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Cem Gazioğlu

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RESEARCH ARTICLE

Biodiversity, coastal protection, promotion and applicability investigation of the ocean health index for Turkish seas

Cem Gazioğlu

Istanbul University, Institute of Marine Sciences and Management, Department of Marine Environment, 34134 Vefa Fatih Istanbul TR

Tel: ++90 212 440 0000
E-mail: cemga@istanbul.edu.tr

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Abstract

We are witnessing a process that involves environmental problems at the global scale, primarily climate change, which will require all people to be concerned about the health of the oceans. The health of the marine environment and ecology is deteriorating. Declining biodiversity and changing chemical transformations due to this deterioration reduce the capacity of natural processes to reproduce healthy marine environments. Scientists who work on a global scale believe that the processes of change have reached the level we cannot expect to take action and believe that we must prioritize our action to reverse the trend. For this purpose, it is necessary to develop a multi-dimensional scale that can measure not only the science parameters but also socio-economic scaling for measuring the health of the seas-oceans. There are sources describing an acceptable definition of a healthy ocean as the continuation of benefits for humanity (Rapport, et al., 1998; Samhouri, et al., 2011). Multidimensional management and conservation of marine resources can be explained by a derivative of human activities and needs deep analysis (Halpern, et al., 2008). Numerous efforts to quantify natural resources in a comparative form have been the subject of research for many years. Numerous quantities expressed together with graphical visualization, as well as having different approaches to what it means to be in the digital form, are more than an ideal, but a challenge. To better understand and monitor ecosystem conditions; there is a need for a standardized and scalable index that is understandable and usable. In addition, the developments of international organizations and cooperation for the purpose of protecting the coasts and the increase of their activities have revealed the need for a common indexation in determining the status of the coasts and seas. The primary objective of the index in question is to ensure the continuation of the benefits that are used more than the rating of the severity of the deterioration. The Ocean Health Index (OHI) is a good reference to quantitatively assess the status of the marine environment from the perspective of coupled human-ocean systems (Elfes et al., 2014; Lam & Roy, 2014; Halpern et al., 2014; Daigle et al., 2016; Longo et al., 2017). The OHI is a novel indicator approach to assess the health of the oceans through tracking the current and likely future status of ten widely-held public goals (Halpern et al., 2012). In this study, biodiversity, development of coastal protection indices is explained. The introduction of the ocean health index in the Turkish seas and its applicability is being investigated.

Keywords: Ocean Health Index (OHI), Integrated Coastal Zone Management (ICZM), scale, score

Introduction

The ocean is able to describe as one of Earth's most valuable natural resources by best simple approach. Oceans provide food, used for transportation (shipping, travel, etc.) and a treasured source of recreation for humans. It is mined for minerals and drilled for crude oil. The ocean plays a critical role in removing carbon from the atmosphere and providing oxygen (Gazioğlu & Okutan, 2016). It regulates Earth's climate. The ocean is an integral factor of the world's climate due to its ability to collect, drive and mix water, heat, and CO2. The ocean is able to hold and circulate more water, heat and CO2 than the atmosphere (Gazioğlu et al., 2015). Heat energy stored in the ocean in one season will affect the climate almost an entire season later. The many chemical cycles occurring between the ocean and the atmosphere also influence the climate by controlling the amount of radiation released into ecosystems and our environment. Insignificant differences in the upper ocean will change the amount of heat and drive being exchanged from the ocean to the atmosphere, and into the deeper ocean.

These are just a few examples of the importance of the ocean to life on land. Explore them in greater detail to understand why we must keep the marine healthy for future

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generations. The simple justification behind the search for liquid water as a basic element in astronomers' quest for a habitable planet or a living planet is to think of water as the simplest solvent that can allow it to live. Along with many contributions to life before everything else, the oceans have turned the coast into a habitable civilization.

Assessing the situation of marine environments is a very important step in the way of assessing marine environments not only in terms of environmental conditions, but also in socio-economic contexts, among the methods of all management instruments for coastal areas. The oceans and coasts are at risk in the context of environmental, ecological and biodiversity loss, despite the many national and international efforts that have been increasingly shaped by sustainability concerns after the 2000s. (Vivero & Mateos, 2005; Brennan, 2007; Shipman & Stojanovic, 2007; Burak et al., 2004, Xu et al., 2009; Stuart, 2010; Musaoğlu et al., 2015; Terzi & Gazioğlu, 2016; Bayram et at., 2017). World population and trade of pivotal part acceleration of change of the place takes the coastal land use and develop the infrastructure accordingly, the increasing socio-economic demands coast and context, especially tourism increases the importance of the benefits of the ocean (Şeker et al., 2016).

