Table S1. Categorisation of relevant marine ecosystem services. For each article, the definition of ecosystem services used is shown in the second line, respectively. The ecosystem services are numbered consecutively in the first column. Columns 2 and 3 contain the categorisation of the MES along with the definition. The rest of the columns show the ES classification and definitions of other authors: Böhnke-Henrichs *et al.* [1],Hattam *et al.* [2],Liquete *et al.* [3],Beaumont *et al.* [4], Atkins-, *et al.* [5]. N/A indicates that the ecosystem service was not defined by the respective author.

This research			**Böhnke-Henrichs *et al.* [1]**		**Hattam *et al.* [2]**		**Liquete *et al.* [3]**		**Beaumont *et al.* [4]**		**Atkins *et al.* [5]**	
Ecosystem services are the benefits people obtain from ecosystems.			"Ecosystem services are the direct and indirect contributions of ecosystems to human well-being." (p. 138)		"Ecosystem services are the direct and indirect contributions of ecosystems to human well-being." (p. 61)		"Ecosystem services are the benefits that people derive from nature." (p. 1)		"Ecosystem services are the direct and indirect benefits people obtain from ecosystems." (p.254)		"Ecosystem services can be referred to as the sum total of all ecosystem natural processes." (p. 219)	
#	**Name**	**Definition**	**Name**	**Definition**	**Name**	**Definition**	**Name**	**Definition**	**Name**	**Definition**	**Name**	**Definition**
1	Food Supply	The marine flora and fauna extracted from unmanaged environments or aquacultures that are used for human consumption.	Sea Food	All available marine fauna and flora extracted from coastal/ marine environments for the specific purpose of human consumption as food (i.e. excluding for consumption as supplements).	Food Provision: Wild Capture Sea Food	All available marine flora and fauna extracted from unmanaged marine environments for consumption by humans.	Food Provision	The provision of biomass for human consumption and the conditions to grow it. It mostly relates to cropping, animal husbandry and fisheries.	Food Provision	The extraction of marine organisms (i.e. plants and animals) for human consumption.	Food Provision	The extraction of marine organisms for human consumption.
					Food Provision: Farmed Sea Food	Food from aquaculture for consumption by humans.						
2	Water Supply	The marine water (i.e. saline, brackish, and freshwater) that is abstracted from the water column and aquifers for human consumption and for use in industrial and economic activities.	Sea Water	Marine water in oceans, seas and inland seas that is extracted for use in human industry and economic activity.	N/A	N/A	Water Storage and Provision	The provision of water for human consumption and for other uses.	N/A	N/A	Residential and Industrial Water Supply	The abstraction of water for residential and industrial purposes.
3	Genetic Resources	The genetic material from marine organisms that is extracted for non-medical, non-food purposes.	Genetic Resources	The provision/ extraction of genetic material from marine flora and fauna for use in non-marine, non-medical contexts, excluding the research value on Genetic Resources which is covered by "Information for Cognitive Development".	Biotic Raw Materials (non-food): Genetic Resources	The provision/ extraction of genetic material from marine flora and fauna for use in non-medicinal contexts.	Biotic Materials and Biofuels	The provision of biomass or biotic elements for non-food purposes.	Raw Materials	The extraction of marine organisms for all purposes, except human consumption. (excluding dredge materials, oil or aggregates as these are not supported by living marine organisms.)	Raw Materials	The extraction of minerals and organisms not for human consumption
4	Medicinal Resources	The material that is extracted from or used in the marine environment for its ability to provide medicinal benefits.	Medicinal Resources	Any material that is extracted from the coastal/ marine environment for its ability to pro-	Biotic Raw Materials (non-food): Medicinal Resources	Any material that is extracted from or used in the marine environment for its ability to pro-						

				vide medicinal benefits, excluding the research value on Medicinal Resources which is covered by “Information for Cognitive Development”.		vide medicinal benefits.						
5	Raw Materials	The marine material that is extracted for human non-food uses, excluding those covered by Services 3 and 4.	Ornamental Resources	Any material extracted for use in decoration, fashion, handicrafts, souvenirs, etc.	Biotic Raw Materials (non-food): Ornamental Resources	Any material that is extracted for use in decoration, fashion, handicrafts, souvenirs, etc.						
			Raw Materials	The extraction of any material from coastal/marine environments, excluding which is covered by “Ornamental Resources”.	Biotic Raw Materials (non-food): Other Biotic Raw Materials	Extraction of all other renewable biotic resources.						
6	Fossil Hydrocarbon Resources	The fossil organic materials exploited from marine subsurface reservoirs.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Renewable Energy	The use of the marine environment for the generation of renewable energy.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Energy	The non-consumptive use of the marine environment for energy generation e.g. wave and tidal power
8	Storage	The use of marine subsurface natural fractures and pores and artificial structures for storage purposes.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Conditions for Infrastructure	The use of marine environments for the foundation and protection of infrastructure.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Transportation	The use of waterways for commercial shipping.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Transport and Navigation	The use of waterways for shipping.
11	Weather Regulation	The regulation of local weather conditions by marine ecosystems.	N/A	N/A	N/A	N/A	Weather Regulation	Influence of ecosystems and habitats on the local weather conditions such as thermoregu-	N/A	N/A	N/A	N/A

								lation and relative humidity.				
12	Air Purification	The regulation of the concentration of physical and chemical substances in the lower atmosphere by marine ecosystems.	Air Purification	Air Purification provided by a coastal/ marine ecosystem.	Air Purification	Influence of a marine ecosystem on concentration of pollutants from the atmosphere.	Air Quality Regulation	Regulation of air pollutants concentration in the lower atmosphere.	Gas and Climate Regulation	The balance and maintenance of the chemical composition of the atmosphere and oceans by marine living organisms.	Gas and Climate Regulation	Balance and maintenance of the atmosphere.
13	Climate Regulation	The regulation of the concentration of climate active gases by marine environments.	Climate Regulation	The contribution of the biotic elements of a coastal/ marine ecosystem to the maintenance of a favourable climate via their impact on the hydrological cycle and their contribution to the climate-influencing substances in the atmosphere.	Climate Regulation	The contribution of a marine ecosystem to the maintenance of a favourable climate through impacts on the hydrological cycle, temperature regulation, and the contribution to climate-influencing substances in the atmosphere.	Climate Regulation	Regulation of greenhouse and climate active gases. The most common proxies are the uptake, storage and sequestration of carbon dioxide.				
14	Water Purification	The removal of physical, chemical and, biological substances from seawater by marine ecosystems.	Waste Treatment	The removal by coastal/ marine ecosystems of pollutants added to coastal/ marine environments by humans through processes such as storage, burial, and biochemical recycling.	Waste Treatment and Assimilation	The removal of contaminant and organic nutrient inputs to marine environments from humans.	Water Purification	Biochemical and physiochemical processes involved in the removal of wastes and pollutants from the aquatic environment.	Bioremediation of Waste	The removal of pollutants through storage, burial and recycling.	Bioremediation of Waste	The removal of pollutants by storage, burial and recycling.
15	Nutrient Cycling	The natural cycling processes leading to the availability of nutrients in sea water that produce organic matter.	N/A	N/A	N/A	N/A	Ocean Nourishment	Natural cycling processes leading to the availability of nutrients in sea water for the production of organic matter.	Nutrient Cycling	The storage, cycling and maintenance of nutrients by living marine organisms.	Nutrient Cycling	The storage, cycling and maintenance of nutrients by marine environment.
-16	Coastal Protection	The protection of humans and the built environment against extreme events, such as storm floods, and coastal erosion	Disturbance Prevention or Moderation	The contribution of marine ecosystem structures to the dampening of the identity of environmental disturbances such as storm floods, tsunamis, and hurri-	Disturbance Prevention or Moderation	The contribution of marine ecosystem structures and functions to the dampening of the intensity of environmental disturbances such as storm floods, tsuna-	Coastal Protection	Protection against floods, droughts, hurricanes or other extreme events. Also, erosion prevention on the coast.	Disturbance Prevention (Flood and Storm Protection)	The dampening of environmental disturbances by biogenic structures.	Disturbance Prevention	Flood and storm protection by biogenic structures.

				canes.		mis, and hurri-canes.						
			Coastal Erosion Prevention	The contribution of coastal/ marine ecosystems to Coastal Erosion Prevention, excluding what is covered by "Regulation of Water Flows" (i.e. transportation or deposition of sediments by coastal currents).	Coastal Erosion Prevention	The contribution of marine ecosystems to coastal erosion prevention.			N/A	N/A	N/A	N/A
17	Regulation of Water Flows	The contribution of marine ecosystems to the maintenance of localised coastal current structures.	Regulation of Water Flows	The contribution of marine and coastal ecosystems to the maintenance of localized coastal current structures.	Regulation of Water Flows	The contribution of marine ecosystems to the maintenance of localized coastal current structures.	N/A	N/A	N/A	N/A	N/A	N/A
18	Biological Self-Control	The contribution of marine ecosystems to the maintenance of population dynamics, resilience through food web dynamics, disease and pest control.	Biological Control	The contribution of marine/ coastal ecosystems to the maintenance of natural healthy population dynamics to support ecosystem resilience through maintaining food web structure and flows.	Biological Control	The contribution of marine ecosystems to the maintenance of population dynamics, resilience through food web dynamics, disease and pest control.	Biological Regulation	Biological control or pests mostly linked to the protection of crops and animal production that may affect commercial activities and human health.	Resilience and Resistance (Life Support)	The extent to which ecosystems can absorb recurrent natural and human perturbations and continue to regenerate without slowly degrading or unexpectedly flipping to alternate states.	Resilience and Resistance	Life support by the marine environment and its response to pressures.
19	Lifecycle Maintenance	The marine habitat that marine organisms and communities provide for a healthy and diverse environment, including viable gene pools	Lifecycle Maintenance	The contribution of a particular habitat to migratory species' populations through the provision of essential habitat for reproduction and juvenile maturation.	Migratory and Nursery Habitat	The contribution of a particular marine habitat to migratory and resident species' populations through the provision of critical habitat for feeding, or reproduction and juvenile maturation.	Life Cycle Maintenance	Biological and physical support to facilitate the healthy and diverse reproduction of species.	Biologically Mediated Habitat	Habitat which is provided by living marine organisms.	Physical Habitat	The habitat provided by the physical (non-living) environment.
			Gene Pool Protection	The contribution of marine habitats to the maintenance of viable gene pools through	Gene Pool Protection	The contribution of marine habitats to the maintenance of viable gene pools through			N/A	N/A	N/A	N/A

				natural selection/ evolutionary processes.		natural selection/ evolutionary processes which enhances adaptability of species to environmental changes, and the resilience of the ecosystem.						
20	Recreation and Tourism	The opportunities that marine ecosystems provide for relaxation and leisure or amusement.	Recreation and Leisure	The provision of opportunities for Recreation and Leisure that depend on a particular state of marine/ coastal ecosystems.	Leisure, Recreation and Tourism	The provision of opportunities for tourism, recreation and leisure that depend on a particular state of marine ecosystems.	Recreation and Tourisms	Opportunities that the natural environment provide for relaxation and amusement.	Leisure and Recreation	The refreshment and stimulation of the human body and mind through the perusal and study of, and engagement with, living marine organisms in their natural environment.	Leisure and Recreation	The refreshment and stimulation of the human body and mind through the perusal and study of, and engagement with, the marine environment.
21	Aesthetic and Cultural Perceptions and Traditions	The individual and societal associations with and emotional responses to the marine environment itself in traditions, art, and religion.	Aesthetic Information	The contribution that a coastal/ marine ecosystem makes to the existence of a surface or subsurface landscape that generates a noticeable emotional response within the individual observer. This includes informal Spiritual Experiences but excludes that which is covered by "Recreation and Leisure", Inspiration for Culture, Art and Design", "Spiritual Experience" and "Cultural Heritage and Identity".	Aesthetic Experience	The contribution that a marine ecosystem makes to the existence of a surface or subsurface landscape that generates a noticeable emotional response within the individual observer. This includes informal spiritual individual experiences but excludes that covered by "Cultural Experience".	Symbolic and Aesthetic Values	Exaltation of senses and emotions by landscapes, habitats or species.	Cultural Heritage and Identity	Benefit of biodiversity that is of founding significance or bears witness to multiple cultural identities of a community.	Cultural Heritage and Identity	The value associated with the marine environment itself.
			Spiritual Experience	The contribution that a coastal/ marine ecosystem makes to formal religious experiences. This excludes	Spiritual Experience	The contribution that a marine ecosystem makes to formal and informal collective religious experienc-						

