**Obelia longissima**

A floating dock hydroid  Pallas, 1766

**Phylum:** Cnidaria  
**Class:** Hydrozoa  
**Order:** Hydroida, Leptomedusae  
**Family:** Campanulariidae

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**Description**

**Hydroid (polypoid form)**

**Color**—transparent white when young, main stems "horn" colored; old, mature colonies look dirty.

**Size**—colony can be up to 60 cm (Rees and Hand 1975) (fig. 1).

**Gonotheca**—medusae-producing buds (fig. 2c) also called "gonangia" (Ricketts and Calvin 1971); axillary, ie. grow out of the angle between the stem and the hydrotheca; "ovate, smooth, with raised central aperture" (Parker et al. 1951).

**Hydrothecae**—bell-like, large, and deep; margin toothed; borne on long, ringed "pedicels" (fig. 2d, f).

**Stems**—thread-like, many-branched, ringed at joints, branches alternate, stalks short, (fig. 2).

**Medusa (sometimes called O. lucifera)**

**Color**—clear; some color at tentacle bases, on mouth, gonads.

**Size**—when "new", .5 mm; grows to 5 mm (Cornelius 1975); full size. 2.5-6 mm.

**Bell**—very thin, flat; small stomach, no peduncle, rudimentary velum (fig. 3); mouth with four lips.

**Radial Canals**—four; straight; each containing globular gonads (fig. 3).

**Ring Canal**—narrow; with eight statocysts (balance structures); no ocelli (fig. 3).

**Tentacles**—numerous, solid, short; 20-24 in newly hatched medusae; 46-90 in "O. lucifera" (Russell 1953).

**Possible Misidentifications**

There are two very closely related species of *Obelia*: (fig. 4)

*O. dichotoma* has slender, nearly straight, and irregularly branched, annulated stems; its branches are often long, giving a "whitish, fuzzy appearance" (Kozloff 1974a); the colony can be up to 2 cm (Cornelius 1975). Its hydrothecae are alternate, broad, bell-shaped, the tops are many sided, with slightly sinuated margins; its gonothecae are axillary, slender, smooth, widening from the base, and ending in a "raised, somewhat conical aperture" (Russell 1953) (fig. 4b).

Other hydroids which have stalks, and thecae within which their hydranths can be retracted (fig. 2b) include those of the famrues Campanulinidae and Phialellidae (Rees and Hand 1975), which are very small and have tubular thecae with a pointed operculum. Other Campanulariidae (bell-shaped hydrothecae) include *Phialidium sp.* and *Campanularia sp.* both of which have colonies of less than 2 cm in height, and are rarely branched.

The genus most closely related to *Obelia* is *Gonothyraea*, which does not release free medusae, but retains them within the gonotheca.

Cornelius has preferred *O. longissima* to *Obelia bidentata* Clark, the Atlantic species (Cornelius 1975).

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**Ecological Information**

**Distribution**—worldwide (Obelia sp.); *O. longissima*: Alaska to San Pedro, California.

**Range**—all three closely related species (*O. geniculata, O. dictotoma*) are found in northern California and Puget Sound; other species may be present as well, some of them introduced (Rees and Hand 1975).

**Habitat**—hydroids like docks, kelp, and floats in bays; healthy colonies are found on exposed pilings, particularly where water is clean and fast-moving. Medusae are found floating, probably not far from their hydroid parents. They probably are not light dependent for vertical distribution (Parker and Haswell 1951).
Salinity—collected at 30%; an Atlantic species, O. bidentata was found to have a wide distribution across the estuarine gradient, down to 0.5%; O. dichotoma was found down to 12% (Cornelius 1975).

Temperature—found in cold temperate waters; settling may occur in cooler temperatures during the year (Standing 1976).

Tidal Level—most abundant in middle intertidal and just below.

Associates—caprellid amphipods, garnmarid amphipods, asellote isopods, copepods, diatoms, sea slug Euibranchus, nudibranchs Dendronotus frondosus, Phidiana crassicornis (Bodega Bay), pycnogonid Halosoma veridintestinale; with medusa: pycnogonid larvae of Anaphia (England). Barnacle larvae cannot settle where Obelia growth is heavy (Standing 1976).

Quantitative Information
Weight—
Abundance—particularly common in harbors in northern California (Rees and Hand 1975), and in British Columbia (Ricketts and Calvin 1971).

Life History Information
Reproduction—like other Hydroida, Obelia has both a sexual reproduction and an asexual one. The medusae are producers of eggs and sperm the larvae of which settle and become hydroids. The production of medusae by the hydroid is apparently tied to lunar periodicity: to the third week of the moon (Elmihurst, 1925, in Russell) (Russell 1953). The complete life cycle (swimming larvae to hydroid colony discharging medusae): takes one month (MacGinitie and MacGinitie 1949). Lab reared medusae are sexually mature six days after emergence (Russell 1953). Obelia are present all year, but are most numerous in spring to late summer. Settling of O. dichotoma (northern California) found in May, June, not in July (ibid). Another worker (Boyd in Standing) (Standing 1976) found settling in winter, spring and early summer, corresponding to low water temperatures. Budding, release of medusae only below 12 °C (lab) (Morris et al. 1980). Asexual reproduction, budding by the hydroid to form medusae, is the other stage of duplication.

Growth Rate—several generations possible in a year; O. dichotoma grow to 2.5 mm in 19 days (from 1 mm): Browne in Russell (Russell 1953). Growth: direct correlation with temperatures of 8-20° C (Morris et al. 1980).

Longevity—about one month (complete life cycle).

Food—crustaceans and their larvae, arrowworm Sagitta (England), young fish.

Predators—Opisthobranch Euibranchus eats hydroid buds (Kozloff 1974a)

Behavior—medusa noted for quick movements; often found inverted (fig. 3).

Literature Cited
1. *Obelia longissima* x1:
white, many-branched colonies.

2. Closeup, single branch x30:
a. buds  
b. hydanth, tentacles retracted  
c. gonotheca, showing medusae buds  
d. hydrotheca (covering young polyp)  
e. hydanth, tentacles extended  
f. empty hydrotheca

3. Medusae x30:  
actual diameter 0.5 mm.

4. Other species  
(from Russell 1953, after Hincks 1868)