The coastal zones are the land fragments that the ocean first contacts. Coast with a number of features that need in this context on the shape of the coast as well as provides geomorphological oceans corrosive effects of socio-economic as it is transformed into a center of attraction. Because of the economic benefits that accrue from ocean navigation, coastal fisheries, tourism and recreation and human settlements, etc. are often more concentrated in the coastal zone than elsewhere. Coastal zones are still of crucial importance for coastal states today. About half of the world's population lives within 200 kilometers of a coastline (Simav et al., 2013a; Gazioğlu et al., 2016-2013). Civilization has always had a close relationship with the coast. Traditional uses of coasts include trade and conquest, migration and defense and in some cases, a focus for cultural and spiritual identity (Carter 1988). With the growth of population and economic development, human pressures on coastal ecosystems are increasing (Barbier et al., 2008; Halpern et al., 2015). Integrated Coastal Zone Management (ICZM) has been identified as a means through which countries can better govern ocean and coastal resources and activities (Akkaya et al., 1998; Gazioğlu et al., 2010, Gazioğlu, 2017). ICZM is a process for the management of the coast using an integrated approach, regarding all aspects of the coastal zone, including geographical and political boundaries, in an attempt to achieve sustainability. ICZM was defined in 1992 during the Earth Summit of Rio de Janeiro. The policy regarding ICZM is set out in the proceedings of the summit within Agenda 21, Chapter 17.

The coastal zone is a difficult area to manage due to multi and complex temporal issues (current, tides and seasons) and the overlapping of physical geography and hydrography (inshore, shoreline, offshore) of jurisdictions, legal mandates and the remits of government agencies and the often competing needs of stakeholders. ICZM incorporates modern principles of planning and resources management, intensive information bases and interdisciplinary processes. The major principles for ICZM are given as broad overall perspective which will take into account the interdependence and disparity of natural systems and human activities with an impact on coastal areas, long-term perspective which will take into account the protective standard and the needs of new generations. Adaptive management during a regular procedure which will assist modification as problems and knowledge develop. This implies the need for a sound scientific basis concerning the evolution of the coastal zone.

One of the most important governance principles in the ICZM covers involving all the parties concerned in the management process, for example by means of agreements and based on shared responsibility. Local specificity and the great diversity of coastal zones, which will make it possible to respond to their practical needs with specific solutions and flexible measures. Participation of significant administrative bodies at both national and regional or international level between which appropriate links should be established or maintained with the aim of improved coordination of the various existing policies among them is an important position among ICZM's priorities.

Working with natural processes and respecting the carrying capacity of ecosystems, which will make human activities more environmentally friendly, socially responsible and economically sound. Use of a combination of instruments designed to facilitate coherence between sectoral policy objectives and coherence between planning and management (Burak et al., .2004). Ocean and coastal sustainability, as determined by the UN Sustainable Development Goals adopted in September 2015 for use by future generations; The need for the development of sustainable development, marine ecosystem protection, strategic environmental assessment, spatial planning for exclusively economic territory and beyond, ocean-marine spatial planning, integrated coastal zone management, ecosystem-based management and other management tools in conflict (Olsen, 2003; Lotze et al., 2006; Crowder & Norse, 2008; Douvere, 2008; Fang et al., 2011; United Nations General Assembly, 2015; Ma et al., 2016). It was known by marine and coastal researchers that the assessment of the state of the marine environment, independent of the United Nations General Assembly (2015) decisions, had a major pre-requisite for the identification of the methodologies of management instruments. Since coastal and marine environments are an area of interest for many scientists, many indexes, indicators, and indicators are needed to provide a common norm unity, to normalize differences between disciplines, to quantify numerical and non-numerical elements of marine and coastal features, etc. have been going on for many years (Simav, et al., 2013b). Quality controls, which focus on physico-chemical and ecotoxicological variables and less generally on biological variables for environmental state analyzes, were carried out over time by monitoring different parameters in water, sediment and sentinel organisms.

Numerous efforts to quantify natural resources in a comparative form have been the subject of research for many years. Numerous quantities expressed together with graphical visualization, as well as having different approaches to what it means to be in the digital form, are more than an ideal, but a challenge. Numerous indexes have been developed that are products of different approaches. For this purpose, many indicators have been developed worldwide such as marine biotic index (Borja et al., 2000), sustainability indicator systems in fisheries (Potts, 2006), food web indicators (Rombouts et al., 2013a), ecosystem-based indicators (Rombouts et al., 2013b) and physiological indices (Filgueira et al., 2014). However, these methods focus more on environmental and ecological elements than social and economic elements (Batista et al., 2014). As a result it may lead to an incomplete recognition of studied marine environments and does not meet the principles of ecosystem-based management (Long et al., 2015).

The index, which is based on carbon to express each individual's consumption, indicates that a new approach is needed because of the increase in consumption diversity and the increase and diversification of the efficiency of the recycling mechanism. The ecological footprint index, a more sophisticated index than the carbon footprint, has been developed by acting as if the carbon footprint is insufficient and needs to be improved. Reproduction of the natural resources we consume is a scientific measure of how much land and water is needed to recover the wastes that are generated. Natural resources and consumption of people on the ecosystem is a tool to measure the eventual effect. It is evident that we need new analytical approaches in order to balance the pressures of society's development needs on the seas and to ensure that the uses of marine resources are transferred to future generations.

