

Incorporating cultural values into ocean planning and management: New tools and trends

Editor's note: In most instances in this article, the term "value" is used to indicate the importance and/or usefulness of something and is not a reference to a strictly monetary value. Cultural ecosystem services (described briefly in the article) provide a useful typology for cultural values that the ocean holds for stakeholders.

As marine management and conservation professionals, we all know how incredibly difficult it is to plan for and manage even the most "mappable" uses of the oceans – e.g., wind farms, oil rigs, communication cables, aquaculture facilities, and so forth. Mapping changeable fishing areas can be even more difficult, although practitioners have [found ways to do this](#)

But how can we map (and then manage/protect/monitor) the sanctity of ancestral burial grounds, the beauty of a sunrise over the ocean, the excitement of a small child seeing a sea turtle, or the sense of connection to the ocean from strolling along a beach? Nonmaterial "cultural" services associated with marine ecosystems – such as aesthetic qualities; cultural heritage and identity; spiritual, sacred, and/or religious importance; inspiration for culture, art, and design; and sense of place [see textbox below] – are often the most valued by stakeholders. Nonetheless they are also frequently the hardest to incorporate into planning and management because the benefits they provide are felt and experienced in diverse ways and locations by different stakeholders.

What are Cultural Ecosystem Services?

A recent review of the cultural ecosystem services literature ([Garcia Rodrigues et al., 2017](#)) uses the following categories of cultural ecosystem services:

- Recreation and leisure
- Aesthetic
- Cultural heritage and identity
- Spiritual, sacred, and/or religious
- Educational
- Inspiration for culture, art, and design
- Sense of place
- Social relations
- Scientific
- Existence
- Intellectual and representative
- Bequest
- Symbolic, and
- Services to ecosystems.

A description of the other types of marine ecosystem services – provisioning, regulating, and supporting – can be found [here](#).

The difficulty of studying, quantifying, and mapping many cultural ecosystem services is shown by the results of [review of the marine and coastal ecosystem services literature](#) published in the open access journal *One Ecosystem* in May of this year (Garcia Rodrigues et al., 2017). This review revealed an astonishing lack of published research on marine and coastal cultural ecosystem services – just 60 case studies worldwide.^[1] And most of the cultural ecosystem service studies they did find focused on the economic value of coastal and marine recreation, tourism, and scenic beauty – the relatively easily monetized cultural ecosystem services – rather than other cultural ecosystem services such as spiritual interactions, cultural identity, and existence values.

Here at MEAM, a couple of recent papers caught our attention as providing innovative ways forward for incorporating cultural values into ocean planning and management. We spoke with the lead authors of these papers, as well as an expert in incorporating indigenous values into planning and management and a marine planner who led a process formally incorporating cultural values into marine spatial planning. Here's what we learned.

A new method for incorporating cultural values into spatial planning and management

A recent paper ([Gee et al., 2016](#)), published in *Ocean & Coastal Management*, describes a method for identifying and prioritizing culturally significant areas or features. This concept of culturally significant areas (CSAs) – similar to the concept of ecologically or biologically significant areas (EBSAs) – allows cultural values to be considered and weighted in much the same way as ecological values in spatial ocean management processes such as marine spatial planning or the designation of marine protected areas (MPAs).

With this method, cultural significance is based on the cultural connection of a community to a given area, and significant areas are established by a participative process to determine the nature of an area, its location (which may vary over time), to whom it is important, and the qualities needed to sustain it. [See textbox below for more detail on the criteria for establishing cultural significance.] Of critical importance, the method not only helps planners and managers define CSAs but *prioritize* among them, since all oceanic areas presumably have some level of cultural value to some group or individual. The method, initially developed in a [2013 workshop Mapping Cultural Dimensions of Marine Ecosystem Services](#), has since been tested in planning processes in [Sweden](#) and the [United Kingdom](#).

Establishing cultural significance

The criteria proposed by [Gee et al. \(2017\)](#) for establishing cultural significance are:

- **Cultural uniqueness** which considers how unique, rare, and/or irreplaceable a place or feature is and/or the extent to which a place or feature enables unique cultural activities.
- **Broad cultural/community reliance** which considers how important a place or feature is to a specific community or to different communities or large numbers of people as well as how essential it is to sustaining **important activities**.
- **Importance to community resilience** which considers how the loss of the place or feature would impact other benefits, user groups, the wider region, and the adaptive capacity of communities or the region.
- **Degree of tradition** which considers how long-standing or broadly anchored traditions are to a place or feature, and whether the place or feature draws strong commitment from a user group or is associated with high participation rates.
- **Dramatic cultural change** considers the importance of the place or feature in the context of sudden dramatic change (e.g., loss of essential ecosystem functions, war, etc.) or the historical context of change.

