

Canadian Contributions to NEREIDA 2009-2010

NAFO PotEntial VulneRable Marine Ecosystems-Impacts of Deep-seA Fisheries



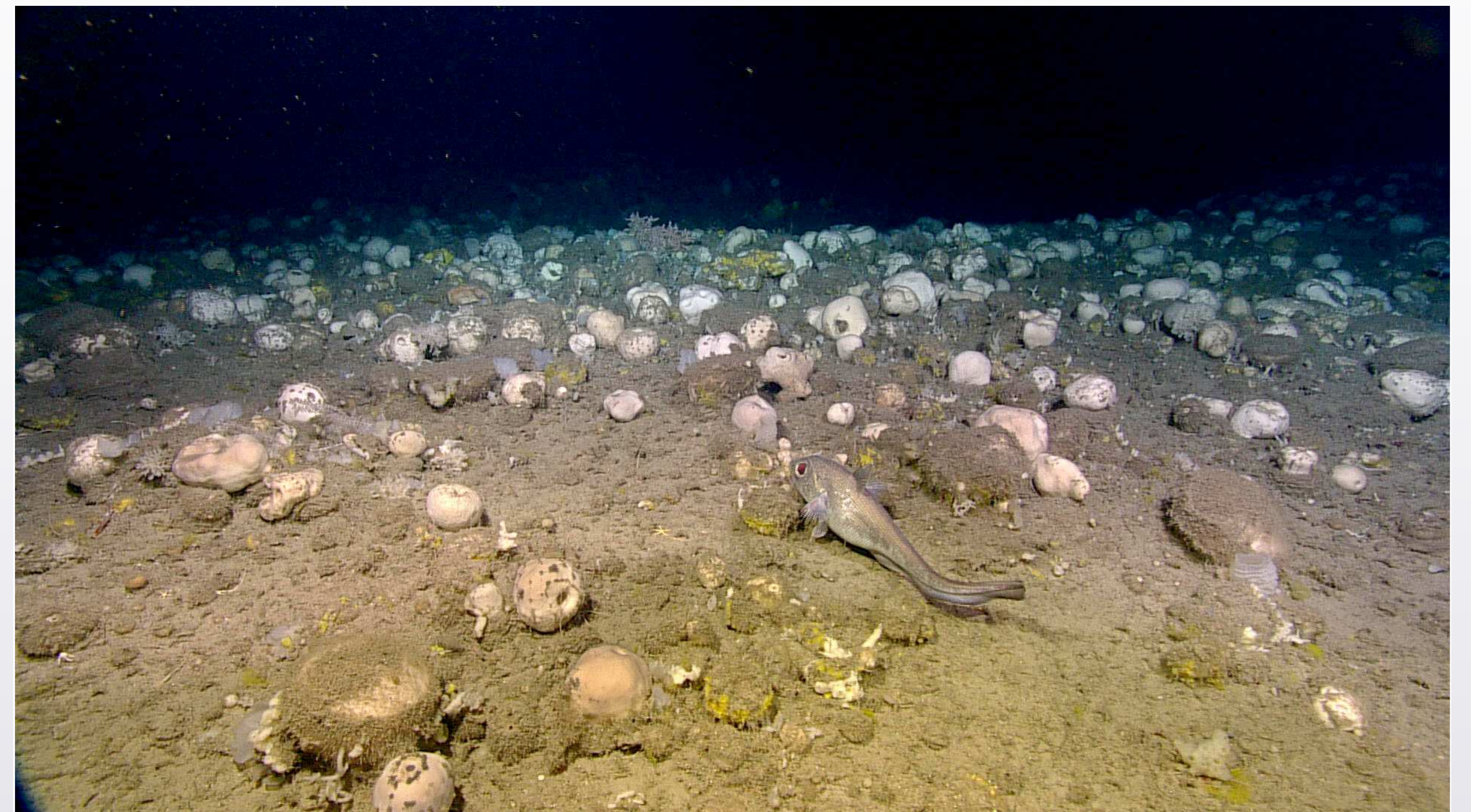
SEDIMENT SAMPLES GIVE INSIGHT INTO HISTORICAL DISTRIBUTION OF SPONGES IN THE NRA

NAFO has identified sponge grounds as vulnerable marine ecosystems. A number of areas in the NAFO Regulatory Area (NRA) have been closed to protect the dense aggregations of sponges that are known to occur. One of the largest of these is on Sackville Spur, where research vessel catches have filled the nets in a single 15 minute trawl. Sponges are very vulnerable to disturbance by bottom-tending gear and one of the questions scientists have is whether the present-day distribution of the sponges has been modified by fishing activity.

