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1. **Bloom or bust: synchrony in jellyfish abundance, fish consumption, benthic scavenger abundance, and environmental drivers across a continental shelf**
暴发或萧条：一个大陆架的水母丰度，鱼类消费，底栖动物丰度和环境驱动的同步性
http://onlinelibrary.wiley.com/doi/10.1111/fog.12168/abstract;jsessionid=1A8B53B3D3F68A6FF5FBF6EFF9341ADE.f02t02
Increases in gelatinous zooplankton (GZ) populations, their dominance of some ecosystems, their impacts to other taxa, and their questionable trophic value remain global concerns, but they are difficult to quantify. We compared trends in GZ abundance from direct sampling for the northeast U.S. continental shelf and tested their association with GZ consumption by spiny dogfish (Squalus acanthias); the abundance of two benthic scavengers: Atlantic hagfish (Myxine glutinosa) and grenadiers (Family: Macrouridae); and four environmental indices: Atlantic Multidecadal Oscillation, North Atlantic Oscillation, and sea surface and bottom temperatures. Defined as scyphozoans, siphonophores, ctenophores, and salps, the abundance of GZ on the shelf has oscillated with blooms approximately every 10–15 yr. Conservative estimates of annual removal of GZ by spiny dogfish ranged from approximately 0.3–298 g individual−1 with spiny dogfish being the primary GZ feeder sampled on the shelf. The examination of three abundance series for GZ identified one shelf-wide trend and strong relationships with 2-yr lagged consumption and scavenger abundance (namely hagfish), and sea surface temperature. With multimodel inference, these covariates led to an optimal model of GZ abundance. Blooms of GZ abundance on this shelf were influenced by environmental change, provide surges of food for spiny dogfish, and may offer ‘food falls’ for scavenging fishes. The bioenergetic tradeoffs of consuming greater amounts of GZ compared to other major prey (e.g., fishes) remain unknown; however, these surges of food in the northwest Atlantic appear to be important for fishes, including support for benthic scavenger productivity.

2. **Decomposition of jellyfish carrion in situ: Short-term impacts on infauna, benthic nutrient fluxes and sediment redox conditions**
水母腐肉原位分解：对底栖动物、底栖生物营养盐通量和沉积物氧化还原条件的短期影响
http://www.sciencedirect.com/science/article/pii/S0048969716309159
Jellyfish often form blooms that persist for weeks to months before they collapse en masse, resulting in the sudden release of large amounts of organic matter to the environment. This study investigated the biogeochemical and ecological effects of the decomposition of jellyfish in a shallow coastal lagoon in New South Wales, Australia. Catostylus mosaicus carrion was added to the surface of shallow sub-tidal sediments and biogeochemical parameters and macrofaunal abundance immediately below the jellyfish carrion were measured over three days. Sediment plots without jellyfish served as controls. Sediment oxygen demand and carbon and nitrogen efflux increased by up to 60-fold in the jellyfish plots, compared to control plots, and dissolved organic nutrient fluxes were more sustained than in previous studies due to the use of fresh rather than frozen biomass. The decomposing jellyfish progressively altered sediment redox conditions, indicated by an increase in porewater iron (II) and sulfide concentrations measured by high-resolution in situ diffusive samplers. Abundance of

some macrofaunal taxa in the jellyfish plots decreased relative to controls, however, the abundance of a carnivorous gastropod, which was presumably feeding on the carrion, increased in the jellyfish plots. While jellyfish carrion may be a food source for some macrofauna, low oxygen conditions coupled with the accumulation of toxic dissolved sulfides in the near-surface sediments may explain the overall change in the macroinfaunal community.

3. **Trophic spectrum and feeding pattern of cannonball jellyfish Stomolophus meleagris (Agassiz, 1862) from central Gulf of California**
加利福尼亚湾中部炮弹水母 Stomolophus meleagris（阿加西斯，1862）的食谱和营养模式
https://www.cambridge.org/core/journals/journal-of-the-marine-biological-association-of-the-united-kingdom/article/trophic-spectrum-and-feeding-pattern-of-cannonball-jellyfish-stomolophus-meleagris-agassiz-1862-from-central-gulf-of-california/F829CE22B7E7C0258A3A06292E16AD30
The diet and feeding pattern of scyphomedusa Stomolophus meleagris (Rhizostomeae) was studied, by comparing stomach samples from different developmental stages and environmental zooplankton with the aim to determine diet composition, trophic niche breadth, selectivity and feeding overlap of this edible jellyfish species. Samplings were performed during April and December 2010 and in January 2011, in the coastal lagoon Las Guasimas (27 degrees 49' - 27 degrees 54' N 110 degrees 40' - 110 degrees 35' W), central Gulf of California, which consisted of zooplankton tows and jellyfish collections for stomach content. More than 39 prey items were identified in the gut contents (N = 69), from which eight taxa formed over 90% of the total. Fish eggs were considered main prey (58.6%), copepods (10.8%), veliger larvae of gastropod (13.0%) and bivalve (12.7%) were secondary prey while cirriped and decapod larvae were incidental prey (<3%). However, these proportions varied significantly between small, medium and large size classes of medusa as well as number and type of prey increasing as a function of medusa size. Values of Levin's index confirmed S. meleagris is a specialist predator and Pearre's index showed positive selection of fish eggs, gastropods, bivalves and cirripeds while selectivity was negative for copepods and appendicularians. The relative timing of these changes suggests that ontogenetic processes are closely related with shift in the diet, which indicates increasing predation pressure during development of the medusoid stage of this species, thus emphasizing their ecological importance in coastal ecosystems.

4. **Strong biopollution in the southern Caspian Sea: the comb jelly Mnemiopsis leidyi case study**
南部里海的强生物污染：栉水母 Mnemiopsis leidyi 的个案研究
http://link.springer.com/article/10.1007%2Fs10530-016-1171-9
The invasive ctenophore *Mnemiopsis leidyi* was first recorded in the Caspian Sea in 1995 in the southern part of the sea (Iranian waters). This study assesses the magnitude of the *M. leidyi*bioinvasion impacts on the region’s ecosystem using the biopollution level (BPL) index. For this purpose, biomass and distribution range of the invasive ctenophore were analyzed for the period 1996–2010. In addition, the impacts of the IAS on native species, communities, habitats and ecosystem functioning were assessed.

The BPL for the period of our study remained relatively stable at the level 4 (massive). The BPLs caused by *M. Leidyi* in the southern Caspian Sea were compared with those of the Black and Baltic Seas. The method used in this study seems to be applicable for evaluating spatial and temporal variations of the invasive impacts of gelatinous zooplankton in other marine regions.

5. **Surviving but not thriving: inconsistent responses of zooxanthellate jellyfish polyps to ocean warming and future UV-B scenarios**
幸存但不繁荣：zooxanthellate 水母水螅体对海洋变暖和未来 UV-B 情景的不一致响应
http://www.nature.com/articles/srep28859
Complex changes to UV radiation at the Earth's surface are occurring concurrently with ocean warming. Despite few empirical tests, jellyfish are hypothesised to be increasing in some parts of the world because they are robust to environmental stressors. Here we examine the effects of UV-B and ocean warming projections on zooxanthellate jellyfish polyps. We exposed Cassiopea sp. polyps to three levels of UV-B (future-low (1.43 Wm2), current (1.60 Wm2), future-high (1.77 Wm2)) and two levels of temperature (current-day (25 °C) and future (28 °C)) over 6 weeks. The intensity of UV-B was varied throughout the day to mimic diel variation in UV-B irradiance. Polyp survival, asexual reproduction and YII were measured. In the current and future-high UV-B treatments, more polyps were produced in 25 °C than 28 °C. This pattern, however, was reversed under future-low UV-B conditions, where more polyps were produced at 28 °C. YII was highest under current summer conditions and future conditions of low UV-B and increased temperature. YII, however, was reduced under high UV-B conditions but was further reduced with warming. Our results suggest that although Cassiopea polyps may survive elevated UV-B and warming conditions, they are unlikely to thrive. If, however, UV-B radiation decreases then ocean warming may facilitate increases in Cassiopea populations.