To learn more about the proposed method for mapping cultural values, MEAM spoke with Kira Gee, a human dimensions and marine spatial planning expert with research institute Helmholtz-Zentrum Geesthacht (HZG) in Germany and lead author of the methodology.

MEAM: You and colleagues have been working on a method for identifying and incorporating culturally significant areas into marine spatial planning processes for a number of years. Why did you get involved with this effort? What problems did you see?

Gee: There were two triggers for our work. One was a study on the perception of offshore wind farming in Germany, which led us to note that many local residents were caught in a dilemma – wanting renewable energy on the one hand but also feeling very attached to the wide, open horizon or the idea of the sea as a last wilderness. Our interest was piqued – what other nonmaterial values were out there? How important were these values compared to monetary values? Should these values be included in decision making, and if so, how? We thus set out to explore nonmaterial values associated with the ocean more generally – the values arising from traditional practices, for example, or the appreciation of beauty or particular ocean experiences. We then became interested in the concept of cultural ecosystem services as a means of expressing these values and benefits.

The other trigger was that marine planning (in Europe at least) seemed a rather technical exercise that had not found a way of taking account of nonmaterial values even though cultural/nonmaterial values requirements are found in planning and environmental impact assessment legislation. Partly, this was a methodological problem as these values are difficult to elicit and hard to compare to more tangible monetary ocean values. How do you weigh a beautiful ocean view against an offshore wind farm? We recognised that a step-by-step approach might be useful. Firstly, we wanted to propose a method that could explore socio-cultural ocean values in different cultural contexts – effectively delivering a baseline of socio-cultural values for further consideration. Secondly, there had to be a spatial dimension to this method as planners need to know which cultural values are located where within a planning area. And thirdly, we wanted to find a way to allow quality judgements to be made. It's one thing to identify and locate socio-cultural values, but quite another to decide which of the features, locations, or areas identified are more important than others.

MEAM: What are some of the most interesting and/or innovative examples of marine planning or management processes that incorporate cultural values?

Gee: In 2014, the CSA approach was tested on the Dart Estuary in Devon, UK, by a team from Plymouth University. Fifty-one areas on the Dart Estuary were identified as being 'culturally significant', meaning they provide services that are critical to the wellbeing and identity of the Dart Valley community. These 51 CSAs are important because they are: (1) unique, (2) relied upon by the community, (3) important to the resilience of the area, (4) important to the cultural heritage and traditions of the area, or (5) linked to historical events (e.g., shipwrecks, invasions, conquests). The research team used a mix of methods including online surveys, semi-structured interviews, and interviews with local historians to elicit "cultural significance". Results form part of the [Strategic Plan for the Dart Harbour and Navigation Authority \(2016\)](#).

In Canada, environmental assessment legislation requires that impact assessments be conducted in terms of current land use and resources for traditional purposes of indigenous people as well as physical and cultural heritage impact at large. Criteria and methodologies ensure that such studies are conducted along the lines of good anthropological and social science practice, providing a baseline of information that local indigenous people and communities can use just like ecosystem and economic studies. Equivalence is a key aspect, as it provides assurance that those having the authority to make decisions consider CSAs to be on par with ecosystem and socio-economic overview reports. Decision making can no longer discount cultural values because of misrepresentation or lack of cohesiveness in the information provided. CSA equivalents can also be found in Scotland where seascape panoramas are protected by law, as well as [sea monster areas in Iceland](#).

Although it is a different approach altogether, I'd like to highlight marine character assessment (or seascape character assessment) as another area-based approach. Seascape character assessments have been carried out in the UK ([quite recently by Wales](#)) and incorporated in marine plans. Marine character assessments combine information related to the seascape (e.g., natural, cultural, and aesthetic aspects) with spatial data and local knowledge (e.g., perceptions of space, local names, etc.) and identify distinct "character areas" that reflect local sense of place. The assessment does not include an assessment of significance, so it is best understood as baseline information.

MEAM: What best practices can you share with our readers who are interested in incorporating cultural values into their own ocean planning and management work?

Gee: "Culture" and "values" are big terms that are used differently in different contexts. The first thing is to be clear on what you mean by them in your specific planning and management environment. Are you looking at cultural values linked to particular places or features, or cultural values more generally? How do you define values and benefits for your specific purpose? CSAs should be identified before any planning and impact assessment to avoid bias from those having to identify them.

