

**Green Sea Urchins**

There are directed commercial fisheries in PNCIMA for three species of echinoderms: one sea cucumber and two sea urchins.<sup>1</sup> Green sea urchins (*Strongylocentrotus droebachiensis*) are quite mobile and make seasonal migrations between deep and shallow waters. In general, echinoderm species aggregate, resulting in significantly high population densities in areas with favourable conditions, such as available food and specific reproduction temperatures.<sup>2</sup>

**The Green Sea Urchin Fishery**

The commercial green sea urchin fishery is conducted by divers and harvesting is limited to hand picking.<sup>1</sup> Green sea urchins are harvested for their roe (gonad).<sup>3</sup>

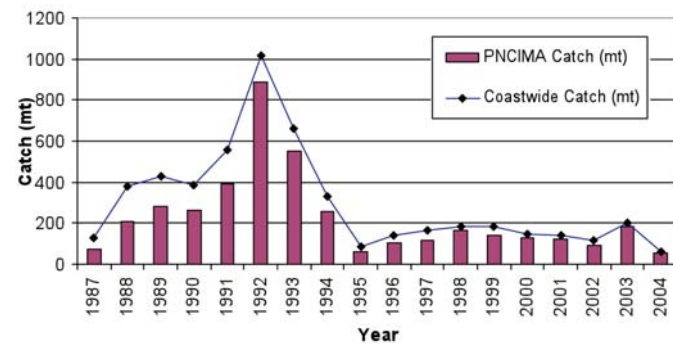
The green sea urchin fishery is managed separately from the red sea urchin fishery because their distribution and targeted markets are quite different. Management strategies include stable effort and landings, increased catch per unit effort (CPUE) and limited quotas.<sup>1</sup>

Few recorded landings during fishing seasons 2000 to 2001 and 2001 to 2002 caused prices and, in turn, fishing effort to decrease such that landings have not depicted actual green sea urchin abundance.<sup>4</sup> Catches in PNCIMA relative to coastwide catches are presented in the graph.<sup>1</sup> Presently, the Pacific Fishery Management Areas open to fishing green sea urchins in PNCIMA include Areas 11, 12 and 13 (southern central coast), which have historically contributed less than 90 percent to the coastwide effort in BC.<sup>1</sup>

**Fishery Effort**

The fishery effort map, using four by four km gridded data, represents 89.3 percent of the data available for PNCIMA after screening for confidentiality (minimum three licences reporting per grid cell). The five data classes presented on the map are based on natural groupings inherent in the data such that similar values are grouped and differences between

**Green Sea Urchin Catch in PNCIMA**



classes are maximized (Natural Break or Jenks statistical method). In PNCIMA, cumulative green sea urchin fishery effort is measured in dive hours.

**Green sea urchins are harvested for their roe**

Similar to other invertebrate fisheries, the green sea urchin dive fishery is predominantly found along the inner coast where access, transport and shipping for product are more readily available.<sup>1</sup> Dive effort appears to be only located in the southeast portion of PNCIMA in the waters of Queen Charlotte Strait and Johnstone Strait, mostly between Port McNeill and Campbell River.

The proximity of fishing to the coast makes the gridded data appear to overlap land, an artifact of applying the data to the standard grid. The fishing data for green sea urchins were layered above the land only to make the data more visible.

Map data are viewable online through DFO Mapster at [www-heb.pac.dfo-mpo.gc.ca/maps/maps-data\\_e.htm](http://www-heb.pac.dfo-mpo.gc.ca/maps/maps-data_e.htm)  
 Material presented is drawn from the following literature reviews, which include primary references:  
 1 MacConnachie, S., Hillier, J. and Butterfield, S. 2007. Marine use analysis of the Pacific North Coast Integrated Management Area. Can. Tech. Rep. Fish. Aquat. Sci. 2677: viii + 188p.  
 2 Lucas, B.G., Verrin, S. and Brown, R. (Editors). 2007. Ecosystem overview: Pacific North Coast Integrated Management Area (PNCIMA). Can. Tech. Rep. Fish. Aquat. Sci. 2667: xiii + 104p.  
 3 Hillier, C.J., Gueret, D., Butterfield, S. and Pellegrin, N. 2007. Fish harvesting activities within the proposed Gwaii Haanas National Marine Conservation Area. Can. Manuscr. Rep. Fish. Aquat. Sci. 2803: vi + 65p.  
 4 The date ranges in the graph and map differ because the graph is taken from MacConnachie et al. (see footnote 1), but updated information was available when creating the map.



**Green sea urchins.**  
Photo: Mueller

