

## Research



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## Marine biology

## Kleptopredation: a mechanism to facilitate planktivory in a benthic mollusc

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Predation occurs when an organism completely or partially consumes its prey. Partial consumption is typical of herbivores but is also common in some marine microbenthic carnivores that feed on colonial organisms. Associations between nudibranch molluscs and colonial hydroids have long been assumed to be simple predator–prey relationships. Here we show that while the aeolid nudibranch *Cratena peregrina* does prey directly on the hydranths of *Eudendrium racemosum*, it is stimulated to feed when hydranths have captured and are handling prey, thus ingesting recently captured plankton along with the hydroid polyp such that plankton form at least half of the nudibranch diet. The nudibranch is thus largely planktivorous, facilitated by use of the hydroid for prey capture. At the scale of the colony this combines predation with kleptoparasitism, a type of competition that involves the theft of already-procured items to form a feeding mode that does not fit into existing classifications, which we term kleptopredation. This strategy of subsidized predation helps explain how obligate-feeding nudibranchs obtain sufficient energy for reproduction from an ephemeral food source.

## 1. Introduction

The understanding of trophic strategies and the resultant linkages among species is critical to any description of community dynamics and energy flow [1]. Ecological specialization is ubiquitous in the animal kingdom [2] and particularly well-examined in the area of insect–plant relationships in terrestrial ecosystems [3,4], but believed to be less common in the marine realm [5]. Many marine herbivores and predators are generalists, but recent literature reveals increasing numbers of marine taxa with distinct habitat and/or dietary specialization [6] comparable to terrestrial insect–plant associations [7,8]. Opisthobranch molluscs are one marine taxon that commonly exhibits specialist behaviour, including both herbivorous and carnivorous species that feed either on particular species of algae, sponges, or colonial cnidarians [7,9]. The association between nudibranchs and cnidarian colonies has hitherto been regarded as a simple predator–prey relationship, albeit one where the cnidarian host may provide both shelter and food supply, as well as defensive capability in some cases [10]. Where host species are seasonally abundant, the temporal window within which predators must exploit resources and successfully