Before significance can be determined, a baseline should ideally be established to determine the range in terms of types and (spatial and temporal) expressions of cultural values in the area concerned. This is comparable to an ecological baseline survey that would seek to establish the range of ecological characteristics and features within an area. You can refer to existing information (such as designated heritage sites), but ideally you would involve the local community and communities of interest to ask for their specific views. Mapping is an essential part of the baseline survey. There are many techniques of participatory mapping. Most importantly, you want to make sure you end up with a result that represents sound evidence for use in marine spatial planning. Creating a good baseline of cultural values may mean asking social scientists for help – to ensure you select the right survey methods, sample appropriate communities, and ask the right questions, and to ensure you win the trust of your communities. Talking about cultural values may be a sensitive matter, so make sure you are sensitive in approaching this whole exercise.

The evaluation of cultural significance is a relative process as coastal and marine conditions, perceptions, and information on cultural activities and values vary. CSAs should therefore be identified in a participative process based on locally relevant classifications and assessments, bearing in mind there may be issues of scale (e.g., national vs. local significance). Ideally, the assessment should involve a broad cross-section of the respective local community and also the community of interest, which may be widely dispersed.

Lastly, a CSA exercise is time-consuming and requires adequate resourcing. Surveys take time, as does the evaluation of results and any subsequent deliberations and participative discussions. Ideally, you would start the baseline survey before conflicts first arise for a more neutral assessment. Above all, though, doing this kind of work is highly enjoyable as you will have interesting conversations and obtain a wholly different perspective on the ocean – so go for it!

Mapping culturally significant areas in the Shetlands

To learn more about how this method worked in an actual planning process, MEAM also interviewed Rachel Shucksmith, a marine spatial planning manager with the Department of Marine Science and Technology at the University of the Highlands and Islands in Shetland, Scotland. Her group administers the Shetland Marine Spatial Plan, provides advice to developers, and undertakes research to guide sustainable marine use and development.

MEAM: Please tell us a bit about how you went about incorporating cultural values into your marine spatial planning work in Shetland?

Shucksmith: Cultural values have been incorporated into the Shetland Islands marine spatial plan in several stages. In the initial edition of the plan, historic and archaeological sites were included. Areas used by formal clubs and community groups for recreation were added later. While developing the fourth edition of the Shetland Islands marine spatial plan, it was decided that additional data would be collected on areas people use and areas they value (which might not be the same) and what different communities and communities of interest value. We also had to decide how to consider cultural ecosystem services alongside other uses and values in the marine environment. I participated in the ICES Mapping Cultural Dimensions of Ecosystem Services workshop in 2013, and this provided a [framework for our approach for evaluating different uses of the marine and coastal environment](#).

This approach allowed for parity between values placed on different types of use within the marine environment, and allowed appropriate policies to be put in place. More recently we have been building on our understanding of cultural values in the region by developing a seascape character assessment that incorporates a significant amount of community engagement and data gathering.

MEAM: Do you feel that incorporating cultural values into the process changed the final results of the process?

Shucksmith: In Shetland the marine environment is integral to the social and economic well-being of the islands. Incorporating cultural values has helped to ensure that development is guided to areas where impacts on communities are minimized. In addition, developments are more likely to be successful because community objections are minimized.

MEAM: What best practices can you share with our readers who are interested in incorporating cultural values into their own ocean planning and management work?

Shucksmith: The first and most important step is to build trust with the communities in question, making it clear how data will be used and who owns the data.

Managing expectations is also an important part of any planning process. Not every use that is identified as important – whether for an environmental, economic, or community use – can be protected in every circumstance. Failing to make this clear can erode trust and reduce buy-in.

Incorporating indigenous cultural values and knowledge into ocean planning and management

For many coastal indigenous communities, the ocean holds [cultural values of paramount importance to their identity, well-being, and survival](#). To better understand some of the unique issues surrounding these communities, we spoke with Cecelia Brooks, the director of research and indigenous knowledge of Mi'gma'we'l Tplu'taqn Incorporated (MTI), a non-profit organization of the Mi'gmaq communities in New Brunswick (Canada) to promote and support the recognition, affirmation, exercise, and implementation of the inherent treaty rights of its member First Nations. She is also the Samuqwan Mi'kiju Memer'eau (Water Grandmother) at the Canadian Rivers Institute at the University of New Brunswick. Her work focuses on bridging the communication gaps that exist between academia and indigenous communities to ensure indigenous knowledge is given equal consideration as scientific data in research projects.

MEAM: How should cultural values be treated relative to ecological considerations in coastal and marine planning and management?

Brooks: Cultural values should be given equal weight to ecological consideration in coastal and marine planning/management and any time environmental management issues are considered. Long-standing cultural values are grounded in an ancient knowledge system based on the need for long-term survival of communities within a given ecosystem. This ancient knowledge system, also known as indigenous knowledge, is the basis for decision making for communities of people who have relied upon the resources within an ecosystem for millennia. Application of indigenous knowledge ensures ecological integrity and is in effect similar to the application of ecological considerations.

MEAM: What would you like coastal and marine planners and managers to know about *how* to incorporate indigenous cultural values into their work? What should they be doing and/or what common mistakes should they avoid?

Brooks: For coastal and marine planners and managers to incorporate indigenous cultural values, it is imperative that indigenous knowledge of an ecosystem be gathered correctly. Correctly gathering indigenous knowledge has numerous requirements. First and foremost, the gathering of indigenous knowledge requires the meaningful involvement of the people to whom the knowledge belongs. Planners should undergo cultural awareness training provided by the indigenous group(s) as a part of the engagement process to ensure the engagement process is culturally appropriate. Engagement then can be done in a mutually respectful manner in which the ancient knowledge system is given at least equal weight as Western scientific knowledge. The risk of improperly gathering indigenous knowledge is equal to or greater than the risk of improperly gathering scientific knowledge as it has the potential to misinform and misguide the process if done incorrectly. A methodology for the collection of indigenous knowledge should be developed as a guide for the process, and this should be done by the indigenous group with technical support from those experienced in conducting indigenous knowledge studies.

Once the methodology is in place, a respectful relationship needs to be developed between the planners and the indigenous group(s) prior to executing the steps of the study. One common mistake made when incorporating indigenous cultural values is that the knowledge gathered is done without the respectful and meaningful engagement of the knowledge holders. As in any other relationship, this respect takes time to develop and needs nurturing throughout the process. Without this respectful relationship, the knowledge gathered runs the risk of becoming pockets of knowledge without the interconnectedness of the entire knowledge system known as indigenous knowledge – much the same way that science in the past viewed each system within an organism separately rather than viewing the parts of an organism as components of a larger and complex ecosystem. The recent paradigm shift to the more holistic approach called the ecosystem approach to management is much needed because it more closely emulates the [Seven-Generation approach of environmental management](#) through which indigenous communities have successfully managed their environments for millennia.

MEAM: Are there any coastal or marine planning or management processes that you have seen do a really good job incorporating indigenous cultural values? What did they do to be successful?

Brooks: I do not have any direct experience with a coastal or marine planning process that has done a good job of incorporating indigenous cultural values but have had experience with other planning and management processes that have successfully incorporated indigenous cultural values. In a recent project to lay an underwater electric cable, the proponent had delays that could have been avoided if indigenous knowledge had been incorporated earlier in the process. Specifically, the proponent had Lidar and bathymetry studies done to determine the best trajectory for the cable. The Lidar and bathymetry studies revealed a sandy underwater riverbed that would be an easier path to lay the cable than the surrounding rocky layer. There existed indigenous knowledge within the local indigenous communities of the underwater river that could have informed the Lidar and bathymetry studies if early engagement had occurred. Once the proponent learned of this preexisting indigenous knowledge of the underwater river they were much more open to have an indigenous knowledge study being done to further inform the project, and they were much more willing to take the time necessary to

develop a respectful relationship with the indigenous group.

Early engagement is the key to success as it allows for ample time for the development of a respectful relationship between the planners and the knowledge holders. Engagement should begin as soon as the planners have knowledge of a planning process. In many cases the indigenous knowledge and values will add to the value of the scientific information because the cultural knowledge will likely have information that will shorten the length of time and resources used for the gathering of the scientific knowledge, as it could have in the case of the underwater cable installation.

A new method for monitoring cultural values

And, finally, a recent paper published in *Ecological Complexity* (Freitag et al., 2017) describes a possible method for monitoring the cultural values of one of the Chesapeake Bay's most iconic (and tasty) residents, the oyster. The authors propose using businesses with the word "oyster" in their names, as recorded by state tax departments, as a simple, easily implementable measure to estimate people's cultural connection to this iconic species. This simple new metric stands out because very few existing socioeconomic monitoring indicators address cultural connections to ecosystem components and can be quantified and mapped.

In their initial survey, the authors found 232 businesses with the word "oyster" in their name in the oyster-producing states in the Chesapeake Bay watershed. Seventy-nine percent of the businesses were food-related, 9% were named after the neighborhood of Oyster Point, and 12% were non-food related businesses, the majority of which used "oyster" in their name at least in part to acknowledge the important cultural role of oysters.

We spoke with lead author Amy Freitag – program analyst for the NOAA National Centers for Coastal Ocean Science human dimensions team – about this metric and its potential.

MEAM: Your study looked at a single year. What would a change in the oyster metric over time indicate? For instance, if we see a surge in business names incorporating the word "oyster", would that indicate an increase in the cultural value of oysters to the study area? Or vice versa?

Freitag: This is one of the most common questions I received about the business name indicator. While the paper focused on the easily available 2015 data, states have business name data going back more than 100 years (it varies by county), and I'd love for someone to find the time and money to delve into those boxes of analog data and see what's there. But even tracking over the next few years, I'd expect to see changes. If there are more businesses named after oysters, that will indicate more cultural value of oysters. But *what kind* of cultural value will vary by location and population. For instance, oyster bars in the large cities of Washington, DC and Baltimore have blossomed over the last few years due to an influx of young, relatively affluent residents who enjoy a raw oyster and value those oysters as delicious, local food. In other areas (especially areas further south and outside of cities), restaurant industry fluctuations won't be as strong, so changes there are more likely to indicate heritage, environmental value, or something else.

MEAM: Is there anything special about oysters or would a similar metric (number and type of business names incorporating the name of the resource) be appropriate for a range of ecosystem components? Put another way, what determines when this metric is appropriate to use?

Freitag: I checked several candidate key terms – Chesapeake, Rappahannock, Choptank, striped bass, blue crabs, alosines, menhaden – before settling on oyster. Oysters struck a good balance of having enough data but not an overwhelming amount. The number of businesses using "Chesapeake" was overwhelming, and the two river names (Rappahannock and Choptank) did not have enough usage to work with. Both the spatial/ecosystem terms add a different kind of interpretation, and I'd encourage people to check ecosystem-type terms like that to see if they are useful (e.g., right amount of data, good geographic coverage, and cultural values distinct from economic value). Blue crabs would have worked as well as oysters, and I think the reason why is that both creatures are considered charismatic megafauna for the region. (This may sound crazy to people from areas with whales, sea turtles, manatees, and other actually large creatures, but trust me, they count here.) Therefore, people name their business after oysters not just because they serve them as food or are located on the water. I called all the non-food businesses to certify that this was what was going on. I don't recommend doing this to everyone, but that's how I certified that "oyster" was a good term to use.

Also, oysters represent different kinds of cultural value (e.g., cultural aspects of food and economics, charisma). This ended up being really important because it gave us a volume of businesses, even in rural areas, that could be used in geospatial analyses, and it helped capture a range of cultural values that will all change over time. In particular, the food industry (especially restaurants) is notoriously finicky and faddish. So having other kinds of values captured could help us see through this noise.

MEAM: This oyster metric is very "doable". Are there any other similarly approachable metrics for monitoring marine cultural ecosystem services?

Freitag: The ease of use was a key purpose of the work here. Cultural value has been studied for decades, but largely within anthropology and done with ethnographic methods that yield qualitative results (think oral histories and interview recordings). Good references here are David Griffith's *The Estuary's Gift*, Michael Paolisso's work on *Deal Island*, and *Voices from the Fisheries*. This work is wonderful and absolutely necessary to understand the complexity of cultural values of natural resources. But it should also be paired with work like ours that essentially shorthands this complexity to contribute to larger ecosystem monitoring and modeling efforts.

In terms of other indicators, I've seen people use festival attendance, reliance on commercial fishing/marine careers, literary references (good for long time spans such as the history of menhaden), and art history (what's pictured on dinner plates, for instance). Here at NOAA, we have a [set of go-to indicators for resilience](#) and are working on the art/festival ones for the Gulf of Mexico Integrated Ecosystem Assessment program.

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[1]The number of marine and coastal cultural ecosystem service studies does seem to be on the upswing increasing from three publications in 2008 to 16 in 2015 (Garcia Rodrigues et al., 2017). However, research is concentrated on a small number of countries. Of the 60 case studies worldwide, eight focused on the UK; seven on the US; six on Canada; four on Germany; three each on Chile, China, and Turkey; and two each on Argentina, Australia, Denmark, Japan, and Madagascar. Reviewers raised the concern that this focus on Western Europe and North America "undermin[es] the role of other worldviews in the understanding of a wide range of interactions between cultural practices and ecosystems" (Garcia Rodrigues et al., 2017).

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