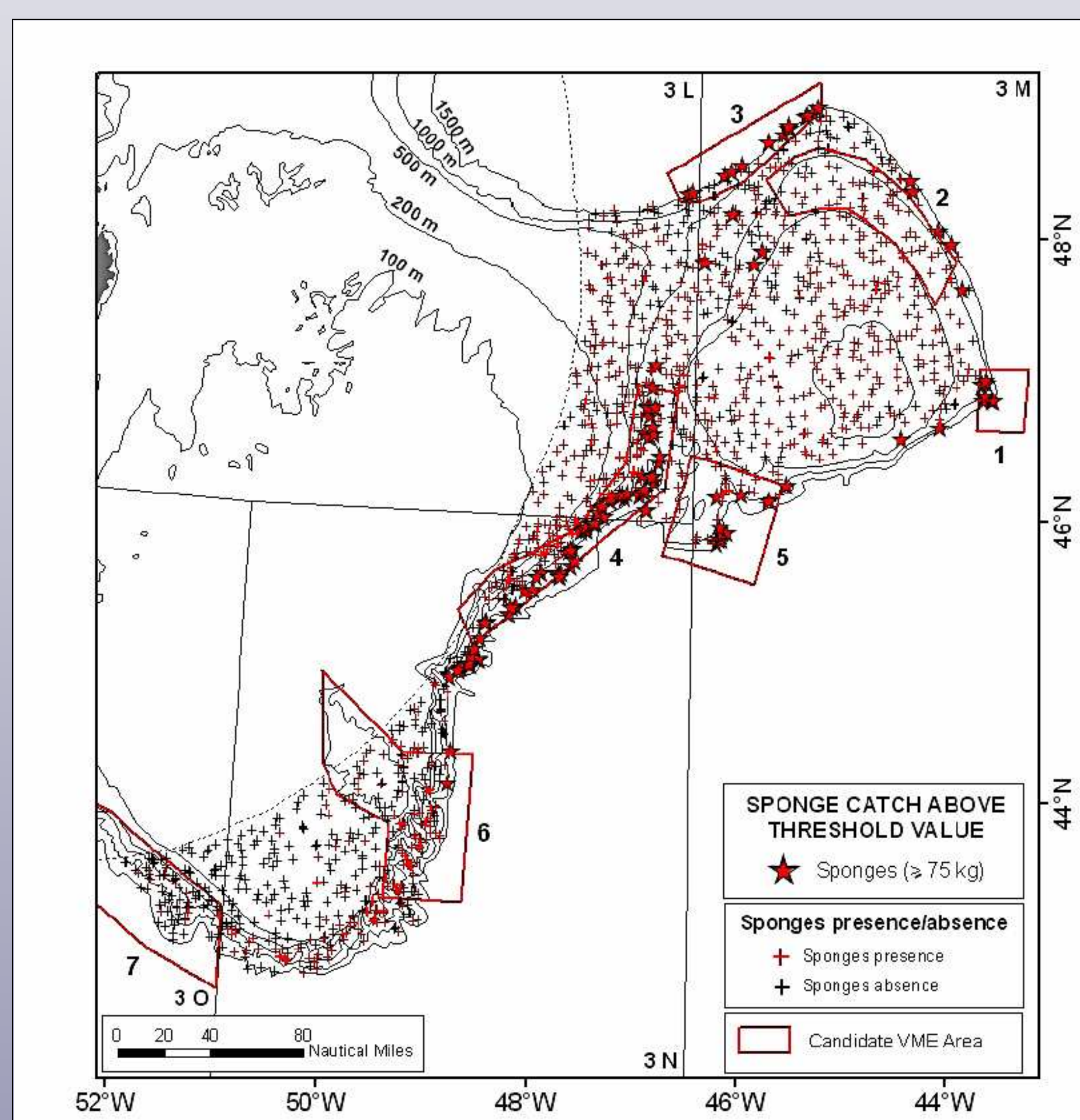
The NEREIDA push core samples may provide an insight into this question. Sponges use various materials to reinforce their tissue and this forms the main basis for their identification. These sponge "bones" are called spicules and they are made of calcium carbonate or silica. They come in a wide variety of shapes and sizes which are unique for each species. These spicules can form very dense mats on the sea floor as the sponges die. Spicule mats become a specialized habitat of their own. If left undisturbed, these spicules will eventually become covered with sediment. Some Push Cores showed evidence of sponge spicules both at the surface and at depth along the core. We will be analyzing these spicules to determine:

- 1) the sponge species that deposited the spicules
- 2) whether historically sponges occupied different areas of Flemish Cap (100s of year time scale) – from spicules deep in the cores
- 3) whether there is evidence of a recent change in sponge distribution – from spicules near the top of the cores

All of this information will give us insight into the distribution of vulnerable marine ecosystems dominated by sponges in the NRA.



Sponge grounds on Flemish Cap photographed by ROPOS in 2010



Significant catch of sponges determined from research vessel survey data. The numbers refer to the NAFO numbering of the candidate VME locations (NAFO SCS Doc. 09/6 Serial No. N5627).



Push core showing location of sponge spicules



Cleared sponge spicules under a microscope

Recent sponges encountered in the NRA

