolatus</i> (Solander) Cuvier 1831 <i>Cybiium sara</i> Lay and Bennet 1839 <i>Cybiium petus</i> Poey 1868 <i>Acanthocybium petus</i> Poey 1868 <i>Cybiium verany</i> Doderlain 1872 <i>Acanthocybium solandri</i> Jordan 1884 <i>Acanthocybium forbesi</i> Seale 1912 <i>Acanthocybium sara</i> Kishinouye 1915 <i>Scomber amarui</i> Curtis 1938 <i>Acanthocybrium solandri</i> Copley 1952 (misspelled) (from Jones and Silas 1964)

**Common and vernacular names** Wahoo; ono

**Distribution**

Occurs widely in open ocean around the main islands. Present from Nihoa to Kure Atoll in the NWHI at depths from the surface to 183 m. Adult wahoo epipelagic and usually associates with banks, pinnacles, and islands; also found around flotsam far out at sea.

**Distinguishing characteristics**

D. XXIII-XXVII, III, 9-10+8-10; A. III, 9-10+8-9. Unique among the scombrids in having reticulated gills and lacking gill rakers. Body elongate and semifusiform, covered with small lanceolate scales. Head long, tapering to a conical snout from which the lower jaw projects slightly. Dentition consists of approximately 50 laterally compressed, slightly serrated, triangular teeth in a single series which increase in size posteriorly (Jones and Silas 1964).

Intermuscular bones inserted on ribs. First dorsal approximately uniform in height when erect. Pectorals short, reaching to below the 10th dorsal spine. Lateral line strongly arched under the 17th dorsal spine. Numerous branches extend dorsoventrally along the lateral line. Caudal fin lunate.

In life dark blue dorsally becoming silver ventrally. On young or stressed fish, 24-30 irregular dark blue vertical bars laterally on body.

**Life history**

Wahoo appears to spawn year round in the tropics and during the summer months in the higher latitudes, including Hawaii, as evidenced by dates and locations of larval collection in the central Pacific (Matsumoto 1967). Size at maturity is undetermined, although immature fish as large as 63 cm have been found in NMFS samples. In a preliminary study, gonad development was found to be highly heterogeneous with entirely different ova development laterally and longitudinally.<sup>21</sup>

Wahoo of about 131 cm spawns an estimated 6.1 million eggs

<sup>21</sup>Prescott, J. H., Fishery Biologist, Department of Primary Industry, Fisheries Research Station, P. O. Box 5, Daru, Western Province, Papua New Guinea, pers. commun. April 1982.

per spawning (Iversen and Yoshida 1957). This compares favorably with an estimate of 6.9 million eggs per spawning for a 139-cm fish from the Gulf of Mexico.<sup>22</sup> Larvae are free floating and are found near and far from land. The number of spawnings per year remains undetermined.

In the NWHI, wahoo feeds on fish, cephalopods, and to a small extent, crustaceans.<sup>23</sup> Fish are the major prey items; *Decapterus* sp., Scombridae, and Balistidae most frequently occur in the diet. Cephalopods consist mostly of squid and to a lesser degree octopus. Crab megalops and stomatopods represent the small portion of crustaceans in the wahoo diet. It appears that wahoo forages on open water, outer reef, and flotsam-associated prey. Time of feeding is undetermined.

Wahoo are parasitized by copepods externally and trematodes and nematodes internally. The giant trematodes found posteriorly in the stomach have been identified as *Hirudinella ventricosa* (Nigrelli and Stunkard 1947).

Based on counts of daily growth rings on otoliths taken from five fish in the NWHI, the growth was linear for the size range examined (63-131 cm FL). The model predicts an age of 1 year for a fish 50.6 cm and 2 years for one 121.7 cm.<sup>24</sup>

The length-weight relationship of 139 wahoo from the NWHI is:

$$W = 3.55 \times 10^{-7} L^{3.5839},$$

where W = weight (kg) and L = fork length (cm). The large exponent, 3.5839, is approximately equivalent to the 3.50583 for wahoo in the Line Islands (Iversen and Yoshida 1957). Both reflect the elongate fusiform body of wahoo.

Wahoo is a high-level predator, preying on fish and cephalopods. In turn, the wahoo infrequently becomes the prey of billfish such as the sailfish, *Istiophorus americanus* (Beardsley et al. 1972). It

<sup>22</sup>Finucane, J. H., Southeast Fish. Cent. Panama City Lab., Natl. Mar. Fish. Serv., NOAA, Panama City, FL 32407, pers. commun. August 1980.

<sup>23</sup>Kramer, S. H. Diet of the wahoo, *Acanthocybium solandri* (Cuvier and Valenciennes), in the Northwestern Hawaiian Islands. Southwest Fish. Cent. Honolulu Lab., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396 (manuscr. in prep.).

<sup>24</sup>Uchiyama, J. H., Fishery Biologist, Southwest Fish. Cent. Honolulu Lab., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396, pers. commun. April 1982.



Figure 71.—*Acanthoebium solandri*.

is also conceivable that wahoo may fall prey to sharks of the Family Lamnidae or other fast-swimming predators. Juveniles may also be cannibalized by adults.<sup>25</sup>

#### Gear and catch

The species is caught principally by trolling and longline. Wahoo does not constitute a major fishery anywhere. In American Samoa, wahoo is landed as an incidental catch of the longline fishery and is canned, primarily for local consumption.

In Hawaii, wahoo is sold fresh. Annual landings in 1961-79 ranged from 10,093 to 101,347 kg and averaged 34,773 kg. Although wahoo is not a major species in the Hawaiian fishery, it is nonetheless an important food and sport fish. In recent years, the trend in catch of wahoo has been upward in response to an ever-increasing demand for the species. Many vessels now fishing in the NWHI troll for wahoo before returning to Honolulu.

<sup>25</sup>Kikkawa, B. T., Research Assistant, Southwest Fish. Cent. Honolulu Lab., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396, pers. commun. April 1982.