

Sargassum horneri Information Sheet

TAXONOMY

Division: Phaeophyta
Class: Phaeophyceae
Order: Fucales
Family: Sargassaceae
Genus: *Sargassum*
Species: *horneri*
Common Name/Nickname: Devil Weed
Other names: *Sargassum filicinum*

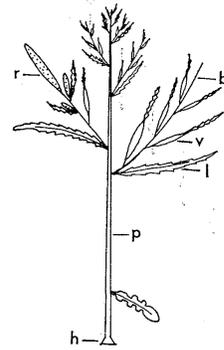


Diagram of a plant of *Sargassum horneri* showing habit characteristic. b, lateral branch; h, holdfast; l, leaf; p, primary lateral; r, receptacle; v, air-vesicle. Umezaki 1983

NATIVE DISTRIBUTION

Warm waters of Japan and Korea

DESCRIPTION

Sargassum horneri is large brown alga. Young individuals have flat, symmetrical, fern-like blades with notched tips (fig. 1a). As the alga grows, it becomes loosely branched in a zig-zag pattern and develops small air bladders (fig. 1b), which buoy the thallus erect in the water column. Adults reach lengths of around 3 meters (~16 feet). When abundant, it forms dense underwater forests with thick canopies (fig. 1c).

LIFE CYCLE

Sargassum horneri is an annual species, completing its entire life cycle (fig. 2a-e) in less than a year. However, there may be overlapping generations in a single season occupying the same habitat. The eastern Pacific population has both male and female gametes on a single individual and is capable of self-fertilization. Young plants grow from fertilized eggs located on the receptacles of mature plants.

In the eastern Pacific, the vast majority of *S. horneri* follow the same seasonal life cycle pattern: reproduction occurs in winter and spring, thalli senesce during spring and summer, and recruits appear during summer and become well established by fall. Less rigid seasonality and more overlapping generations have been reported in some places including San Diego and Laguna.

HABITAT AND CONDITIONS

Sargassum horneri grows mainly subtidally, though intertidal populations have been reported in Laguna. It is generally most abundant between depths of 3 – 15 meters (~10 – 50 feet), but has been found growing at 30 meters (~100 feet). In laboratory culture and within its native range, growth of both immature and mature *S. horneri* blades occurs over a wide range of light levels and water temperatures from 10 to 25°C (50 to 77°F).

TAXONOMIC HISTORY

Researchers initially identified the introduced population of *Sargassum* discovered in Long Beach, California as *Sargassum filicinum*. *Sargassum horneri* and *filicinum* are similar in morphology and life history. They differ in that *S. filicinum* is monocious (i.e. an individual possesses both male and female gametes), with ellipsoidal air bladders, and it has a narrow geographic range on the coast of western Japan and southern Korea, whereas *S. horneri* is a

dioecious species (i.e. an individual has only male or female gametes) with spherical air bladders and is widespread in the warmer waters of eastern Asia. However, on the basis of molecular population studies, *S. filicinum* has since been merged with *S. horneri*, so the eastern Pacific population is now generally referred to as *S. horneri*.

INVASION AND DISTRIBUTION

Sargassum horneri was first detected in California in 2003 by biologists conducting surveys in the Port Long Beach inner harbor. By October 2005, the population had spread within Long Beach Harbor and *S. horneri* was found adrift in Todos Santos Bay, Baja California, México. The range of *S. horneri* has since expanded rapidly throughout southern California and Baja California. As of 2015, its range spans 750 kilometers (466 miles) from Santa Barbara, California to Isla Natividad, Baja California.

Because *S. horneri* is often highly abundant and persistent, its invasion in the eastern Pacific poses a major threat to native ecosystems. Continued monitoring and research investigating the ecological effects of its spread is critical to developing an effective management plan.

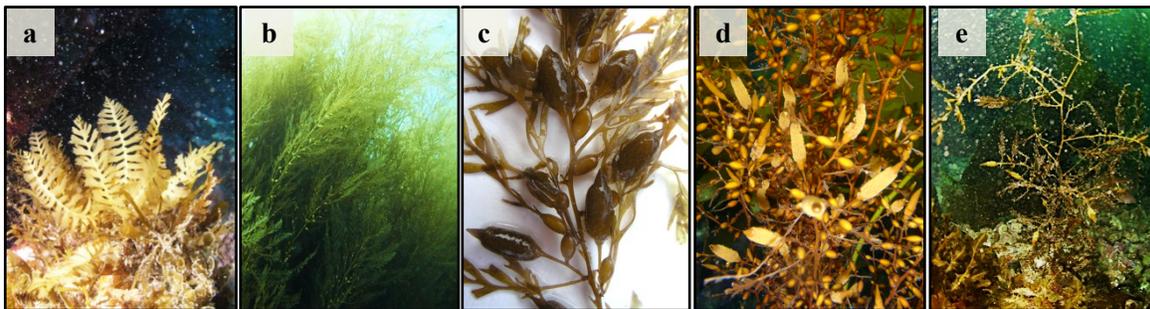
To track the spread of *S. horneri* or to report a sighting, visit <http://www.marineinvasives.org>

FIGURES

Figure 1: *Sargassum horneri* examples show distinguishing alternating fern-like branches with notched tips on a young individual (a), air bladders (solid arrow) and reproductive receptacles (dotted arrow) on a mature individual (b), and a dense forest of adults (c). *Photos credits: Dan Richards (a, b) and Tom Boyd (b).*



Figure 2: Life cycle of *S. horneri*: Recruit (a), immature (b), mature (c), fertile (d), and senescent (e). *Photos credits: Jessie Alstatt (a), Lindsay Marks (b,d) and Dan Richards (c,e).*



Umezaki, I (1983) Ecological studies of *Sargassum horneri* (Turner) C. Agardh in Obama Bay, Japan Sea. *Bulletin of Japanese society of Scientific Fisheries* 50(7): 1193-2000.