Biogeosciences Discuss., 10, C150–C152, 2013
www.biogeosciences-discuss.net/10/C150/2013/

Biogeosciences Discussions

Interactive comment on "Contributions of riverborne inorganic and organic matters to the benthic food web in the East China Sea as inferred from stable isotope ratios" *by* N. N. Chang et al.

Anonymous Referee #1

Received and published: 26 February 2013

This study aimed to evaluate the respective contributions of terrigenous POM (allochthonous) and marine production (autochthonous) to the benthic food web in the ECS by analyzing the stable carbon and nitrogen isotope compositions for zooplankton, benthic crustacea and demersal fish across the extensive ECS continental shelf. They found that benthic crustacea and fish exhibited higher δ13C values at the highly productive inshore sites. The δ13C values of fish also showed significant positive correlations with the concentration of surface chlorophyll a and nitrogen. They concluded found that the δ13C signals of fish and crustacea showed strong reliance on marine production across the ECS continental shelf and that riverborne nutrients closely linked marine benthic consumers to the terrestrial watershed and tightly coupled the pelagic

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

and benthic ecosystems in the ECS. Large amounts of inorganic nitrogen were conveyed from the Changjiang into the ECS, which have increased the annual occurrence rate of spring algal blooms and caused bottom-water hypoxia in the coastal zone. It is imperative to determine whether the riverborne POM would nourish the ECS food webs. However, this study suffers from some major flaws. They over-interpreted the results and the conclusion "the stable isotope compositions of benthic consumers can act as an indicator for pelagic trophic status" cannot be supported by their limited sampling sites and data. The English also needs to be carefully edited. 1. As the authors stated in the text “the terrestrial POM transported by the Changjiang was estimated to contribute >702. The second possibility that most fish exhibited higher dependence on marine production in this study is that the authors analyzed zooplankton samples only instead of phytoplankton. In order to distinguish marine production from terrestrial POM, the authors assumed that marine phytoplankton constitute most of the carbon source for zooplankton. However, this assumption was not justified because the carbon source for zooplankton in the ECS continental shelf may come from a mixture of terrigenous POM (allochthonous) and marine production (autochthonous). It is not clear what are the organisms retaining on the 363 μm mesh used for isotopic analysis? The periodical migration or movement behaviors of zooplankton may further complicate their carbon sources. The δ13C signals of fish and crustacea showing strong reliance on zooplankton do not necessarily mean that the carbon sources are really marine phytoplankton production. 3. The authors stated that the inner shelf was characterized as highly productive, with chlorophyll a concentrations generally higher than at most inshore sites. However, high chlorophyll a concentrations or the standing stock do not mean high productivity. The authors did not provide productivity data for phytoplankton. 4. P. 1059, L17, The authors stated that “the isotopic composition of most fish located within the schematic range of marine production indicates that they fed on zooplankton from either inshore or offshore locations in all sampling years”. However, the feeding on zooplankton by the demersal fish is questioned because the demersal fish general feed on benthos rather than plankton.

BGD
10, C150–C152, 2013

Interactive comment on Biogeosciences Discuss., 10, 1051, 2013.