

Food consumption as driver of nutrient inputs into marine environments

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Emissions of nutrients from agriculture and sewage systems into water bodies are usually presented as separate sources although they have common factor, i.e. food. From a societal perspective, it is thus logical to regard the human demand for food as the key driver of the anthropogenic nutrient flows causing undesirable eutrophication of aquatic environments. Here, we estimate how changes in three food-related societal phenomena (protein intake, unnecessary food waste and phosphorus additives in food) can influence the input of nutrients into Swedish marine waters. Keeping in mind that the presented load reductions are maximum reductions based on a number of assumptions our study allowed the following conclusions: (i) a lower intake of protein-rich food products (25% less protein) could imply that, each year, about 200 tonnes less phosphorus and nearly 9.000 tonnes less nitrogen would reach the Swedish marine environments, (ii) if phosphorus compounds added to various food products are replaced or eliminated, the annual input of phosphorus into the sea could be reduced by about 60 tonnes per year, and (iii) reducing the amount of unnecessary food waste is both desirable and feasible, but load reductions are relatively small. Altogether, the results of the present study suggest an increased emphasis on what and how much protein-rich food consumers eat and on the use of phosphorus additives in the food industry. The potential load reductions due to such changes are substantial compared to the remaining Swedish reduction targets in the Baltic Sea Action Plan of Helcom.

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