

Stimulation of bacterial exoproteolytic activity by fish farming in coastal marine ponds: effect on dissolved protein cycling



The effect of fish farming on dissolved amino acid concentrations, bacterioplankton abundance and exoproteolytic activity was assessed in 3 experimental marine ponds. Different standing stocks of fish were introduced (semi-intensive pond: 250 g.m⁻², semi-extensive pond: 50 g.m⁻², control pond: 0). Sea bass farming increased dissolved combined amino acid (DCAA) concentrations only in the semi-intensive pond. Bacterial standing stock was unaffected by fish food supply. However, bacterial exoproteolytic activity was strongly stimulated by aquaculture intensification; the average maximal rate of dissolved protein hydrolysis (V_m) increased with intensity (control pond: 1 500 nM.h⁻¹; semi-extensive pond: 2 600 nM.h⁻¹; semi-intensive pond: 5 100 nM.h⁻¹). DCAA fluxes through bacterial exoproteolytic activity ranged between 16 (semi-extensive) and 11% (semi-intensive) of the daily nitrogen input by fish food. Bacterial exoproteolytic activity allowed a substantial part of the increased supply of dissolved amino nitrogen to be incorporated into bacterial biomass, then available for transfer to higher trophic levels within the ponds. It also

significantly decreased dissolved organic nitrogen export from the ponds to the surrounding environment.

Auteurs du document : Marie-José Garet, Hugues Reymond, Daniel Delmas

Obtenir le document : EDP Sciences

Mots clés : Bacterial exoproteolytic activity, dissolved proteins, aquaculture, coastal marine ponds, Activité exoprotéolytique bactérienne, protéines dissoutes, intensification de l'aquaculture, marais maritimes

Thème (issu du Text Mining) : MILIEU NATUREL

Date : 1997-07-15

Format : text/xml

Source : <https://doi.org/10.1051/alr:1997024>

Langue : Anglais

Télécharger les documents : <https://www.alr-journal.org/10.1051/alr:1997024/pdf>

Permalien : <https://www.documentation.eauetbiodiversite.fr/notice/stimulation-of-bacterial-exoproteolytic-activity-by-fish-farming-in-coastal-marine-ponds-effect-on-d0>

Evaluer cette notice: