

Ocean Organizations: Making Sense of a Myriad

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For the outsider, the myriad organizations committed in various ways to recovering the ocean environment from centuries of overuse and destruction is not easy to decode. The sheer number and range of interests confront the observer with a formidable challenge of comprehension. If one doubts this observation then simply embark on a Google search, with the words ‘ocean conservation organizations’; even the banner across the top of the first page displays an array of different bodies, each with its own logo and laudable aims. It is heartening but confusing. What should one make of it all?

On the one hand, evidence of this activity is surely good news. With the clock ticking relentlessly towards midnight, the world has finally awoken to the crisis of the ocean. It has taken an unconscionable age to respond to the main warning signs: that climate change is already resulting in a rise in sea level as well as the warming of the sea and associated unpredictable weather systems; that the unsustainable use of the ocean over centuries (but especially in recent decades) has led to a depleted fish stock and widespread pollution, including the prevalence of plastic waste; and that most of the ocean (known as the high seas) is still unregulated. Urgent action is needed if the overall situation is to be redressed and so the formation and determination of numerous organizations is only to be welcomed.

On the other hand, the picture is hard to set in focus. It seems that hardly a day goes by without news of a fresh attempt to reverse the relentless trend of using the sea as a dumping ground and a place to plunder with little or no thought for the future. Yet each addition to the scene adds to the complexity. We have a natural tendency to look for patterns but, in this case, apart from the commitment to a common cause none are immediately obvious. Instead, one can presently see disparate pieces, evidence that resources are being mobilized although not in any particular order. This paper is the view of a non-specialist: an outsider looking in. It has no other task but to seek patterns. Not because this will necessarily add to the effectiveness of the various endeavours but because it might offer a greater understanding of what is going on – not least of all for the many people who are not experts but who instinctively care about the ocean.

To focus on the task in hand a start will be made with a single example of just one new organization – the James Michel Foundation (JMF) – asking how it takes its place in an already crowded field. Will it make its own distinctive impact? How will it relate to existing organizations? And does it offer any clues about emergent patterns?

Pebbles on a beach

The entire ocean is affected by a single pebble.

(Pascal, n.d.)

The author of this quote was a seventeenth-century mathematician and physicist, not to mention an inventor, writer and Catholic theologian. He lived for barely forty years but made a mark in all of his fields of interest. If, as he conjectured, the entire ocean is affected by a single pebble then so too a single pebble may be shaped by the entire ocean; the relationship is mutual. Every part of the ocean environment counts. For someone who wants to do something useful in the global campaign this can be perceived in one of two ways. In one sense, the sheer complexity of the idea, where everything is inter-related, might in itself inhibit a new initiative. Is there not enough being done already? Can one make a difference on one's own? Yet in another way, everything has a meaning; every pebble counts. Who knows if just one new pebble could make a noticeable difference? Where, though, should one begin?

This is one of a number of papers in this journal written in and about Seychelles and so where better to start than in the seas that shape this tropical archipelago? The place is revealing in itself, in a remote stretch of the Indian Ocean, far from its nearest neighbours, on the very frontline of the ocean debate. Given its location, it is not surprising that Seychelles has generated its own ideas and actions to tackle a problem that belongs to the world. Recognized as a leading campaigner, James Alix Michel, a former president of the small island nation, has done much to promote the cause of the Blue Economy and our understanding of climate change and sustainability. In particular, he has helped to bring the world's attention to the vulnerability of small island states like his own in the face of climate change; while in office, he led by example in vigorously pursuing policies for sustainability on land as well as at sea; and he is widely acknowledged as a pioneer in promoting the idea and potential of the Blue Economy (Michel, 2016). He has gained an international reputation and below is the outcome of an interview with the author of this paper in which he speaks of his continuing work and passion for the cause. In particular, he explains the purpose of the new foundation that he has formed.

As a citizen of Seychelles, I have spent most of my life within sight and sound of the sea. Measured in terms of its total population and land area, Seychelles is one of the smallest nations in the world. But it is surrounded by a large area of ocean within its national jurisdiction and an even greater expanse of high seas beyond. The sea is part of our very culture and when I was president, over a period of twelve years from 2004 to 2016, I looked for ways to achieve a more sustainable future. Most of my ideas coalesced in the form of the Blue Economy and I worked hard within my country and in the world beyond to promote the concept. At first,

I thought that it might be only small island states like my own which would join the campaign but it very soon emerged that there were few places around the world which failed to see its relevance. Within just a few years, through the efforts of various pioneers, the cause of a sustainable ocean had become an international movement.

Being in the position of leadership in one's own country gives one extra leverage and I lost no opportunity to take forward this simple but effective idea. Unless we can restore the health of our mighty ocean the loss for us all will be catastrophic. I spoke to people in the communities, explaining how we had to work together to ensure that the sea will once again flourish. I urged my government ministers to build the idea of the Blue Economy into all that they did. I created a separate government department and ensured that in cabinet meetings the idea was fully discussed. And in just a few years we introduced a number of important initiatives that have since been emulated elsewhere.

Looking beyond my own political career, I knew that when I was no longer president I would still wish to continue to campaign for the Blue Economy. I was, therefore, delighted when, as Chancellor of the University of Seychelles, I was invited to lend my name to a new centre for research, known as the 'James Michel Blue Economy Research Institute'. This had the advantage of building on an existing platform of environmental science at the university, which had brought together an accomplished team of experts in the field. More than that, each year there was a new cohort of Seychellois graduates who I knew would shortly make their own contribution to the country.

The rationale for the Institute (generally referred to by the acronym, BERI) is strong, not only because it supports the educational aims of the university but also as a hub for ocean research in the Indian Ocean. Seychelles is strategically placed to serve in this way and I can foresee the time when it will have its own specialist accommodation in a waterfront location with mooring facilities for research vessels. Funding is needed to take BERI to the next level and I am lending my own support to obtain this.

Meanwhile, on stepping down as president in 2016, I set about establishing my own foundation (Michel, 2017). Continuity is important and I wanted to ensure that my international experience and contacts were not lost in the transition. Seychelles is still a young nation and the idea of retiring presidents creating their own foundation is not yet institutionalized and supported financially in the way that it is in, say, the United States. In that nation, the material legacy of each retiring president is brought together in a dedicated library and associated museum, located in the relevant home state. The aim is not simply to store essential records of their respective term of office but also to provide space for students and practitioners to debate aspects of their presidential legacies.

On a smaller scale than the American examples, I duly established the James Michel Foundation, dedicated to the related issues of the Blue Economy, climate change and sustainability. In my role as Chair of the Foundation, I have also responded to invitations to speak at global events and to join the leadership committees of some of the most influential bodies in this field, including the prestigious Pew Bertarelli Ocean Legacy. In these various ways, I have ensured that I can continue to play a part in this urgent and essential cause.



The formation of this new organization illustrates the nature of the emergent process, which takes the form of a succession of largely separate initiatives with a common purpose but without necessarily having common leadership. It is more than two centuries since the Scottish economist, Adam Smith (1776), coined the phrase ‘the invisible hand’ to describe the benefits resulting from the uncoordinated actions of innumerable individuals. Their individual actions were each motivated by self-interest but he argued that the sum total yielded the best possible outcomes. Smith at the time was seeking to explain the effectiveness of capitalism and the common pursuit of profit but his metaphor of the invisible hand drew attention to whether it is better to control change or allow spontaneity.

In the particular circumstances of the late-eighteenth century, Smith was tussling with the perennial question of where to draw the line between freedom and control. Returning to the specific example of the James Michel Foundation, one can see an interesting parallel with the situation that Smith was trying to explain nearly two and a half centuries ago. Thus, the formation of the new foundation is the outcome of individual initiative and a determination to contribute to a global solution. Adam Smith would surely have seen this as an action, just one of many, that should not be constrained. It is motivated not by decree but by a sense of what needs to be done. If left to its own devices it is more likely to succeed than if hemmed in by rules and regulations. Smith, of course, was focusing on economic motives and the desire to maximize profits although the process can equally be applied to social aspirations and, in this case, a desire to make the use of our ocean more sustainable.

But even Smith accepted that there were certain circumstances where the state should intervene. The world has, in any case, changed since then and its interconnectedness means that, even if actions were left entirely to individuals, they would not automatically be sealed off from the actions of others. Globalization sets a different context, one in which all actions are, to an extent, connected. Or, if one agrees with Blaise Pascal’s assertion that the entire ocean is affected by a single pebble, then the addition of a new pebble has the potential to create wider repercussions. Whether it is the James Michel Foundation or an international

treaty to conserve the high seas, any new initiative will be of global interest. It is rather like the oft-cited butterfly effect, where the wings of this lightest of creatures might create tiny changes in the atmosphere in one part of the world that then lead to greater changes in another.

So, from a global perspective, how can one explain the addition and impact of the foundation in question? It is a private rather than government initiative; it is a campaigning and educational body rather than a centre of scientific research; it is locally based with links to schools and the University of Seychelles. But it also reaches out to global partners and the founder is represented on various international bodies. These all offer clues as to how it might be located within the context of numerous other organizations but none of these clues are conclusive. Likewise, in looking to the totality of organizations there is no obvious system of classification, no simple case of right or wrong in how they might be grouped. However, there is one important pointer, namely, the object of this particular exercise which is to simplify and make more comprehensible the many attempts to 'save our seas'. Is there a framework within which the various organizations can be located?

On this pragmatic basis, the following two criteria are suggested: the first being the different levels of operation at which ocean organizations work and the second their respective missions. Is the organization in question primarily global or, instead, local? Is it formed in order to carry out scientific research or, alternatively, to undertake outreach work in schools and communities.

These two categories – scale and mission – are inter-related and by no means mutually exclusive; there are also blurred boundaries between the different entities. One could also bring in other criteria (such as ownership or scientific integrity) but only at the expense of simplicity. Some organizations are governmental, others are privately funded. Certainly, one cannot ignore the major role played by non-governmental organizations. NGOs are numerous and diverse, operating internationally but also locally. Some have a wide brief whereas others concentrate on, say, a particular species or designated area. Likewise, in looking for categories, the situation is far from static; in effect, the various organizations form a continuum rather than forming discrete groups. The situation is constantly changing and this classification is no more than a starting point for the commentary that follows. It is a selective commentary, drawing attention to a few key considerations at each level and in relation to each function. To attempt to be comprehensive, including all of the organizations and their constantly changing relationships, would be a totally different exercise.

Levels of operation

Earth's seven oceans seem vast and impenetrable, but a closer look tells another story.

(Danson, 2010)

Ted Danson was a popular American actor who has since turned his attention to campaigning for ocean sustainability. In the above quote he makes the point that the opportunity to take a closer look at the 'earth's seven oceans' is revealing. It can be likened to viewing images from a Google map, starting with a shot of the planet from outer space and descending successively through more detailed images until one sees coconut palms along a beach or small fishing boats at sea. Similarly, ocean organizations are located along the whole spectrum from a planetary view to the details of coral reef recovery in a particular bay. Different descriptors for the respective levels of operation can be used but a simple classification is to locate the various organizations in terms of international, national, regional and local.

International

At the highest level is the United Nations, ostensibly speaking for the world as a whole. To its lasting credit the UN is responsible for what is known in its shortened form as the Law of the Sea or, to use the accepted acronym, UNCLOS (UN, 1994). International treaties are notoriously difficult to conclude and are inevitably a product of lengthy negotiations and compromise. UNCLOS was no exception. Attempts to create an international framework had been under discussion since the 1950s. A UN convention in 1982 made a number of proposals but it was not until 1994 that a version of these was finally endorsed (University of Virginia, 1985-2012). In the event, as one might expect, it emerged with serious limitations. It is by no means universal in coverage nor especially effective in the areas within its remit. Most of the sea remains beyond its reach while of that which is included potential restrictions are not, in many cases, rigorously enforced. The most glaring omission is the absence of a policy for the high seas (the area beyond national jurisdictions) although work is currently being undertaken at the UN in a belated attempt to remedy this. It is intended to produce a treaty that will in due course be binding on all nations (National Geographic, 2017).

UNCLOS operates best where individual nations themselves take seriously their own responsibilities, creating marine reserves in their areas of jurisdiction and policing their waters. The international reach of the UN is also extended through parallel initiatives, not least of all that organization's Sustainable Development Goals (UN, 2015), which include one directed specifically to ocean sustainability. In due course, with a view to advancing the various measures required, this particular target was the subject of a well-attended conference in New York in 2017 (UN, 2017).

The UN has a formal role to play but it is by no means alone in seeking to embrace the concerns of the world as a whole. There is no monopoly on including ‘the world’ or ‘international’ in the title of any organization and one has to be selective in finding which are authentic and which are simply seeking to enhance their status. As an example of an effective initiative, in March 2019 an event was held in Abu Dhabi under the rubric of ‘World Ocean Summit’. Organized by *The Economist* (one of a series of annual events), it brought together about 750 delegates from around the world (*The Economist*, 2019). It followed a similar format to that of another ‘world event’ held a few months previously, in that case the work of a body called the World Ocean Council (2018). Held in Hong Kong, it was the latest in an annual series organized by this body, which has the strapline of ‘the international alliance for corporate ocean responsibility’.

There are now many such organizations and conferences and one must question not so much their motives as their effectiveness. The one thing they do well is to bring key individuals into face-to-face contact, and from some of these meetings new developments might well emerge. But it would be interesting to measure the ‘hit rate’ of productive exchanges and assess whether it is a good use of money and other resources. The fact is that international conferences are enormously resource intensive and one wonders whether global networks could not be created just as effectively in other ways.

Regional

Below the level of global but above that of individual nations is the region. Organizations which operate at this level have the advantage of a shared geographical and economic background. The logic for regional intervention is sound, being large enough in its scope to make sense of interconnections but small enough to be meaningful for adjoining nations. Regional initiatives are not instead of international and national measures but in addition. And therein lies the core problem: regional bodies can prepare overarching plans and offer advice but it is always the constituent nations which hold the cards. In spite of any sense of overall unity, individual nations will invariably wish to pursue their own interests. Regional bodies can be justified in scientific terms but they are invariably weak in terms of powers.

In the Indian Ocean, for instance, some of the littoral nations take their responsibilities seriously while others seek only to extract what they can, without regard for their neighbours. As with the other major seas, there is presently no single jurisdiction, although there is the existence of the Indian Ocean Rim Association (IORA, 2019). This is a membership body that provides dialogue opportunities between the seaboard states in the region and also for those (like China) with a shared interest from further afield. Those nations with a direct interface with the sea are the key players in any discussion of how best to conserve this ocean, although the rest of the world shares an interest and a claim on its resources. It is a large region and, to avoid relying solely on IORA, there are other bodies

with a more sharply focused brief. One example is the Western Indian Ocean Marine Science Association, a non-governmental association dating back to 1993 (WIOMSA, 2019). Additionally, an IORA-funded study at the University of Seychelles recently identified a wide range of environmental organizations in the western reaches of the ocean, with a view to creating a managed regional network (BERI, 2017).

Elsewhere in the world, the European Union, for instance, encourages sustainable policies for the various seas within its own geographical realm, notably, the Arctic and Baltic, Black Sea and the Mediterranean, as well as that part of the Atlantic designated as the North Sea. Of particular concern at the present time is the future of the Arctic, partly because of longstanding superpower interests but also because of the likely impact of climate change on the region. Apart from the melting of the ice cover, the sea itself is showing signs of rapid acidification; marine wildlife in the region is also at growing risk. In response to these challenges, there are now various bodies – notably, the Arctic Council (2019) – with an interest in one or more aspects of the region. Likewise, in the wider context of the Atlantic, the Caribbean is another sea where efforts are being made to create an effective framework of governance (Parris, 2017). So, too, the Antarctic and the Southern Ocean are also of great concern.

National

One level below the region is the nation, which has a key role in ocean conservation. Probably the most important outcome of the UNCLOS process was the allocation of powers and responsibilities to each of the world's coastal nations. This takes the form of jurisdiction over designated areas, of which the largest in each case is the Exclusive Economic Zone. While this designation marked an important step forward, the reality is that individual states have a variable record of achievement. Some invest sufficient resources to enable at least some of their commitments; others, however, continue to pursue their individual interests to the exclusion of wider considerations and also fail to prevent misuse by others, in effect leaving unregulated the sea they are meant to protect.

One can revisit the Indian Ocean to see examples of both extremes, as well as intermediate situations. Australia, for instance, has the capacity to conserve its surrounding waters and there are examples of good stewardship (Australian Government, 2019). Zones are designated for particular levels of protection and sufficient resources are available to enable effective enforcement. A feature of that nation's maritime conservation engagement is its willingness to go beyond national boundaries in order to cooperate in wider activities. In matters of coral conservation, it is hard to think of any nation that has done more than Australia to counter the adverse effects of warmer waters and coral bleaching along the length of the Great Barrier Reef. Yet the nation has by no means an unblemished record, a

result of a very strong development lobby constantly challenging the limits imposed by conservation.

At the other extreme is a nation like Somalia, with a lengthy coastline (the second longest in Africa) and negligible protection. Successive governments of that beleaguered nation have complained repeatedly, and with some justification, about encroachment into its waters by fishermen from other nations and even illegal dumping of waste materials, some of it toxic. The cruel reality is that the idea of a sustainable future for the country carries little weight in the face of the pressing problems confronted in the here and now.

Somewhere between the two, small island states in the Indian Ocean have a mixed record. The poverty and political divisions within Comoros have an obvious impact and its maritime policies are far from effective. In contrast, Seychelles has a deserved reputation as a responsible nation with innovative policies, although the sheer size of its EEZ (about 1.37 million square kilometres) makes it impossible to patrol these waters with the rigour that is required. Technical equipment and training is offered by larger nations like India to strengthen the coastguard of Seychelles but sometimes this comes at a high price. An offer by India to assist the coastguard service of Seychelles in its patrols of the outer limits of the EEZ has led to a local controversy. The proposal is to provide additional facilities on the outlying island of Assumption but this has been questioned by Seychellois on the grounds that it would impinge on sovereign rights as well as damage the fragile environment of the Aldabra region (Schöttli, 2018).

The mixed record of nations illustrates an inherent problem in global conservation. On the one hand, at the international and regional levels there is an understanding of the wider implications and sometimes a need to override national interests for the greater good. Yet, on the other hand, most powers rest at the national level where, almost by definition, the record is at best variable and at worst poor.

Local

Given the impasse at higher levels, the opportunities for local and community action are especially important. It is not simply that projects can more easily be organized by small groups of people but also that they are likely to enjoy a strong sense of ownership and commitment by their participants, many of whom will come from coastal townships and villages and/or who will earn their living from the sea.

Examples of initiatives at this level are many and varied, and might include beach-cleaning operations, protection of beaches with nesting grounds, conservation of individual coral reefs, and self-imposed fishing restrictions to enable recovery of particular species. Such projects have become the subject of numerous volunteer schemes, often organized through

dedicated NGOs. As an example, the Marine Conservation Society Seychelles offers access to a number of projects, including long-term monitoring of whale sharks, turtles and terrapins. Funding is partly through grants but also in association with local businesses, such as luxury hotels which sometimes employ their own conservation staff and involve guests in restoration projects. At the time of writing, with a different provenance, a group of volunteers is presently working on a six-week project on the protected atoll of Aldabra, designed to clear waste that has washed ashore from more distant sources. A key outcome will be to quantify the amount of plastics pollution and to find ways to process it.

The problem with work at this level is that, no matter how laudable the efforts, its impact is reduced if there are not corresponding examples of intervention at a higher level. Just as the ocean is a continuum so, if it is to be effective, the response must also be seamless.

A question of purpose

The secret of success is constancy to purpose.

(Disraeli, n.d.)

The nineteenth-century British prime minister, Benjamin Disraeli, was clear about the importance of focus. He would surely have brought to the present debate the good advice of focusing on the purpose of the exercise, whether at an international or community level. Purpose transcends scale as it applies equally to all levels of operation. Whether an ocean organization works at the community or global level, the need to be clear about purpose is the same. Details will be different – whether cleaning up a beach or introducing legislation for the high seas – but they are all directed to the common ends of making the ocean's resources and services more sustainable.

As another way to find daylight between the multitude of organizations (in addition to levels of operation), they can be classified in terms of what they seek to do. There is no single way of grouping them but the following might help to make things clearer. Some organizations are focused on scientific research, others on general campaigning; some are media channels, while others are purely educational.

Media

It is hard to underestimate the role of the media in bringing to public attention the problems and potential of the ocean, reaching a global audience more effectively than other methods. Notably, the BBC television series *The Blue Planet* lent itself to peak-time viewing across the world. Narrated by David Attenborough the eight-part series first appeared in 2001 and was widely recognized for its scientific as well as entertainment value. No expense was

spared to track the migratory patterns of different species, including the Blue Whale, and in deep-water filming hitherto undiscovered species were shown for the first time. The educational as well as scientific value of the series was inspirational (BBC, 2001).

Ocean specialists have known for years that plastic waste is a major threat to the marine environment but it needed the media to bring this into everyday conversation. Pictures of a whale that had died as a result of ingesting plastics (*New York Times*, 2019) and fish in a similar state spoke volumes to people who previously had no idea of how bad things had become. In early 2017 the UK-based media corporation, Sky, launched a campaign called Sky Ocean Rescue, the aims being:

to shine a spotlight on the issues affecting ocean health, find innovative solutions to the problem of ocean plastics, and inspire people to make small everyday changes that collectively make a huge difference.

(Sky, 2017a)

Apart from reviewing its own practices and removing single-use plastic products from its operations, a fund was made available to support innovative businesses which can find new ways to reduce the use of plastics and seek more sustainable disposal methods. Of inestimable value is the fact that ocean issues are regularly covered in peak-time viewing programmes. Sky has also partnered with WWF to safeguard, through the designation of marine protected areas, some 400,000 square kilometres of Europe's seas (Sky, 2017b).

As well as traditional forms of media, ocean issues are notified and discussed through social media. Twitter is well regarded in this respect, its regular users valuing the regularity of tweets and the trends that can be discerned when they carry a similar message. The fact that these originate around the world adds to the strength of their message. For instance, in relation to the general theme of plastic waste, using the hashtag #ourocean Twitter users can tell very quickly what is being done in different countries and how links can be created between fellow campaigners.

Research

Given how much is known about the land and even the planetary system, much of the ocean is still unmapped and unknown:

The deep ocean – beneath 200m – is the beating heart of our planet, and our largest and most vital ecosystem. Yet for some reason we have better maps of Mars than we do of our own seabed and at least 95% remains unexplored.

The most important part of our planet is the least known and this clearly isn't very sensible. We now have the technology to discover more of our planet in the next ten years than we have in the past 100,000. It's time to go deep.

(Nekton, 2019)

As a result, a growing number of ocean organizations are devoted to redressing the imbalance. The above quote, for instance, is from a press release announcing a new venture for the deep-water exploration enterprise, Nekton. Established in 2015 and registered as a charity, it is an independent, not-for-profit research institute working in collaboration with the University of Oxford. Best known for its human-operated submersibles and remote-operated vessels, it is actively engaged in exploring the sea to a depth of up to 300 metres. As well as its scientific mission it provides information that is accessible to a global audience.

Nekton's first explorations were in the region of Bermuda and the north-west Atlantic, where it concentrated on the characteristics of the sea at a depth of 130-300 metres (the Rariphotic Zone). Its findings in this zone resulted in the discovery of 100 new species. For its next venture, First Descent refers to a series of expeditions to explore and conserve the Indian Ocean, still the least known of the world's seas. In March 2019 it made a start with at least fifty descents in the waters around Aldabra. It will then move south to the Weddell Sea to explore what is happening beneath the ice and to look, especially, at the effects of climate change.

Nekton rightly attracts the world's attention but there is also a less visible network of scientific organizations in universities and stand-alone institutes. Some of these are sizeable bodies in their own right, like the Institute of Marine Research in Norway which employs about 1000 staff. Also with an international reputation but with a different focus, the Australian Institute of Marine Science specializes in tropical marine research. Or, to take another example, the World Maritime University is located in Sweden, founded in 1983 by the International Maritime Organization (a specialized agency of the UN). The importance of marine research is reflected in the growing number of institutes and university departments. In California, around the Monterey Bay National Marine Sanctuary there are no fewer than fifty bodies dedicated to marine research and conservation. Keeping in touch is a challenge, which is why a body like the MARS network of marine research stations in Europe was formed in the 1990s with the object of facilitating contact between specialists.

Marine research is invariably a team activity, not least of all because of the resources needed for the various projects. It is rare for an individual to make headlines, although the name of Jacques Cousteau, who pioneered diving techniques and ocean research after the Second World War, is still rightly remembered as a major contributor to our knowledge of the

ocean. More recently, a leader in her own right is the oceanographer, writer, explorer and campaigner, Sylvia Earle. From her own research base in marine algae she became a respected voice on all aspects of ocean science and conservation. Like Cousteau, her pioneering work helped to introduce new generations to the largely unknown domain of the ocean and to alert the world to the need to change our ways. Her message was urgent but always positive:

Just as we have the power to harm the ocean, we have the power to put in place policies and modify our own behavior in ways that would be an insurance policy for the future of the sea, for the creatures there, and for us, protecting special critical areas in the ocean.

(Earle, n.d.)

Philanthropy

This category embraces a wide range of organizations, from foundations such as that of James Michel (introduced in an earlier section), to the contribution of benefactors who set aside large sums of money to be spent on ocean recovery schemes. The one purpose they all share is to make the world a better place. Sometimes these initiatives are funded by celebrities, whose names are already widely known. Leonardo Dicaprio, for instance, has developed a partnership with other bodies under the shared banner of Oceans 5. Since its inception in 2011, Oceans 5 has invested more than \$40 million in 50 globally significant projects.

In other cases, this kind of organization is based on the accumulated wealth of successful business leaders. An exemplar of a well-established foundation in this category is Pew Bertarelli, a Swiss-based foundation dedicated to the memory of Fabio Bertarelli. It is committed to using the family fortune to make the world a better place and chooses to concentrate on three areas of activity: marine conservation and science, life science research, and local communities with which the family are familiar. The focus on the ocean is organized through the Pew Bertarelli Ocean Legacy, with which there are now more than forty projects underway – ranging from attempts to end illegal fishing to shark conservation, from protecting Arctic waters to highlighting the importance of the high seas. James Michel is a founding member of the Pew Bertarelli Ocean Ambassadors, a small group of global leaders who work with the Ocean Legacy Project to press for the creation of large marine protected areas.

Another example of a philanthropic intervention is that of the American hedge fund billionaire, Ray Dalio. Amongst his many contributions will be the deployment of a state-of-the-art research vessel that is currently being constructed. Dalio is himself passionate about deep-sea exploration and will be personally involved in his planned expedition in the outer waters of Seychelles; this will take place in 2020, as soon as his new research vessel is ready.

He recalls with admiration the pioneering work of Jacques Cousteau, who did as much to anyone to share for the first time the secrets of the ocean. In a similar way, his own priorities are not only to find out more about the deep waters that comprise so much of our planet but also to ensure that each new discovery is publicized across the world.

Education

Education is now integral to the work of most ocean organizations, in the knowledge that popular understanding and support lends weight to the chances of political action. This applies not only to adult groups of voting age but also younger generations who will inherit our legacy. A central argument of sustainability is that we should be able to pass on to future generations an environment that is at least as pristine and productive as the one we ourselves inherited. This why there are many organizations devoted wholly or partially to providing education materials for schools.

The prestigious National Geographic, for instance, under the rubric of Ocean Education, has produced an outstanding collection of resources on open access for teachers and students. Comprehensive in its coverage, the quality of the materials is exceptional. Until the advent of the internet and affordable devices, this kind of opportunity would have been beyond reach. Nor is National Geographic alone in this field and even a brief review of what other organizations can offer will show that students everywhere have access to essential information.