6. **Reduced pH affects pulsing behaviour and body size in ephyrae of the moon jellyfish, Aurelia aurita**
降低的 pH 值会影响海月水母 Aurelia aurita 的脉冲行为和碟状幼体尺寸
http://www.sciencedirect.com/science/article/pii/S0022098116300491
Our understanding of how reduced seawater pH affects the behaviour and growth of scyphozoan jellyfish is poor. Here, we investigated the effects of simulated Ocean Acidification (OA) (pH = 7.6 for 7 d) on pulsing behaviour (as an index of swimming behaviour) and aspects of the morphology of ephyrae of the moon jellyfish Aurelia aurita. Ephyrae exposed to reduced pH had a significantly smaller surface area, central disc area, and lappet length and width than controls. Pulsation rate was significantly lower, and the mean pulse-to-pulse period shorter, in the reduced pH treatment. There was, however, no significant treatment effect on either the maximum or minimum pulse-to-pulse period, suggesting that the ability for rapid pulsations was maintained. Ephyrae from the reduced pH treatment displayed a more variable pulsation behaviour, with an elevated standard deviation and root mean square of successive difference (RMSSD) in pulse-to-pulse period. In summary, reduced pH simulating future predicted Ocean Acidification conditions, had important effects on aspects of

swimming behaviour and size of A. aurita ephyra, which may have consequences for survival and the population dynamics of field populations.

7. **Fine-scale detection of pollutants by a benthic marine jellyfish**
通过海洋底栖水母对污染物进行精细尺度检测
http://www.sciencedirect.com/science/article/pii/S0025326X16301539
Local sources of pollution can vary immensely on small geographic scales and short time frames due to differences in runoff and adjacent land use. This study examined the rate of uptake and retention of trace metals in Cassiopea maremetens, a benthic marine jellyfish, over a short time frame and in the presence of multiple pollutants. This study also validated the ability of C. maremetens to uptake metals in the field. Experimental manipulation demonstrated that metal accumulation in jellyfish tissue began within 24 h of exposure to treated water and trended for higher accumulation in the presence of multiple pollutants. C. maremetens was found to uptake trace metals in the field and provide unique signatures among locations. This fine-scale detection and rapid accumulation of metals in jellyfish tissue can have major implications for both biomonitoring and the trophic transfer of pollutants through local ecosystems.

8. **Optimal hash arrangement of tentacles in jellyfish**
水母触手的最佳散列排列
http://www.nature.com/articles/srep27347
At first glance, the trailing tentacles of a jellyfish appear to be randomly arranged. However, close examination of medusae has revealed that the arrangement and developmental order of the tentacles obey a mathematical rule. Here, we show that medusa jellyfish adopt the best strategy to achieve the most uniform distribution of a variable number of tentacles. The observed order of tentacles is a real-world example of an optimal hashing algorithm known as Fibonacci hashing in computer science.

9. **A bloom of an edible scyphozoan jellyfish in the Red Sea**
红海中一种食用钵水母的暴发
http://link.springer.com/article/10.1007%2Fs12526-015-0381-1
A bloom of the edible jellyfish Cephea cephea (Forskål, 1775) in the Red Sea is reported here from archived photographic evidence. Animals (10–20 cm wide) were observed in seven different reefs and accumulated at high densities on some beaches of Marsa Alam, Egypt. Various coral reef fishes preyed on this temporary resource. Although the jellyfish is native to the Red Sea, this is the first record of such an event in this ecosystem, and only the second record of this phenomenon since the 1800s.

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