水母 973 课题文献专题服务（10）

中国科学院海洋研究所
文献信息中心图书信息部
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1. **Collapse of zooplankton stocks during Liriope tetraphylla (Hydromedusa) blooms and dense mucilaginous aggregations in a thermohaline stratified basin**
   在热盐分层盆地 Liriope tetraphylla(水螅水母)暴发期间的浮游动物种群崩溃以及致密粘液质聚合
   http://onlinelibrary.wiley.com/doi/10.1111/maec.12166/abstract;jsessionid=91A2B35FA0EB73D3F9AA7AB68A4808E2.f04t01

A growing number of studies report an increase in jellyfish populations worldwide that may have consequences for marine planktonic food web dynamics. The principal objective of this study was to understand the changes in a zooplankton community during blooms of Liriope tetraphylla and subsequent mucilage events in the Sea of Marmara, a small highly stratified transitional basin between the Black and Aegean Seas. Liriope blooms observed in 2006 and 2007 reached a maximum abundance of 2978 ind.m(-3), following the species' first observation in 2005. Jellyfish species are known to play a key guild role by restructuring plankton communities and in the Sea of Marmara Liriope caused a temporal regime shift from a crustacean- to a jellyfish-controlled system. A rapid decline in abundance of most important zooplankton species followed the Liriope increase, together with a drastic shift in community structure. The dominant summer-autumn species Penilia avirostris (Cladocera) vanished in the autumn of 2006 and was diminished similar to 30-fold in 2007 when compared with years without Liriope. The decline in zooplankton and the devastating effects of mucilage on pelagic ecosystem and socio-economics through restricting commercial fisheries implied sensitivity of the already perturbed Marmara ecosystem to changes in predator densities and environmental stability.

2. **A new species of Cyanea jellyfish sympatric to C-capillata in the White Sea**
   一种新的 Cyanea 水母在白海与 C-capillata 分布区重叠
   http://link.springer.com/article/10.1007%2Fs00300-015-1707-y

Cyanea is a genus of large bloom-forming scyphozoans, including some of the most conspicuous representatives of megaplankton. Its taxonomy has been revised repeatedly throughout the last century due to the fact that most of the morphological characteristics of Cyanea species, such as color, structure of gastrovascular system and number of tentacles, may overlap greatly in different populations. Here, we report a new species of Cyanea, Cyanea tzetlinii sp. nov., from the White Sea, which is distinguishable from all previously described Cyanea species by an eye-spot-bearing bulb formed at the base of each rhopalium. This well-recognizable morphological characteristic is supported at the molecular level by a substantial genetic distance in mitochondrial (CO1: 9.6-10.6 %, 16S RNA: 3.1-3.5 %) as well as nuclear (ITS: 5.0 %, 18S RNA: 0.1 %) loci, making it the sister species to Cyanea capillata. Taking into account the young geological age of the White Sea and a substantial genetic divergence between C. tzetlinii sp. nov. and the nearest sister species, we suppose that C. tzetlinii sp. nov. has been advected to the White Sea from elsewhere and may also inhabit other Arctic seas. Past ecological studies in the White Sea and possibly in other Arctic Seas could have conflated C. tzetlinii sp. nov. with other species, which likely affected the analyses

3. **Structural and Developmental Disparity in the Tentacles of the Moon Jellyfish Aurelia sp.1**

海月水母触角的结构和发育差距

http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0134741

Tentacles armed with stinging cells (cnidocytes) are a defining trait of the cnidarians, a phylum that includes sea anemones, corals, jellyfish, and hydras. While cnidarian tentacles are generally characterized as structures evolved for feeding and defense, significant variation exists between the tentacles of different species, and within the same species across different life stages and/or body regions. Such diversity suggests cryptic distinctions exist in tentacle function. In this paper, we use confocal and transmission electron microscopy to contrast the structure and development of tentacles in the moon jellyfish, Aurelia species 1. We show that polyp oral tentacles and medusa marginal tentacles display markedly different cellular and muscular architecture, as well as distinct patterns of cellular proliferation during growth. Many structural differences between these tentacle types may reflect biomechanical solutions to different feeding strategies, although further work would be required for a precise mechanistic understanding. However, differences in cell proliferation dynamics suggests that the two tentacle forms lack a conserved mechanism of development, challenging the textbook-notion that cnidarian tentacles can be homologized into a conserved bauplan.

4. **Experiments and evidences: jellyfish (Nemopilema nomurai) decomposing and nutrients (nitrogen and phosphorus) released**

实验和证据:水母(Nemopilema nomurai)的分解和养分(氮、磷)的释放

http://link.springer.com/article/10.1007%2Fs13131-015-0703-y

The aim of this study was to investigate nitrogen and phosphorus released in the process of the decomposition of giant jellyfish in the laboratory and found the evidence to verify the influence of nutrients released by the decomposition of jellyfish on the ecosystem in the field. The release of nitrogen and phosphorus from the decomposition of Nemopilema nomurai was examined in a series of experiments under different incubation conditions such as different pH values, salinity values, temperatures and nitrogen and phosphorus concentrations. The results showed that the complete decomposition of Nemopilema nomurai generally took about 4-8 d. The release of nitrogen and phosphorus from the decomposition of Nemopilema nomurai could be divided into two stages: the early stage and the later stage, although the efflux rate of nitrogen was one order more than phosphorus. In the early stage of the decomposition of Nemopilema nomurai, the concentrations of dissolved nitrogen, dissolved phosphorus, total nitrogen and total phosphorus in seawater increased rapidly, and the concentration of nitrogen could reach the highest level in the whole degradation process. In the later stage of the decomposition, the concentrations of dissolved nitrogen and total nitrogen declined slowly, while the concentration of phosphorus in water could reach a maximum in the degradation process. High pH, low salinity, high temperature and N/P will promote the release of nitrogen; low pH is unfavorable to the release of nitrogen but favorable to the release of phosphorus. In addition, we found the concentrations of ammonium and phosphate in the bottom water were higher than those in the surface water during the period of jellyfish bloom in the Jiaozhou Bay, proving that nutrients released by the decomposition of jellyfish have significant influence on nitrogen and phosphorus in the field. For the whole Yellow Sea,

nutrients released by jellyfish carcasses may reach up to (2.63 +/- 2.98)x10(7) mol/d of dissolved nitrogen (DN) and (0.74 +/- 0.84)x10(6) mol/d of dissolved phosphorus (DP) during the period of jellyfish bloom. The values are comparable to riverine inputs in a day, but much higher than sediment-water exchange flux in the Yellow Sea. The great amounts of nutrients must have significant influence on the nutrients balance of the Yellow Sea during the period of jellyfish dead and decomposition. Both the experimental data and field observations proved that the decomposition of jellyfish may release a great amount of nutrient to the surrounding environment during the period of jellyfish decomposition.

5. **Ontogenetic propulsive transitions by Sarsia tubulosa medusae**
   Sarsia tubulosa 水母的个体发育推进转换
   http://jeb.biologists.org/content/218/15/2333

While swimming in their natural environment, marine organisms must successfully forage, escape from predation, and search for mates to reproduce. In the process, planktonic organisms interact with their fluid environment, generating fluid signatures around their body and in their downstream wake through ontogeny. In the early stages of their life cycle, marine organisms operate in environments where viscous effects dominate and govern physical processes. Ontogenetic propulsive transitions in swimming organisms often involve dramatic changes in morphology and swimming behavior. However, for organisms that do not undergo significant changes in morphology, swimming behavior or propulsive mode, how is their swimming performance affected? We investigated the ontogenetic propulsive transitions of the hydromedusa Sarsia tubulosa, which utilizes jet propulsion and possesses a similar bell morphology throughout its life cycle. We used digital particle image velocimetry and high-speed imaging to measure the body kinematics, velocity fields and wake structures induced by swimming S. tubulosa with bell exit diameters from 1 to 10 mm. Our experimental observations revealed three distinct classes of hydrodynamic wakes: elongated vortex rings for 10<Re<30 (1-2 mm bell exit diameter), classical elliptical vortex rings for Re>30 (larger than 2 mm bell exit diameter) and elliptical vortex rings (or leading vortex rings) followed by trailing jets for most instances where Re>100 (larger than 4 or 5 mm bell exit diameter). The relative travel distance and propulsive efficiency remained unchanged throughout ontogeny, and the swimming proficiency and hydrodynamic cost of transport decreased non-linearly.

6. **Nemopsis mianzani n. sp (Hydrozoa, Bougainvilliidae), a new hydromedusa from central Chile**
   中部智利一种新的水螅水母
   http://biotaxa.org/Zootaxa/article/view/zootaxa.3990.2.10

The genus Nemopsis, a bougainvillid hydrozoan with a dominant medusa phase, currently includes three species (Nemopsis bachei, N. dofleini and N. hexacanalis), all characterized by the presence of a pair of club-shaped tentacles in the median portion of the marginal bulbs. In this paper, we describe a fourth species, based on the medusa collected off Dichato, central Chilean coast.

7. **Not all jellyfish are equal: isotopic evidence for inter- and intraspecific variation in jellyfish trophic ecology**
水母营养生态学中种间和种内变异的同位素证据
https://peerj.com/articles/1110

Jellyfish are highly topical within studies of pelagic food-webs and there is a growing realisation that their role is more complex than once thought. Efforts being made to include jellyfish within fisheries and ecosystem models are an important step forward, but our present understanding of their underlying trophic ecology can lead to their oversimplification in these models. Gelatinous zooplankton represent a polyphyletic assemblage spanning >2,000 species that inhabit coastal seas to the deep-ocean and employ a wide variety of foraging strategies. Despite this diversity, many contemporary modelling approaches include jellyfish as a single functional group feeding at one or two trophic levels at most. Recent reviews have drawn attention to this issue and highlighted the need for improved communication between biologists and theoreticians if this problem is to be overcome. We used stable isotopes to investigate the trophic ecology of three co-occurring scyphozoan jellyfish species (Aurelia aurita, Cyanea lamarckii and C. capillata) within a temperate, coastal food-web in the NE Atlantic. Using information on individual size, time of year and ;delta C-13 and delta N-15 stable isotope values, we examined: (1) whether all jellyfish could be considered as a single functional group, or showed distinct inter-specific differences in trophic ecology; (2) Were size-based shifts in trophic position, found previously in A. aurita, a common trait across species?; (3) When considered collectively, did the trophic position of three sympatric species remain constant over time? Differences in delta N-15 (trophic position) were evident between all three species, with size-based and temporal shifts in delta N-15 apparent in A. aurita and C. capillata. The isotopic niche width for all species combined increased throughout the season, reflecting temporal shifts in trophic position and seasonal succession in these gelatinous species. Taken together, these findings support previous assertions that jellyfish require more robust inclusion in marine fisheries or ecosystem models.

8. **Jellyfish assemblages are related to interplay waters in the southern east China Sea**
中国东海南部海域与相互作用水域相关的水母聚集
http://www.sciencedirect.com/science/article/pii/S0278434315001223

Zooplankton communities are affected by spatial and temporal factors, as well as by general weather conditions, monsoons, and ocean currents. Present study examined the effects of typhoons, monsoons, and interplay waters on jellyfish assemblages in the complex hydrosystem in the coastal areas of the southern East China Sea. The species and composition of jellyfish and their seasonal succession in the coastal areas of northern Taiwan were investigated through 6 research cruises between October 2007 and January 2009. Among the samples obtained during these cruises, 23 jellyfish species from 2 classes, 7 orders, 13 families, and 19 genera were identified. The 3 most abundant jellyfish species were Nausithoe punctata (relative abundance, RA: 91.72%), Aglaura hemistoma (RA: 4.20%), and Diphyes chamissonis (RA: 1.13%). The species A. hemistoma exhibited the highest occurrence ratio (OR, 52.78%), and only this species was observed during all 6 research cruises. The abundance of Corymorpha bigelowi and Lensia multicristata correlated significantly and positively with seawater temperature, indicating that these

species are brought to northeastern Taiwan by the warm Kuroshio Current. The formation of an N. punctata bloom yielded a density of 543.25 individuals/m(-3) in October 2008, indicating that the jellyfish assemblage was influenced by a typhoon event and exhibited a clear pattern of seasonal succession. However, the interplay waters of the China Coastal Current and Kuroshio Current had a greater influence in shaping the jellyfish assemblage structure than did either typhoons or monsoons.

9. **The elusive life cycle of scyphozoan jellyfish - metagenesis revisited**
   scyphozoan 水母难以捉摸的生命周期
   http://www.nature.com/articles/srep12037

Massive proliferations of scyphozoan jellyfish considerably affect human industries and irreversibly change food webs. Efforts to understand the role of jellyfish in marine ecosystems are based on a life cycle model described 200 years ago. According to this paradigm the pelagic medusae is considered seasonal and alternates with the benthic polyp stage from which it derives. However, we provide evidence that a) the occurrence of several species of medusae is not restricted to a season in the year, they overwinter, b) polyp-and medusa generations are neither temporally nor spatially separated, and c) "metagenesis" which is defined as the alternation between sexual and asexual generations does not always occur. Hence we recommend additions to the current model and argue that the scyphozoan life cycle should be considered multi-modal, rather than metagenetic. The implications of these findings for jellyfish proliferations, including possible consequences and associated environmental drivers, are discussed.

10. **Monodisc strobilation in Japanese giant box jellyfish Morbakka virulenta (Kishinouye, 1910): a strong implication of phylogenetic similarity between Cubozoa and Scyphozoa**
    日本大型箱形水母Morbakka virulenta(Kishinouye, 1910)的单盘横裂：Cubozoa和钵水母纲系统发育史的相似性
    http://onlinelibrary.wiley.com/doi/10.1111/ede.12127/abstract

Both sexes of the Japanese giant box jellyfish Morbakka virulenta were collected from the Seto Inland Sea, western Japan in December 2011, in order to observe the developmental processes from polyps to medusae. The medusaproduction in M. virulenta is up to now a unique process in cubozoans in that it exhibits a form of monodisc strobilation where the polyp is regenerated before the medusa detaches. This mode of medusa production was previously thought to be exclusive to scyphozoans. The general shape of young medusae resembles that of other cubozoans such as Alatina moseri and Copula sivickisi, but is differentiated from these by the short capitate tentacles and the lack of gastric filaments in the stomach. The unique medusa production of M. virulenta highly implies a phylogenetic similarity between cubozoans and scyphozoans.

11. **Preface: Giant jellyfish blooms in Chinese waters**
    前言:在中国海域的巨型水母繁盛
    http://link.springer.com/article/10.1007%2Fs10750-015-2320-3

The rationale, the design, and the methods that have been used in the Chinese National Basic Research Project on "Giant Jellyfish Blooms in Chinese Seas" are described. Sixteen papers resulting from the project are published in the present special issue, and these are

individually addressed.

12. **Breeding places, population dynamics, and distribution of the giant jellyfishNemopilema nomurai (Scyphozoa: Rhizostomeae) in the Yellow Sea and the East China Sea**

    巨大水母 Nemopilema nomurai 在黄海和东中国海的繁殖场所、种群动态和分布

    http://link.springer.com/article/10.1007%2Fs10750-015-2266-5

In East Asian waters, concern about giant jellyfish blooms, including Nemopilema nomurai (Cnidaria: Scyphozoa: Rhizostomeae), has increased in recent decades. Based on surveys in 2012 and 2013, as a part of the ChineseJellyfish 973 Program, we investigated the life cycle in situ of the planktonic stages of this species in the Yellow Sea andthe East China Sea. We found the following results: (1) Offshore of the Changjiang River is one of its principal breeding places, and is the area where the pelagic stages of N. nomurai appear earliest in the YS and ECS. (2) The generaldistribution pattern of pelagic stages of N. nomurai described previously in the YS and ECS is confirmed from the 2012 and 2013 surveys: From this small area (31.50-33.00A degrees N, 122.00-122.75A degrees E) usually in late May and early June, it expanded into the 31.5-36A degrees N sea area (aggregating in 32-34A degrees N) in June, then continued to expand northward and southward to 30-37A degrees N by August, and then shrank to 34-37A degrees N in October. (3) The biomass and abundance of N. nomurai in 2012 both in June and August were higher than those in 2013. (4) We confirmed that almost all pelagic stages of N. nomurai in the YS and ECS were confined north of 30A degrees N. The breeding places, population dynamics, and mechanism of formation of the distribution pattern of N.nomurai in the YS and ECS in recent years are presented.

王琳提供