

Shore Birds Effects on Coastal Marine Ecosystem in the Process of Ecological Changes

Liora Fian⁷

Department of Environmental Ecology, University of California, California, United States of America

DESCRIPTION

Seabirds are a diverse group of water birds that live or spend part of their lives in marine and coastal ecosystems. They include pelagic birds, such as albatrosses and petrels, that roam the open ocean, and coastal birds, such as gulls, terns and penguins, that breed and feed near the shore. Seabirds are vital components of coastal marine ecosystems and may connect the marine and terrestrial environment at a global scale, significantly contributing to inter-habitat connectivity and the provision of multiple ecosystem services.

Ecosystem services depend on the functions and processes that underpin the production of these benefits, such as nutrient cycling, primary production, pollination and predation. Seabirds can influence these functions and processes in coastal marine ecosystems in a multitude of ways, among which directly influencing trophic status, environmental contamination, biodiversity and food webs through trophic (bottom-up or topdown) and non-trophic processes.

Trophic processes refer to the transfer of energy and matter through food chains and food webs. Seabirds can affect trophic processes in coastal marine ecosystems by acting as consumers (top-down effects) or as providers (bottom-up effects) of organic matter and nutrients. As consumers, seabirds can regulate the abundance and distribution of their prey species, such as fish, crustaceans and molluscs, and indirectly affect their competitors and predators. For example, seabird predation on small pelagic fish can reduce their grazing pressure on zooplankton and phytoplankton, enhancing primary production. As providers, seabirds can enrich coastal marine ecosystems with organic matter and nutrients derived from their feces (guano), carcasses, eggs and feathers. These inputs can stimulate primary production, microbial activity, decomposition and nutrient cycling in the water column and the benthos. For example, guano deposition on islands can increase nitrogen and

phosphorus concentrations in runoff water and coastal sediments, supporting algal growth and benthic productivity.

Non-trophic processes refer to the effects of seabirds on coastal marine ecosystems that are not mediated by food chains or food webs. Seabirds can affect non-trophic processes in coastal marine ecosystems by acting as vectors (transporters) or as modifiers (transformers) of physical and biological components. As vectors, seabirds can transport seeds, spores, eggs, larvae and pathogens across habitats and biogeographic regions, enhancing biodiversity and connectivity. For example, seabirds can disperse terrestrial plants to islands and coastal areas, creating new habitats for other species. As modifiers, seabirds can alter the physical structure and chemical properties of their breeding and foraging habitats through their activities such as nesting, burrowing, trampling and roosting. For example, seabirds can create biogenic structures such as nests and burrows that provide shelter and refuge for other organisms.

The influence of seabirds on coastal marine ecosystems is often overlooked compared to terrestrial systems. However, given the importance of coastal areas for seabirds worldwide and, at the same time, the high vulnerability of both to human-induced threats such as overfishing, habitat loss, pollution and climate change, looking into the role of seabirds in influencing the ecosystem functioning in coastal areas is needed nowadays. Understanding how seabirds affect ecological processes in coastal marine ecosystems can help to assess their contribution to ecosystem services provision and human well-being. Moreover, it can help to identify potential trade-offs or synergies between different ecosystem services or between ecosystem services and disservices (negative impacts of nature on humans). For example, seabird guano can enhance fishery production but also cause eutrophication or disease transmission. Therefore, more studies are needed to improve the knowledge in this field and to promote seabird conservation.

Citation: Fian L (2023) Shore Birds Effects on Coastal Marine Ecosystem in the Process of Ecological Changes. J Coast Zone Manag. 26:563.

Copyright: © 2023 Fian L. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Correspondence to: Liora Fian, Department of Environmental Ecology, University of California, California, United States of America, E-mail: liora00@gmail.com

Received: 03-Apr-2023, Manuscript No. JCZM-23-21101; Editor assigned: 05-Apr-2023, Pre QC No. JCZM-23-21101 (PQ); Reviewed: 25-Apr-2023, QC No. JCZM-23-21101; Revised: 02-May-2023, Manuscript No. JCZM-23-21101; Published: 09-May-2023, DOI: 10.35248/2473-3350.23.26.563