



A publication by:

NORTHWEST WILDLIFE PRESERVATION SOCIETY

Glass sponge reef

Hexactinellida



Glass sponge reefs are incredibly rare, so rare and so hard to find, in fact, that they were thought to have gone extinct 40 million years ago until 1987 when they were found by accident. The reefs in the Hecate Strait and Charlotte Sounds are the most pristine and the largest. They are 9000 years old and over 1,000 sq km (620 sq miles). Others have been found in the Strait of Georgia, Howe Sound and Chatham Sound.

Characteristics

Glass sponges are animals, although they do not move or have eyes and a mouth. The glass sponge gets its name because it is mostly made up of silica dioxide, which is the same component that makes up glass. These unique sponges can grow up to a metre in diameter. Within the rigid walls are the soft tissues of the sponge, there are no cell walls or membrane so nothing divides the nuclei and information can be passed quickly. The glass sponge gets its latin name hexactinellid from its spicules made of silica, which gives it its rigid form, the spicules have six points, so called hexactine.

Life Cycle

There is still much to learn about the glass sponges, especially concerning reproduction and development. There is no information on how the eggs become fertilized but it is assumed that it happens within the sponge, this is referred to as brooding. Once fertilized the egg is released into the water after a long incubation, the larvae drifts in the water until it lands on a suitable surface such as rock or other glass sponge, where it anchors and begins to grow.

NWPS Headquarters
720-1190 Melville Street
Vancouver, BC V6E 3W1

NWPS Vancouver Island
PO Box 39058
RPO James Bay
Victoria, BC V8V 4X8

t Vancouver 604.568.9160
t Victoria 778.967.3379
e info@northwestwildlife.com
w www.northwestwildlife.com

Habitat

Most glass sponges are found at depths between 500m to 3000m (1640ft to 9842ft). However, there are some locations, like a few in British Columbia where the sponge grows between 16-650m (52ft to 2135ft). The other locations where glass sponge reefs grow in shallow water are in Antarctica, Southern New Zealand, some caves in Mediterranean with large updrafts. Glass sponges preferred habitat have sea water with high levels of silica, low light, high oxygen levels, temperature ranging from 9-10°C (50° F -65° F) and clear water with low amount of sediment in the water.

Behaviour

The sponge's body contains tiny holes where water is flushed through. Through that water, the sponge absorbs everything it needs, like oxygen, bacteria (for food) and silica (for growth). The waste of the animal is flushed back into the water as it is pumped out. The water is moved through using flagella, and the bacteria, oxygen and everything the sponge needs is captured by a mucous mesh. Such vast amount of water filters through, that the sponge helps to move nutrients from the top of the water column down to the depths of the ocean. They also take bacteria and turn it into a useable form of nitrogen that can also help boost the production of the habitat by adding nitrogen into the water and making it more fertile for other species.

As so much water passes through the sponge, it has a safety measure in place. The glass sponge can stop pumping if sediment is stirred in the water by sending electrical signals through the body and stop the flagella before any damage happens.

Threats

Heavy bottom fishing gear like trawl nets, traps and long lines can easily damage and crush the reef. The reefs are also vulnerable to sedimentation. When the sponge detects sediment, it stops all filtering of water, this also stops the intake of oxygen and food which it needs to survive.

What We Can Do To Help

- Dive for Vancouver aquarium and take photos of glass sponge in Howe Sound
<https://www.vanaqua.org/act/research/howe-sound-group/sponges>

Make sure your seafood comes from a sustainable source <http://seafood.ocean.org/>

- Do not litter on land or in the water. Help clean up the environment – see <http://www.northwestwildlife.com/gcsc2004.php> for an article on the NWPS involvement in the “Great Canadian Shoreline Cleanup” campaign.
- Dispose of toxic substances such as antifreeze, batteries, and paint responsibly. Municipalities usually provide special disposal facilities for these types of things, as putting them down drains can be extremely toxic.
- Reuse and recycle whenever possible.
- Volunteer to help organizations like the Northwest Wildlife Preservation Society, CPAWS, MLSS, Ocean Wise.

CPAWS have made great strides in protecting the glass sponge reefs. The Hecate Strait and Queen Charlotte Sounds are designated MPAs (marine protected areas). The Hecate Strait and Queen Charlotte Sound are also nominated for UNESCO World Heritage Site to have global recognition of the sites. Nine

NWPS Headquarters
720-1190 Melville Street
Vancouver, BC V6E 3W1

NWPS Vancouver Island
PO Box 39058
RPO James Bay
Victoria, BC V8V 4X8

t Vancouver 604.568.9160
t Victoria 778.967.3379
e info@northwestwildlife.com
w www.northwestwildlife.com

reefs in the Strait of Georgia were protected by banning all bottom contact fishing within 150m (490ft) of the reefs. CPAWS IS working with DFO to educate recreational and commercial fishers. CPAWS is working on gaining protection for Howe Sound and Chatham sound reefs for bottom contact fishing activities.

Other Interesting Facts

A small reef can filter enough water to fill an Olympic sized pool in under a minute.

The Venus flower trap is a glass sponge that has a unique symbiotic relationship with shrimp. When the shrimp are small, a male and a female will enter the sponge and remain inside until they are too large to exit. They feed on material brought by the current, which keeps the glass sponge clean and the shrimp have the safety of the sponge for life. A skeleton of the sponge with the shrimp inside is given at weddings in Japan.

Where & When to view the animal.

The sponge reefs can only be seen whilst diving or in a submarine, there are multiple dive sites in Howe Sound, the Strait of Georgia, Queen Charlotte Sound and Hecate Sound.

Bibliography

Web Resources:

CPAWS BC Glass sponge reefs

<http://cpawsbc.org/campaigns/glass-sponge-reefs>

Habitat of glass sponge reefs

<http://www.asnailsodyssey.com/LEARNABOUT/SPONGE/sponGlas.php>

What is a glass sponge

<http://glassspongereefs.com/what-is-a-glass-sponge/>

Glass sponges on an Alaskan seamount

<http://oceanexplorer.noaa.gov/explorations/04alaska/logs/aug12/aug12.html>

Glass sponges of British Columbia

<http://ibis.geog.ubc.ca/biodiversity/efauna/SpongesofBritishColumbia.html>

information on Glass sponges

<http://animaldiversity.org/accounts/Hexactinellida/>

NWPS Headquarters

720-1190 Melville Street
Vancouver, BC V6E 3W1

NWPS Vancouver Island

PO Box 39058
RPO James Bay
Victoria, BC V8V 4X8

t Vancouver 604.568.9160

t Victoria 778.967.3379

e info@northwestwildlife.com

w www.northwestwildlife.com