The level reached by today's indices reveals that an ecosystem-based management model is needed. Recent international and even transnational initiatives emphasize the need for comprehensive ecosystem-based management to meet human and natural needs. These frameworks are largely based on the marine health concept, but unfortunately it is not practically possible to establish a clear guideline on how this would be on Earth as a whole. Due to the sophistic nature of the subject, these initiatives are controlled by a large number of parameters that can be related or independent of each other. Yet the work in this area still needs to define a large number of relationships that need to be resolved.

Although there are countless special indicators to measure various aspects of open seas features, coasts are shaped by the pressures of socio-economic variability and demands, as influenced by forces with more complex features. A comprehensive index for seas can also be developed by assessing a wide variety of metrics at the same time to make an integrated assessment of changes in fish stocks, risk of disappearance, coastal work, water quality and habitat restoration. It is necessary to develop a systematic approach to measure the general state of marine ecosystems, which sees nature and people as integral parts of a healthy system to create and incorporate a wide range of existing indicators. To better understand and monitor ecosystem conditions; there is a need for a standardized and scalable index that is understandable and usable. For the development of a comprehensive index, it is first necessary to identify a small number of targets that will be accepted in order to assess the status of the environment on a scale. Determining the reference points for the model, which measures how close to the target is approaching, has significant effectiveness. Sustainability should be considered as an important reference in this context. The index has to be countered in real life. The system to be produced must be global, able to work at all scales in the data context.

The Ocean Health Index (OHI) provides a good reference to quantitatively assess the status of the marine environment from the coupled human–ocean systems perspective (Elfes et al., 2014; Lam & Roy, 2014; Halpern et al., 2014). The OHI is a novel indicator approach to assess the health of the oceans through tracking the current and likely future status of ten widely-held public goals (Table 1) (Halpern et al., 2012). Halpern et al. (2012) and a group of 65 scientists created the Ocean Health Index (OHI), which is a valuation tool that scientifically measures key elements from all dimensions of the biological, physical, economic and social features of seas.

Table 1. The public goals and sub-goals of Ocean Health Index (Halpern et al., 2012; Ma at al., 2016).

Groups	Goals	Sub Goals	Benefits
A	Food Provision	Fisheries, Mariculture,	Seafood sustainably harvested for human consumption from wild, or cultured stocks
B	Artisanal fishing opportunity,		Opportunity to engage in artisanal to measure the actual number of people directly participating in tourismas a social, cultural and livelihood activity
	Natural products		Amount of sustainably harvested natural products (other than for food provision)
	Carbon storage,		Conservation of coastal habitats affording carbon storage and sequestration
	Coastal protection,		Conservation of coastal habitats affording protection from inundation and erosion
	Tourism and recreation,		Opportunity to enjoy coastal areas for recreation for locals and tourists
	Coastal livelihoods,	Livelihoods	Employment (livelihoods) and revenues (economies) from marine-related sectors
	Economies	Sub-Economies,	
C	Clean Waters		free from pollution, debris and safe to swim in
D	Biodiversity	Habitats Species Iconic species,	Conservation of biodiversity of species and habitats for their existence value

The ocean health index was used as the overall framework for this analysis. OHI is made up of 10 public goals for ocean health: Food Provision, Artisanal Fishing Opportunities, Natural Products, Carbon Storage, Coastal Protection, Coastal Livelihoods and Economies, Tourism and Recreation, Sense of Place, Clean Waters and Biodiversity. Unlike other indicator approaches, human dimension factors, together with environmental and eco-logical ones, are considered as key elements of coastal and ocean systems in OHI framework. To date the OHI framework has been applied to assess the status of the oceans at the global, national and regional scales. A framework was recently developed to do just that, and was applied to every coastal country in the world (Halpern et al., 2012, 2014; Elfes et al., 2014). OHI to evaluate the health and benefits of the ocean evaluates the condition of coupled human-ocean systems by tracking the current status and likely future state of ten publicly held goals, ranging from food provision to jobs, tourism, and coastal protection (Table 1). OHI does not exclude people from the ecosystem. Healthy seas within the scope of OHI have been defined as an ecological integrity that is independent or interrelated to humanity. The OHI measures the amount of exploitation of seas. It does not approach the amount of degradation of the seas and / or coasts. The OHI is designed to assess the overall health of seas and to compare them across countries. (Rapport, et al., 1999; MES, 2005; Doney et al., 2012; Halpern, et al., 2012; Elfes et al., 2014; Selig et al., 2015).

According to Halpern et al. (2012), the OHI is designed as a biased sum of the scores for 10 public goal indices (Table 1: *Food Provision, Artisanal Opportunities, Natural Products, Carbon Storage, Coastal Protection, Coastal Livelihoods and Economies, Tourism and Recreation, Sense of Place, Clean Waters and Biodiversity*). Where ˛i is the weight for each goal, Ii is the score for each goal calculated as the function of its present status xi and its likely near-term future status xi,F. The likely future status is the function of the present status, the trend (Ti), pressure (pi) and resilience (ri). Where δ is the discount rate, β is the relative importance of the Trend versus the *Resilience* and *Pressure* in determining the likely future status. In addition considering that OHI will create great pressure in these areas, it is not included in the calculation of petroleum-natural gas exploration and maritime activities. These activities are evaluated in the class of pollutants.

$$I = \sum_{i=1}^{N} (\alpha_i l_i) \qquad \text{Eq.1}$$

$$l_i = \frac{x_i + x_{i,F}}{2} \qquad \text{Eq. 2}$$

$$x_{i,F} = (1+\delta)^{-1}[1 + \beta Ti + (1-\beta)(ri - pi)]x_i \qquad \text{Eq.3}$$

Most of the existing definitions for ocean health are based on assumptions about the intrinsic functional benefits that the ocean provides to a community (Samhouri et al., 2011-2012; McLeod & Leslie, 2009). Hence, there is a need to quantitatively evaluate the effects of certain factors influencing ocean health and set sustainable management targets over time.

