

National Perspectives for Marine Science Contribution to Sustainable Development Goals: The Scottish Perspective

In Scotland we have a vision for: ***'clean, healthy, safe, productive, biologically diverse marine and coastal environments, managed to meet the long-term needs of people and nature'*** - you will note that the wording has similarities to the Decade Societal outcomes, however I should point out that the Scottish vision was developed over 10 years ago.

We believe that if we can deliver on this vision then we will hand over to future generations seas around Scotland that can be enjoyed, that provide high quality food products, provide us with energy and continues to deliver 50% of the oxygen that we breath. We will also achieve many of the requirements of SDG 14. Whether it is reducing marine pollution of all kinds, sustainably managing and protecting marine and coastal ecosystems, minimizing and addressing the impacts of ocean acidification, effectively managing the harvesting of fish and shellfish, conserving at least 10 per cent of coastal and marine areas - ultimately the objective is to deliver seas that can deliver for humans, but, importantly, humans as a part of the global ecosystem.

This requires that we do thing differently – yes we need to increase scientific knowledge, but we need to increase the cross-talk between the various natural sciences and between the natural, economic and social sciences.

We have this opportunity through the SDGs and, fortunately for me, the First Minister for Scotland has committed Scotland to delivering the SDGs. To make sure this happens, a process has been put in place by which they will be delivered. The National Performance Framework is part of Scotland's efforts to meet these goals. To this end, the framework has mapped the 17 goals onto its national outcomes. Marine Scotland is required to report on the marine associated aspects on an annual basis detailing the progress that we are making – we have been made accountable.

We have produced a new indicator for cleanliness - the percentage of biogeographic regions with acceptably low levels of contaminants. Assessed over the last 3 years we stand at 82.5% – and this helps us report on SDG 14.1.

We are in the process of producing a new indicator of biodiversity.

For fisheries we are using the percentage of fish stocks fished sustainably; in 2015 we were at 46%, but in 2017 we reached 54% - clearly an improving situation.

This information is publicly available on our National Performance Framework website – anybody can see how we are doing and hold us to account.

Very recently, the First Minister of Scotland declared a Global Climate Emergency. This, and the delivery associated with our National Performance Framework, provides me with the levers that I need to undertake the necessary monitoring and research and to encourage our academic community in Scotland to undertake such work ultimately providing the information required to show how legislation is driving the improvement in our seas

Accountability is fundamental, but in addition, there is turning the evidence into effective action. In Scotland we have a National Marine Plan – designed to deliver a marine environment where the impacts of human activities are appropriately managed – remember we cannot manage the environment, we can only manage the human activities impacting on our environment. In preparing the first marine plan we prepared Scotland's Marine Atlas. As we start the process of refreshing Scotland's National Marine Plan, the first step is the production of a robust, sound evidence base. The assessment is being prepared as I speak. It includes:

- 25 Indicators of Clean and Safe seas
- 18 Indicators for healthy and biologically diverse seas and
- 9 Indicators for the physical characteristics and a section on climate change

In addition, however, we have 22 indicators covering productive seas – the value of fishing, aquaculture, marine tourism, renewable energy, water abstraction, fish processing and so the list goes on. We aim to provide a detailed socio-economic

assessment. No longer are we simply looking only at the natural sciences, but we are aiming to deliver an assessment that includes the value of our marine systems, including well-being. We have the advantage that marine is not only SDG 14 specific, but has a relevance to many of the other 16 SDGs. We intend to use the SDG icons throughout our report to clearly illustrate that assessment x has an applicability across SDGs a, b and c.

We have just launched a process for producing an updated Scottish Marine Science Strategy. Based on a recently synthesised UK process (because we are aware that the marine system of Scotland is not isolated from the rest of the world, but part of the global ocean circulation), we have targeted both the statutory and academic communities for the steering group and are also going to recruit onto the SG two young researchers. The SDGs will provide fundamental direction.

Knowing, however, is not enough. We need science that provides solutions and motivates action. This requires that as many people as possible understand why we need to make the changes that we believe are necessary.

Yesterday we heard that we are about to enter a defining decade – one where we have the driver of the SDGs, but also the imperative that if we do not act the consequences are predicted to be highly significant for life on earth.

In conclusion – I have the joy of cycling to work along a cliff-top path. I watch the sun rise out of the sea and have the opportunity to visit a small kittiwake colony. It is a little known colony, but very special to me. In years to come I would really like to take my grandchildren to a thriving, healthy colony – what I do not want to do is to take them to an empty, quiet cliff face and have them look quizzically at me and ask – why did you not stop this happening?