

Large-Mesh Sea Urchin Diver Catch Bags

Results of Experimental Tests

Summary Report

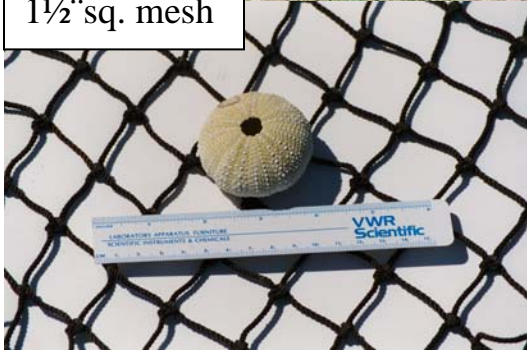
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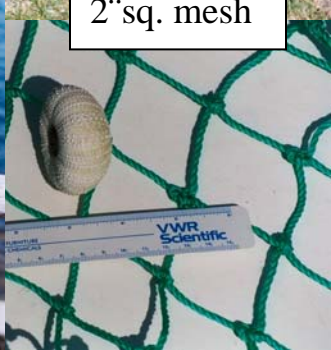
1½"sq. mesh



2"sq. mesh



2"sq. mesh with
¼"sq. mesh cover



Photos – Margaret Hunter

Can a small sea urchin escape from a diver's catch bag if the bag has unusually large mesh openings? Several divers have suggested that using large-mesh catch bags would reduce the take of small, sub-legal-sized urchins (less than $2\frac{1}{16}$ inches), and leave more of these small urchins on the bottom. Others have doubted whether large mesh would help, expecting that urchins would stick together like "Velcro" and stay in any bag.

On July 11, 2002, divers tested two bags with unusually large mesh openings. One bag was made of black nylon mesh approximately $1\frac{1}{2}$ inches square (see photos on front left) and the other was made of green polypropylene mesh approximately 2 inches square (see photos on front right). Each bag was tested 3 times at a site in Eastport. A small-mesh ($\frac{1}{4}$ inch square) cover was put over the 2" bag (see bottom photo on front) to catch the urchins that escaped through the large meshes of the inner 2" bag.

In three tests of the 2" bag, from 8% to 26% of the small (sub-legal) urchins that went in escaped through the 2" meshes and were caught in the outer bag (see photo below). The $1\frac{1}{2}$ " mesh bag performed about the same. 2 out of 94 (2%) legal-sized urchins also escaped from the 2" bag. It was not physically possible for a legal-sized urchin to escape through the $1\frac{1}{2}$ " mesh.

Use of the large-mesh bags would clearly benefit the diver who "bails". In this study, it was the smallest urchins that were most likely to escape – they averaged about $1\frac{1}{8}$ inches - and a diver who is already highly size-selective ("culling on the bottom") might see little benefit from switching to large-mesh bags.

We do not know how many divers are "bailing", that is, being non-size-selective while harvesting. We also do not know how many small urchins survive the culling process, and therefore, cannot say exactly how many urchins would be saved by using large-mesh catch bags.



Photo – Kerry Lyons

However, divers who use large-mesh catch bags report that their catches are cleaner and require much less culling. They also see lower by-catch of other organisms, such as seaweed, periwinkles, and sand lances. Our tests show that these bags do allow some small urchins to escape.

We recommend that divers interested in reducing their reliance on their culler, or in protecting small urchins and their habitat, try using a mesh sized between the two tested here, that is, about $1\frac{3}{4}$ inches square.

The full report (DMR Research Ref. Doc. 02/07) and a videotape made during the tests of the 2" bag are available at the DMR Fishermen's Library, PO Box 8, W. Boothbay Harbor, ME 04575, telephone (207) 633-9551, e-mail library@bigelow.org, or at <http://www.maine.gov/dmr/rm/seaurchin/research>.