Results of Applicability Investigation

Since OHI's global approach and current developments, it has attracted great interest since the first day. Although the concept of OHI is an indexing method developed for integrated oceans, it has been designed in a flexible way so that it can be applied in various scales (global, national and regional levels). According to Longo et al. (2017), it is possible to use OHI in marine areas where extreme conditions such as poles are valid. Similarly, there may be the Turkish Straits System, where water flows from three different seas. In such cases, the OHI will allow us to make some comparisons based on the common points of the seas.Ma et al. (2016b) reported that OHI also could use in city level. The question of how to decide which seas are healthy is not only an engineering or technical issue, but also a socio-economic issue. In such cases, the OHI will allow us to make some comparisons based on the common points of the seas.

There are OHI studies for the islands (Selig et al., 2015; HAWAI'I OHI, 2018) as well as urban scale studies using OHI (Ma et al., 2016a) and at the state level in Brazil (Elfes et al., 2014).

Providing a unique perspective with the knowledge of the health of the ocean ecosystem, OHI also demonstrates that it can shape approaches that are at different scales on sustainable development. The fact that OHI can be successfully applied at different scales provides flexibility to be searched for decision support mechanisms.

The OHI could measure the success rate in achieving the agreed environmental, ecological and biodiversity objectives, or create an oceans ecophotograp in both regional and in selected narrow areas such as the city, island, etc. The innovative aspect of OHI is to enable the quantitative evaluation of the situation and to make the comparisons as complex as necessary. global approach for the study of environmental problems, in particular need of having different regions development levels such as Turkey, environmental as well as socio-economically because heterogeneous defined as countries remain quite insufficient to guide specific interventions OHI has been developed in order to be valid in that area.

It is important to note that a number of challenges related to data quality may present problems in regional studies to assess the range of benefits assessed within the framework of the OHI framework. In small scale studies, it is necessary to produce quantitative data carefully at the scale ratio and to collect the relations in a qualified manner.

OH indexing on the territorial sea should be carried out in countries with heterogeneous features such as Turkey. OHI also allows the development of complementary approaches to sub-regions within the same regional boundaries. In international regional studies, the approach for indexing the different developments, approaches and practices of countries needs to be addressed by OHI.

The flexibility of OHI can be defined as such, and the fact that the indexing activities developed on a global scale are applicable to the smallest scale is a major contribution. The most serious criticism for OHI is that the twelve countries with the highest overall score are the ocean island states with the least interaction with the rest of the world. In the 13th place, Germany, which is one of the highest countries in terms of interaction and development level with the world, is the only continental country of the first twenty countries (etc. Australia OS: 22. Italy OS: 24). On the other hand, countries with the lowest scores in the index appear as countries with low socio-economic development, confusion-conflicts, and relatively recent peace (Ülker et al., 2018). Canada and the United States 108-109 positions should be evaluated separately.

Another important critical issue is that such comparisons are not possible, as the countries' OHI scores are calculated for all seas. The possibility of working with the data related to the relevant seas of the countries sharing the same sea should be developed. In this way, it may be possible for the common areas to develop decisions that will benefit the future generations.

General Evolution of Turkish Seas by OHI

According to the data of the official site of OHI, the 2017 and 2018 scores of the Turkish seas will be evaluated. The firstly noticed overall score increased from 54 to 57, and its state in 200 places between 221 countries in 2017 increased to 192 in 221 countries (fig. 1). Although the global score of 71 in 2017 has decreased to 70 in 2018, the OHI score of the Turkish seas is far from the average. The near term future state of Turkish seas was estimated at roughly -8% compared to a global estimated of ~6% in 2017. Unlike 2017 in 2018; the near term future state of Turkish seas is estimated at roughly -6% compared to a global estimated of ~6% in 2017. The iconic OHI graphical representation of the above-mentioned scores is given in Fig 2 and official site produced through OHI scores of Turkey given in Table 2. In 2013, the score of 63 was 62, 61, over the years that followed. The score remained 57 in 2016 and 2017 (URL 1).

