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Marine Biology Research

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713735885>

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Online publication date: 09 December 2009

To cite this Article Fenchel, Tom and Uiblein, Franz(2010) 'Biodiversity in concert: Common, uncommon, and new species', *Marine Biology Research*, 6: 1, 1 – 5

To link to this Article: DOI: 10.1080/17451000903468856

URL: <http://dx.doi.org/10.1080/17451000903468856>

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EDITORIAL

Biodiversity in concert: Common, uncommon, and new species

As *Marine Biology Research* enters its sixth year, we can proudly look back at 229 articles published in 30 issues featuring high-quality basic and applied science communicated to a growing readership worldwide. From its start, this merger of two widely respected journals, *Sarsia* and *Ophelia*, was intended as a Scandinavian-based, strongly international vehicle for propagating peer-reviewed research from all fields of marine biology, with special focus on biodiversity-related problems.

In the year 2010, two crucial events will pave the way towards future initiatives to coordinate biodiversity research. This is the year of the ‘2010 Biodiversity Target’, aiming at significantly reducing biodiversity loss from global to national levels (www.cbd.int/2010-target/) and this is the terminal year of the Census of Marine Life initiative, with the goal to ‘assess and explain the diversity, distribution, and abundance of life in the oceans’ (www.coml.org/). An important goal for *Marine Biology Research* has been to contribute to these initiatives and to stimulate ‘concerted’ biodiversity research that treats *all* species as significant ecosystem components, the common and the uncommon as well as the newly described and the still undescribed ones.

Species regarded as common have received enhanced attention in biodiversity studies only recently, simply because of their high abundance, wide-ranging occurrence, and assumed insensitivity to threats. Common species contribute much to ecosystem function and are – as a consequence of their omnipresence – particularly exposed to human-induced impacts, directly or indirectly, through resource exploitation, habitat destruction, or global warming. Hence, common species lie at the heart of major threats on biodiversity (Gaston & Fuller 2007). In *Marine Biology Research*, several articles have dealt with recently observed abundance fluctuations in commercially important fish species viewed from ecosystem-, fisheries- and/or climate change-oriented perspectives (e.g. Tsikliras 2008; Gjørseter et al. 2009a; Klyashtorin et al. 2009). One preliminary conclusion from these studies is that in marine habitats human impacts on common species may still be reversible. However, there is a pressing need to better understand long-term demographic trends and interactions among natural and human-induced

factors towards securing sustainable management (e.g. Husa et al. 2008; Klyashtorin et al. 2009; Norderhaug & Christie 2009).

Uncommon species in the sense of ‘rare species’ (Grassle & Smith 1976) have been receiving high interest in biodiversity research ever since. Most species have relatively few individuals and rather narrow distributions, being characteristic constituents of distinct habitat types and assemblages. Uncommon species appear to be more often under threat of extinction than common ones, requiring proper assessment against ‘Red List’ criteria established by the International Union for the Conservation of Nature (IUCN, www.iucn.org/). There have been debates arising, however, concerning whether terrestrial and marine species should be assessed using the same criteria set and definitions, because *species* extinctions in marine habitats may occur at much lower rates than may be inferred from the assessment of individual *populations* (Gjørseter et al. 2009b). Marine habitats are often widely interconnected allowing dispersal to take place over large distances. Also, sampling limitations (e.g. Abecasis et al. 2009; Pavithran et al. 2009; Vecchione et al. 2010) and/or lack of knowledge need to be taken into account when evaluating the rarity and extinction risk of distinct species (Flather & Sieg 2007).

Under the term ‘new species’, three different groups can be subsumed: those species which are new for a distinct area, including native, but previously undiscovered ones (‘new records’) and ‘invasive’ species; those new to science; and the still undescribed or unknown taxa. Invasive species are particularly interesting for ecologists, as they may affect native species or assemblages in often unpredictable ways (e.g. Thomsen et al. 2007; Sciberras & Schembri 2008) and/or indicate recent abiotic or biotic changes in favour of colonization. Descriptions of new species are essential for any biodiversity research from genes to ecosystems. The new species described in our journal are from considerably distinct systematic groups ranging from single-celled euglenids to fish.

