

Rare sea creatures in danger

Glass sponges are living fossils that contain vital information about ocean evolution

Stephen Hume

Vancouver Sun

Tuesday, November 18, 2008

Fluted, whorled, some ornate and calyx-shaped, others intricate as fine porcelain chandeliers, a reef of living fossils known as glass sponges, among the rarest of undersea phenomena and described by scientists as "totally unique," lies unprotected just off Richmond.

Several similar colonies of the fragile creatures have also been found off the east coast of Vancouver Island, the Gulf Islands, West Vancouver and the Sunshine Coast, but the unparalleled formation on the undersea Fraser Ridge is of particular interest to scientists.

All are extremely vulnerable to damage by fishing, resource exploration and the laying of power or communications cables.

Now there's also growing international concern about the federal government's failure to create permanent marine protected areas around these reefs to ensure preservation of the vital information they contain regarding ocean evolution and changing global environmental conditions over millions of years.

"This is the only place we can see living examples of these fossil reefs," said Dr. Manfred Krautter when I tracked him down at a scholarly symposium on glass sponge reefs held recently at the Institute of Ocean Sciences on southern Vancouver Island. "It takes 9,000 years to grow them and 90 minutes to wipe them out."

Scientists like Krautter think British Columbia's reefs began developing not long after the last ice age. Although the sponges themselves occur elsewhere -- there are 550 subspecies among the 18 families -- these large, elaborate reef communities are found nowhere else in the world.

Glass sponges extract silica dioxide dissolved in water and from it create themselves skeletons fused from a delicate lattice of glass strands. Specimens of individual sponges can be up to four metres across but are brittle and will shatter like glass when struck by commercial trawl gear, sports anglers' heavy downriggers, or prawn and crab traps. Nobody knows what impact seismic testing for undersea oil and gas might have on them.

Reefs on B.C.'s North Coast are estimated to extract from the sea an amount of silica equivalent to 57,000 railway cars just to accommodate overall growth for one year. On otherwise featureless ocean bottoms, the complicated shapes of the glass sponge reefs create habitat that's widely used by many other sea creatures.

Krautter, a scientist from the Institute for Geology at the Leibniz University of Hannover in Germany, is an expert on glass sponge reefs. He said it's estimated that about 50 per cent of B.C.'s glass sponge reefs have already been destroyed by commercial fishing operations, which drag nets and heavy cables along the bottom to catch groundfish.

It's thought these already damaged reefs may never regenerate. Ottawa closed areas immediately surrounding four reefs in Hecate Strait to bottom trawling in 2002 but then had to expand the closures when it was found that some of the structures extended well beyond the protective zone.

But environmental groups like the Canadian Parks and Wilderness Society are concerned that the trawl fishery closures must be renewed every year and there is no permanent, legislated protection for these rare glass sponge reefs.

"The glass sponge reefs found more recently in the Strait of Georgia, on the Fraser Ridge, off Galiano Island, the Sunshine Coast and the coast of West Vancouver, currently have no protection from fishing and other activities," says Sabine Jessen, national manager of the oceans and great freshwater lakes program for CPAWS.

"They are found in more shallow waters than the sponge reefs in Hecate Strait, and are also much smaller. This makes them more vulnerable, but also provides an important opportunity to conduct further research on these incredible organisms that we know so little about. CPAWS is concerned that these smaller southern reefs have no protection.

"As a first step, we would like to see interim protection for these reefs in the form of fishing closures and ultimately Marine Protected Area status."

She says she'd like to see the rare structures designated as a World Heritage Site, but because Canada doesn't permanently protect them, they can't be so named.

Until the discoveries off the Lower Mainland, glass sponge reefs were believed to form only in marine environments that are stable over a long time and have low to zero sedimentation rates.

The waters off the Fraser estuary, however, are swept by currents, subject to tidal surges and the shifting mud banks deposited by the river's sediment-heavy outflow are well-known navigation hazards. Glass sponge reefs in the deep, still, almost sediment-free waters of Hecate Strait and Queen Charlotte Sound created a scientific sensation when they were discovered in 1988.

Scientists dubbed them living fossils because they were long thought to have become extinct about 145 million years ago at the end of the Jurassic period when dinosaurs were rising to their evolutionary zenith.

Land masses then looked nothing like the familiar continents of today.

Warm, shallow seas were home to ichthyosaurs and long-necked plesiosaurs while the land was roamed by fast, fierce carnivores like the allosaurus -- a smaller version of the tyrannosaurus rex of movie fame -- and huge herbivores like the Apatosaurus, diplodocus and stegosaurus.

In one of these seas, named Tethys by paleontologists and geologists, glass sponges massed so thickly that they created what may have been the single largest reef formation on the planet. Fossilized remains of this reef extend 7,000 kilometres across southern Europe and along the northern rim of the Alps and the deposits range from 120 to 400 metres thick.

Krautter likened the B.C. discoveries to finding a herd of Jurassic dinosaurs grazing in some hidden valley in the Interior. He said the media response to such an event would be global and unprecedented but because the glass sponges lie beneath the sea and are not easily observed, there's less popular interest.

Look, this does not take towering genius to figure out. We've already wrecked half of a world wonder. The glass sponge reefs need full, permanent protection. Federal scientists know what needs to be done. Federal politicians have the authority to protect the reefs for good tomorrow.

It's not as though the already pillaged Strait of Georgia biosphere wouldn't also benefit from a few more refuges for sea life. Gail Shea, the new federal fisheries minister, needs to show some initiative and just do the right thing for the glass sponge reefs, right now.

shume@islandnet.com

© The Vancouver Sun 2008

CLOSE WINDOW

Copyright © 2008 CanWest Interactive, a division of CanWest MediaWorks Publications, Inc.. All rights reserved.
CanWest Interactive, a division of CanWest MediaWorks Publications, Inc.. All rights reserved.