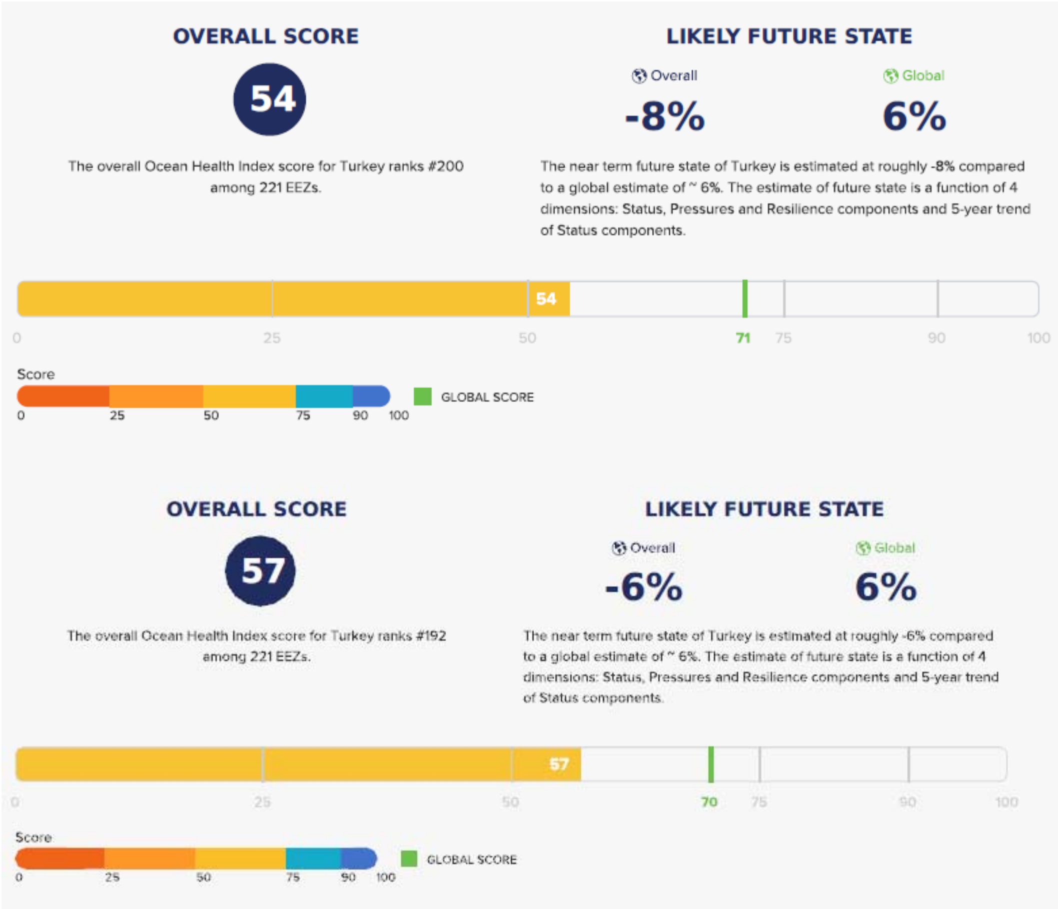

Fig. 1. OHI scores Turkish seas in 2017 and 2018 (URL 2)

When the goal evaluation is examined, how the scores are produced and how the state is changed can be interpreted additional understandable. The Food Provision score, which was 59 in 2017, 42 in 2018. Food Provision is divided into two subgoals: Wild-caught commercial seafood and Mariculture, or ocean-farmed seafood. The more seafood harvested or cultured sustainably, the higher the goal score. The wild-caught commercial seafood subgoal evaluates success in obtaining maximal wild harvests without damaging the ocean's ability to continue providing fish for people in the future. Sustainable harvest of wild-caught seafood avoids excessively high exploitation of target species and does not target threatened populations.

Fishing pressures from habitat destruction and high bycatch may reduce the resilience of the ecosystem, fisheries productivity and benefits from other goals. Sustainable Mariculture supports food provisioning needs in ways that can be maintained over the long term (URL 2). This includes not compromising the water quality in the farmed area and not relying on wild populations to feed or replenish the cultivated species. Mariculture that degrades or destroys habitats or allows accidental release of non-native species creates pressures that reduce benefits from other goals.

Similarly, Artisanal Fishing Opportunities score, which was 81 in 2017, 85 in 2018. The reference point for Artisanal Fishing Opportunities is that all demand for artisanal fishing is allowed and/or achieved and that the fishing is done in a way that doesn't compromise future fishing resources.

A high score indicates that the demand for artisanal fishing is being met using lawful and sustainable methods (to the extent that this can be determined). A low score indicates that regions are not achieving or allowing sustainable artisanal fishing opportunities to be realized. Global databases are not sufficiently detailed to estimate whether fish are present for artisanal fishermen to catch. Where available, that information can be incorporated into independent assessments.

Scoring, the payroll shows that the communities that meet the implementation policies can benefit from coastal resources.

The most dramatic score change is observed in Natural Products. The score was 18 between 2017 and 2018 and the score changed to 42. The global score of 45 is very close.

For each of the six products related to the Natural Products goal, the reference point is 35% below the maximum harvest that has been produced to date in the country or region being evaluated. The 35% buffer protects against the possibility that the maximum historical harvest was not sustainable. The overall score is the weighted average of the individual scores for products that were harvested. A high score indicates that a region's current sustainable rate of harvest is near to and not more than 65% of the historic maximum possible sustainable harvest achieved in that region. The more natural products extracted sustainably, the higher the score, provided that the harvest does not exceed the 65% safety level (URL 2).

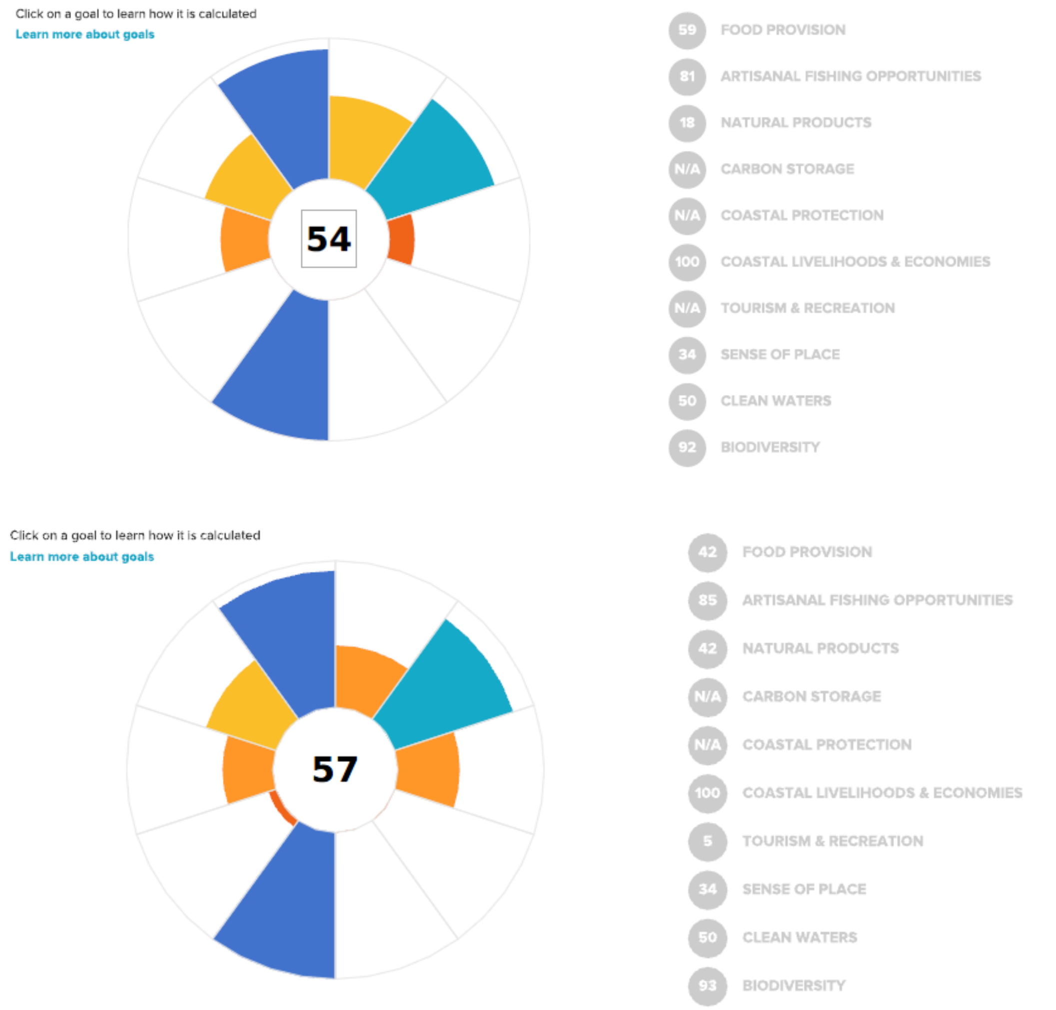

Fig. 2. Graphical representation of Turkish Goal Evolution (2017 2018) (URL 2).

The goal score for Goal: Carbon Storage is 79 out of 100. The global average score is 70 out of 100. The goal score for Goal: Coastal Protection is 87 out of 100. The global average score is 70 out of 100.

The Coastal Livelihoods and Economies score of 100 did not change between 2017 and 2018. The goal score for Goal: Coastal Livelihoods and Economies is 82 out of 100. The global average score is 70 out of 100.

The Tourism and Recreation goal aims to capture the experience people have visiting coastal and marine areas and attractions. Coastal tourism industries can be important to coastal economies, but this goal aims to assess participation in coastal tourism separately from the economic measures that are reported in the Coastal Livelihoods & Economies goal.

As can be recognized by everyone, it is not easy to estimate the number of participants in the tourism sector. For this purpose, rather than detailed studies, a representative value is selected within the framework of general socio-economic approaches. The reference point for Tourism and Recreation measures the proportion of the total labor force engaged in this sector in each country, factoring in unemployment and sustainability. The goal score for Goal: Tourism and Recreation is 47 out of 100. The global average score is 70 out of 100.

Table. 2. OHI scores of Turkey and simplified table showing the changes (URL 2).