In the first five volumes of *Marine Biology Research*, 41 articles presented descriptions of a total of 71 new species and seven new genera belonging to the following groups: Euglenida (Lee 2008), Porifera (Hexactinellida: Lopes et al. 2007;

Tabachnick & Collins 2008; Demospongiae: Carvalho et al. 2007), Anthozoa (Hexacorallia: López-González et al. 2005; Zelnio et al. 2009),

Gnathostomulida (Sterrer & Sørensen 2006), Mollusca (Caudofoveata: Schander et al. 2006; Gastropoda: Dayrat 2005; Cephalopoda: Allcock



Figure 1. Deep-sea cephalopods from the northern Atlantic: (A) *Teuthowenia megalops* (Prosch, 1847), (B) *Benthoctopus johnsoniana* Allcock et al., 2006, (C) *Histiotteuthis corona* (Voss & Voss, 1962), (D) *Mastigoteuthis agassizii* Verrill, 1881, (E) *Stauroteuthis syrtensis* Verrill, 1879, (F) *Promachoteuthis sloani* Young et al., 2006, (G) *Helicocranchia pfefferi* Massy, 1907, and (H) *Opisthoteuthis grimaldii* (Joubin, 1903); the photographed specimens were obtained during three expeditions to the northern Mid-Atlantic Ridge, the RV James Cook cruise, 2007 (www.oceanlab.abdn.ac.uk/ecomar/) (A, G), the RV Bigelow cruise, 2007 (<http://www.vims.edu/blogs/mareco/>) (B, F, H), and the RV G.O. Sars cruise, 2004 (www.mar-eco.no/) (C), and during the R.V. Seward Johnson and Johnson Sealink submersible cruise, 2004, in the Gulf of Maine (www.at-sea.org/missions/maineevent5/preview.html; Jacoby et al. 2009) (D, E); for distribution and abundance information on these eight and 48 other cephalopod species see Vecchione et al. (2010); photographs: David Shale (www.deepseaimages.co.uk).

et al. 2006 (Figure 1B); Bivalvia: Dijkstra et al. 2009), Entoprocta (Sánchez-Tocino & Tierno de Figueroa 2009), Echiura (Murina 2008), Annelida (Polychaeta: Aguirrezabalaga & Ceberio, 2005; Worsaae & Sterrer 2006; Nygren et al. 2009; Clitellata: Matamoros et al. 2007), Pycnogonida (Cano & López-González 2007), Crustacea (Facetotecta: Belmonte 2005; Copepoda: Ivanenko et al. 2005; Kršinic 2005, 2008; Bandera et al. 2007; Fosshagen & Iliffe 2007; Brachyura: Naruse et al. 2008; Mysidacea: Abraham et al. 2006; Abraham & Panampunnayil 2009; Cumacea: Corbera et al. 2008; Isopoda: Brix 2007; Brandt & Andres 2008), Gastrotricha (Hummon & Guadiz 2009; Todaro et al. 2009), Loricifera (Gad & Martínez Arbizu 2005; Heiner et al. 2009), Chaetognatha (Nair et al. 2008), Echinodermata (Asteroidea: Dilman 2008; Ophiuroidea: Martynov & Litvinova 2008; Echinoidea: Mironov 2008; Holothuroidea: Rogacheva 2007; Gebruk 2008a), and Pisces (Chernova & Møller 2008).

Our blue planet is far from being fully explored, and in order to properly study and manage marine ecosystems, there are pressing needs for providing the most complete species inventories possible. There are still many species awaiting description and/or discovery, on museum shelves or in marine habitats from the littoral to the deep-sea trenches. Hence, initiatives enhancing coordinated taxonomic research and ocean exploration will certainly be required beyond 2010. *Marine Biology Research* wants to support biodiversity-related research initiatives and provides extra publication space for concerted actions in Thematic Issues (e.g. Gebruk 2008b; Haug et al. 2009; Serét in press) and for discussing 'hot' topics in Invited Reviews (e.g. Bearzi 2005; Uiblein 2007; Glud 2008; Norderhaug & Christie 2009). To better serve these challenges and to efficiently publish high-quality research from all areas of marine biology, we increased the journal's page budget in 2009 and accelerated early online publishing (www.informaworld.com/iftst).

Finally, some announcements of recent changes on our editorial board: we cordially thank Egil Karlsbakk, who left us as a subject editor, for serving *Marine Biology Research* so well from the very start. Two new subject editors, Gavin Gouws (phylogeography and population genetics) and David Thielges (parasitology, invasive species, macroecology) have recently joined us. Welcome!

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