



Carbon sources for demersal fish in the western Seto Inland Sea, Japan, examined by $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analyses

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Limnol. Oceanogr., 47(3), 2002, 730-741 | DOI: 10.4319/lo.2002.47.3.0730

ABSTRACT: The relative importance of benthic and pelagic primary production for demersal fish and some invertebrates in the western Seto Inland Sea of Japan was examined using carbon and nitrogen stable isotope analyses. A few fishes, such as juvenile black rockfish *Sebastes inermis* and large Japanese anchovies *Engraulis japonicus*, had isotopic carbon signatures similar to pelagic particulate organic matter ($-20.1 \pm 1.7\text{‰}$), which indicates that their food was derived from production in the water column. However, 92% of the 401 demersal fish that were analyzed had $\delta^{13}\text{C}$ signatures (-17.0 to -13.0‰) similar to those of benthic crustaceans, epilithic microphytobenthos, and macroalgae and unlike the signature of pelagic particulate organic matter or zooplankton. These results suggest that in the Seto Inland Sea there is not a tight coupling between pelagic primary production and the food web of demersal fishes, but rather that these fishes are dependent on carbon from benthic primary production.

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