GOAL	SCORE	RANK	ANNUAL SCORE TRACK	% CHANGE
OVERALL SCORE	57	192	-1%	-4%
FOOD PROVISION	42	112	-7%	-18%
WILD CAUGHT FISHERIES	51	83	-4%	-11%
MARICULTURE	13	42	2%	36%
ARTISANAL FISHING OPPORTUNITIES	85	81	0%	4%
NATURAL PRODUCTS	42	61	-12%	-2%
CARBON STORAGE	N/A	N/A	N/A	N/A
COASTAL PROTECTION	N/A	N/A	N/A	N/A
COASTAL LIVELIHOODS & ECONOMIES	100	28	0%	0%
LIVELIHOODS	100	2	0%	0%
ECONOMIES	100	23	0%	0%
TOURISM & RECREATION	5	190	N/A	-77%
SENSE OF PLACE	34	187	0%	2%
ICONIC SPECIES	62	160	0%	2%
LASTING SPECIAL PLACES	7	174	0%	0%
CLEAN WATERS	50	177	0%	3%
BIODIVERSITY	93	69	1%	2%
SPECIES	87	158	0%	0%
HABITATS	99	37	2%	4%

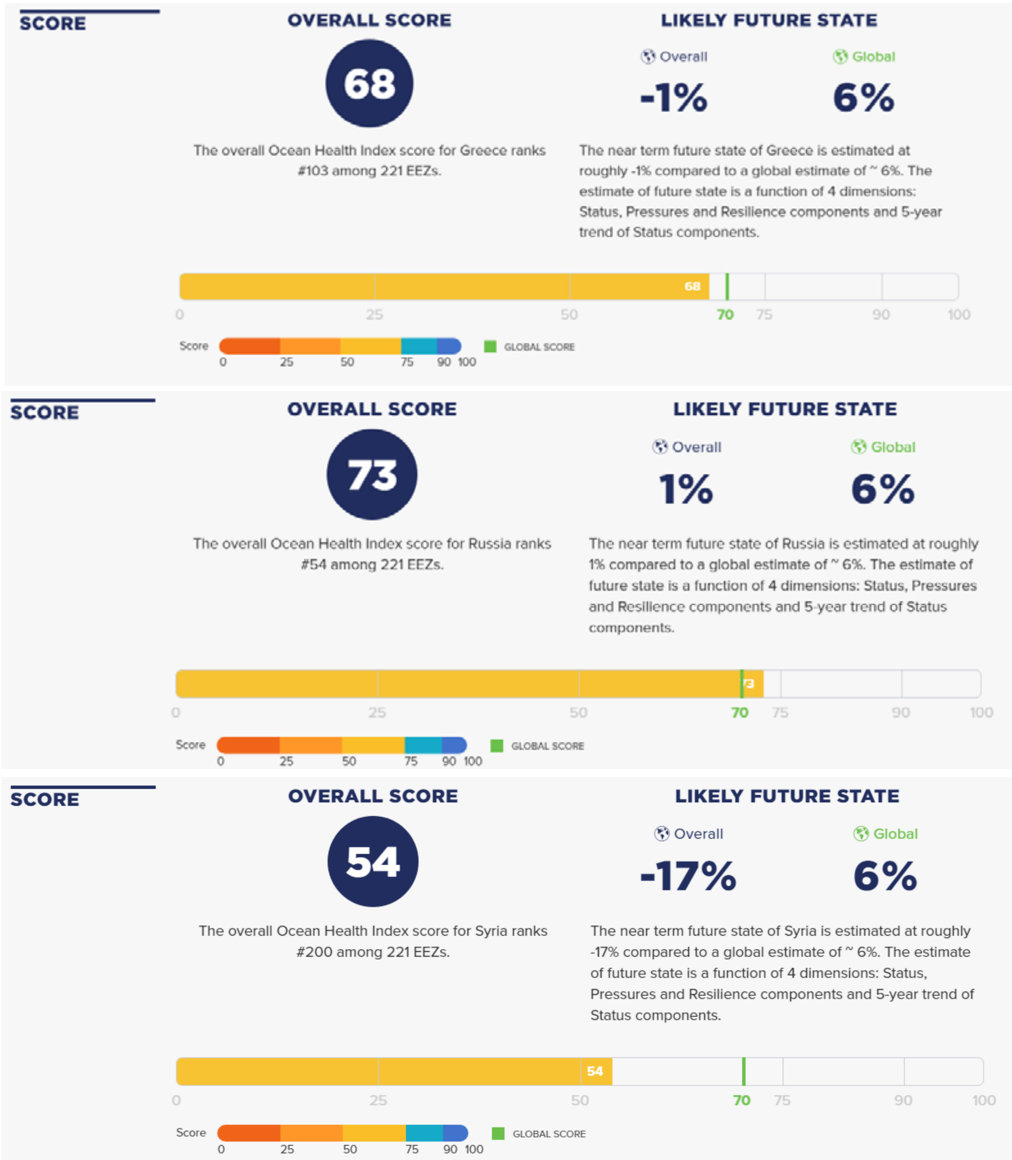

Fig 3. OHI scores of Greece, Russia and Syria in 2018 (URL 2).