				that which is covered by “Aesthetic Information” and “Cultural Heritage and Identity”.		es. This excludes that covered by Aesthetic Experience” and “Inspiration for Culture, Art and Design”.						
			Cultural Heritage and Identity	The contribution that a coastal/ marine ecosystem makes to Cultural Heritage and Identity (excluding aesthetic and formal religious experiences). This includes the importance of marine/ coastal environments in cultural traditions and folklore. This covers the appreciation of a coastal community for local coastal/ marine environments and ecosystems (e.g. for a particular coast line or cliff formation) as well as the global importance that may be associated with a particular marine landscape.	Cultural Heritage	The contribution of marine ecosystems to the maintenance of cultural heritage and providing a `sense of place'.						
					Cultural Diversity	The contribution of marine ecosystems to social and cultural values and adaptations that pertain to living at coasts and exploiting marine resources.						
			Inspiration for Culture, Art and Design	The contribution that a coastal/ marine ecosystem makes to the existence of environmental features that inspire elements of culture, art, and/ or design. This excludes that which is covered by services “Ornamental Re-	Inspiration for Culture, Art and Design	The contribution that a marine ecosystem makes to the existence of environmental features that inspire elements of culture, art, and/ or design. This excludes that covered by “Ornamental Resources”, “Aesthetic In-	Cognitive Effects	Inspiration for arts and applications (e.g. architecture designs inspired by marine shells, medical applications replicating marine organic compounds). Material for research and education (e.g. discoveries of new deep sea				

				sources", "Recreation and Leisure", "Aesthetic Information" and "Cultural Heritage and Identity".		formation" and "Cultural Diversity".		species). Information and awareness (e.g. respect for nature through the observation of marine wild life).				
22	Cognitive Development	The generation of knowledge and technological development resulting from researching marine environments.	Information for Cognitive Development	The contribution that a coastal/ marine ecosystem makes to education, research, etc. This includes the contribution that a coastal/ marine ecosystem makes to bionic design and biomimetics and to research on applications of marine Genetic Resources and pharmaceuticals.	Information for Cognitive Development	The contribution that a marine ecosystem makes to education, research, and individual and collective cognitive development.			Cognitive Benefits	Cognitive development, including education and research, resulting from marine organisms.	Cognitive Values	The education and research resulting from the marine environment.
23	Sea Scape	The emotional benefit attached to the marine environment with no physical use.	N/A	N/A	N/A	N/A	N/A	N/A	Feel Good or Warm Glow (non-use benefits)	The benefit which is derived from marine organisms without using them. a)"bequest value": future population can use ES b)"existence value": "sense of well-being, of simply knowing marine biodiversity exists" (and being interested in it)	Feel Good or Warm Glow	The value derived from the marine environment without using it.
24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Future Unknown and Speculative Benefits	The currently unknown potential future uses of marine biodiversity.	Future Unknown or Speculative Benefits	The currently unknown future uses of the marine environment.

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