A different type of organization, with a presence in Seychelles, is 'WiseOceans'. It is a private company that offers opportunities for young people especially (although age is not a barrier) to engage directly with the marine environment. In the words of its prospectus:

WiseOceans Ltd has a large involvement with Seychelles and works alongside and in conjunction with specific local NGOs. Part of our mission is to spread marine awareness and knowledge among guests and staff at resorts within Seychelles. By working alongside specific local NGOs enables us to conduct additional marine conservation projects by utilizing funds generated by resorts. Therefore we maximize our marine conservation and education work within Seychelles.

(WiseOceans, 2019)

Also in the business of spreading the message of ocean sustainability to all parts of the world, without entry cost constraints, is the idea of Mass Open Online Courses (MOOCs). At the University of Seychelles, in association with the Commonwealth of Learning, the Director of the *James Michel* Blue Economy Research Institute, Kelly Hoareau, has designed a MOOC dedicated to an understanding of the Blue Economy.

There can now hardly be a university around the world that does not include an element of marine science, whether as part of a parent subject like geography or biology, or as a discipline in its own right. Student interest has been awakened but also there is a growing realization that careers in this field can follow, whether on conservation projects or new industries like aquaculture, on marine spatial planning or energy harnessed from the sea.

The picture from the pieces

God... takes all the pieces in his hand, throws them into the world, and we have to recreate the picture from the pieces.

(Sibelius, n.d.)

For the Finnish composer, Jean Sibelius, the challenge was to find ways to harmonize the various notes at his disposal, to compose a coherent picture from the pieces. It might well be questioned whether the creation of order really matters. Why not, for instance, leave the many pieces in disarray? Yet when one beholds the delicate beauty of a composition by the likes of Sibelius, doubts quickly evaporate; the finely balanced outcome speaks for itself. More often in lesser ways, too, the achievement of harmony in other fields can be no less satisfying. Understanding the world around us presents its challenges but also, when things fall into place, its own rewards too. It is a natural enough aspiration to wish to make sense of our surroundings.

In concluding this paper, perhaps it is time to revisit the beach. At first glance, amongst the endless array of pebbles and shells, the tiny gems and the delicate splinters of rock, the glittering golds and silvers but also the muted greys and browns, there seems little to hold it all together. It is, indeed, as if God has thrown everything into the air and let them land as they will. Yet experience shows that it is this very choice of components which can enable the kind of unity that Sibelius sought in the world of music. From the earliest times, for instance, artists who create mosaics have collected these various particles before piecing them together to form pictures of extraordinary subtlety, often combined with functionality when laid as ornamental pavements. Over the years, the art of making mosaics has evolved in many different ways but there is always one thing in common, an ability to transform an infinite variety of natural fragments into a coherent, and invariably beautiful, whole.

In the present context, the metaphor of mosaics may assist in the search for patterns amongst what at first appears like a chaotic reality. How can we account for the complexity of myriad individuals and organizations, all of them in their different ways devoted to achieving the common goal of a sustainable ocean? It is surely a bit like the task of the artist confronted with a heap of fragments on the studio floor, with the seemingly impossible task

of creating something coherent. Yet, with patience and understanding, the artist sifts through the pile so that, gradually, a number of common characteristics emerge. This is the task that was set for this paper, to try to find patterns within the movement for ocean survival and to see if there are gaps in the resultant template.

To help with the sorting process, use has been made of simple models. Some organizations operate at an international level, others at the local; some are dedicated to ocean research, still others to produce materials for schools. For all the simplicity of this approach, it might at least offer a way to classify disparate bodies or, to return to the sub-title of this paper, to make sense of a myriad. It is hoped that readers might now tread more confidently on the studio floor, seeing the heap of fragments before them not as an obstacle but as a means to create something meaningful.

If the foregoing offers at least a small step forward in comprehension, the paper must unfortunately end with a confession. Nothing has been done to address the vexed question of acronyms. Even the best-versed of ocean scientists and policy-makers must surely struggle with the near-impossibility of recalling the shortened versions of the various organizations. One sets course with hope and assurance but soon risks becoming enmeshed in a Sargasso Sea of acronyms. The production of an online, open access glossary is long overdue and every bit as essential as a compass in a voyage of discovery. To guide future explorers through the complex world of ocean organizations there is still more work to be done.

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Disclosure Statement

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