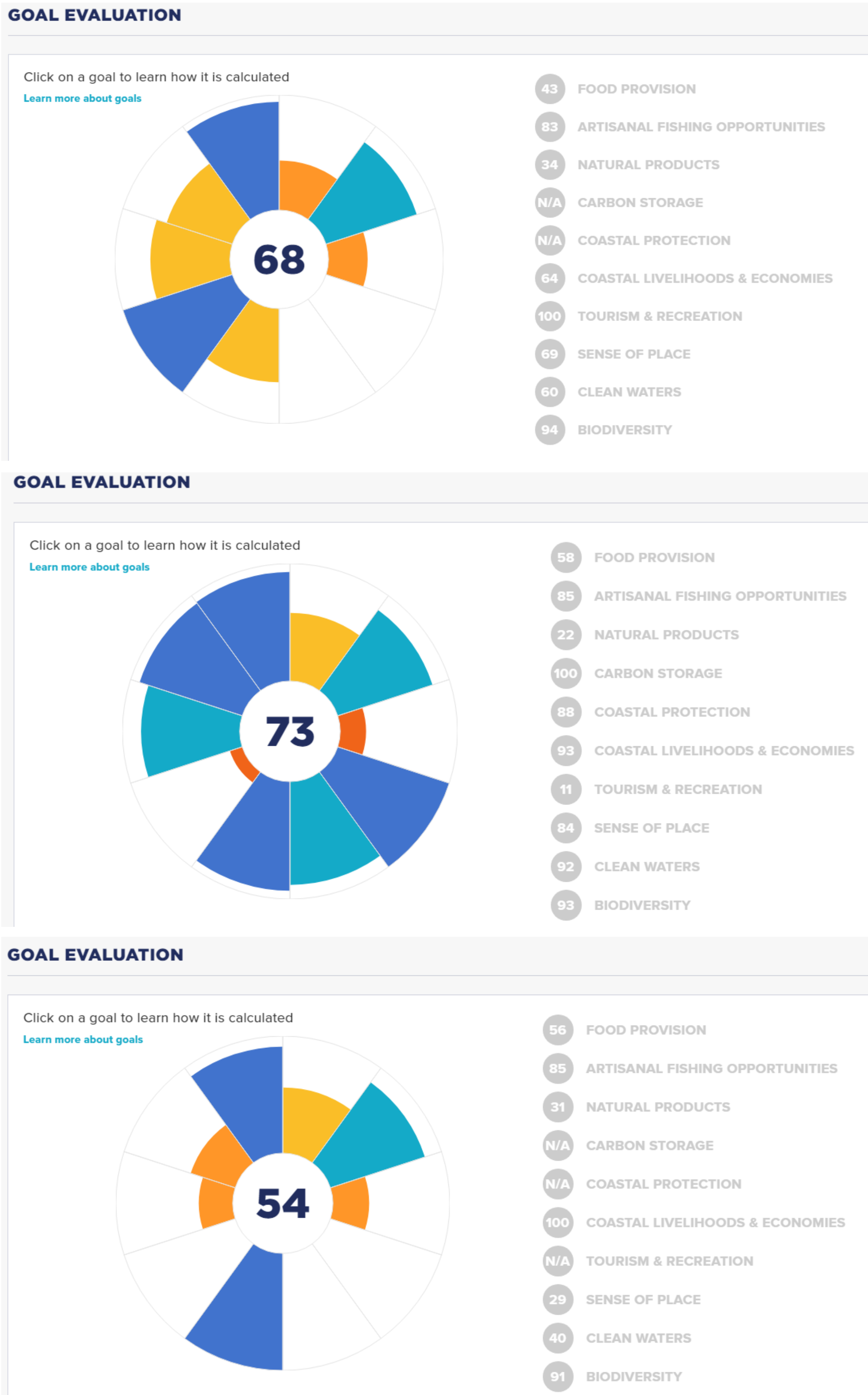

Fig. 4. Graphical representation of Greek, Russian and Syria Goal Evolution (2018) (URL 2).

The fact that the existence of certain different groups within the environmental assets is known by the people is important because it constitutes the first step for the protection of the asset groups. This score is therefore valuable. Iconic species and protected places symbolize the cultural, spiritual, aesthetic and other intangible benefits that people value for a region. The Sense of Place score of 34 has not changed between 2017 and 2018. Similarly, Clean Water score of 50 has not changed between 2017 and 2018.

The value to be used for the start is that there must be zero pollution from chemicals, nutrients, human pathogens and waste. High pollutant levels have negative effects on the score. Points show that there are great opportunities for improvement.
Reducing and preventing the transport of chemicals, nutrients, human and animal wastes and waste into the seas requires correction in individual behaviors as well as in the general population. The Biodiversity score was 92, changed to 93. This goal estimates that the success of richness in diversity and context is targeted. The score is 70 out of 100. The Biodiversity score is high enough to satisfy the score but has extra potential in terms of ascent. Another important feature of OHI is that it provides the opportunity to compare the neighboring countries sharing the same sea with different socio-economic demands and applications. According to different development and capacity from neighboring Turkey, Greece- Russian and Syria OHI scores are seen in figure 3-4. The OHI provides a number of benchmarks for the analysis of the international counterparts of the decisions taken in order to achieve the targeted objectives within the framework of national objectives. However, it is not possible to reduce the differences between countries and their international organizations, differences in practice, and cultural and economic development levels by indexes.

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