

SOUTHERN B.C. SHELF MODEL

The area covered

(D. Pauly)

The southern coast of British Columbia as defined here ranges from nearshore waters (about 10 m) to the shelf slope (300m), from the southern tip of the Queen Charlotte Islands in the North, along the Pacific Ocean coast of Vancouver Island to the Juan de Fuca Strait in the South, and thus excludes the Hecate, Charlotte, Johnstone, and Georgia Straits.

The system thus defined covers approximately 30,000 km², and is, in fact, so open to adjacent water bodies that it cannot legitimately be considered a distinct ecosystem. However, recurrent groups of interacting species of fish and invertebrates do occur in the area thus defined, and various biomass and flux estimates have been published by authors who (at least implicitly) must have assumed some degree of integration among these groups. Thus, for pragmatic reasons, we shall treat the above-defined area as if it identified the boundaries of a mass-balanced ecosystem, but return later to the open nature of the "ecosystem" defined here.

Primary production in the area has been estimated as 345 gCm⁻² year⁻¹ by Robinson et al (1993), who also reviewed the oceanography of the Southern B.C. shelf.

Euphausiids, Chaetognaths and Herbivores

(Jenny Purcell)

Euphausiids

A first estimate of euphausiid biomass can be obtained by averaging the entries of Table 2 in Fulton et al. (1982), and this amounts to 3.8 ± 7.3 g wet weight·m⁻². Another rough estimate is 0.65 g dry weight·m⁻² (Mackas et al. 1992), corresponding to about 2.8 g wet weight·m⁻² (Sambily 1993).

Chaetognaths

A very approximate biomass for chaetognaths of 0.3 g dry weight m⁻² was obtained from Mackas et al. (1992), and this translates to 3 g wet weight·m⁻² if we assume dry weight = 10% wet weight. The diet consists almost exclusively of zooplankton (mostly copepods).

Salps

Biomass is 0.5 ± 0.5 g·m⁻² dry weight (from Mackas et al. 1992); if we assume dry weight equal to 10% of wet weight, then biomass is about 5 g m⁻² (wet weight).

The diet probably consists predominantly of phytoplankton, with a minor microzooplankton contribution.