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The application of ecosystem service valuation to offshore decommissioning decision-making

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Abstract:

An increasing number of the world's offshore oil and gas production platforms are reaching the end of their productive life. In decommissioning these structures, the default option of complete removal may not necessarily maximise ecosystem service values to the public. Under the complete removal option, any benefits afforded to marine communities and their conservation during the operating life of the field are immediately lost once the field is closed and abandoned. In many cases, the impact of losing the long-term flow of benefits can far outweigh any risks associated with leaving the subsea structure in place.

There is a growing realisation that subsea structures provide significant benefits to both marine ecosystems and humans. Marine communities that either naturally occur or have subsequently developed within the limits of offshore fields provide an important role in biodiversity and support recreational and commercial fishery opportunities.

In offshore decommissioning, it is important to determine what option(s) provide the greatest net benefits to the public while managing site risks. Joseph Nicolette co-authored the first formalized NEBA framework recognized by the Australian Maritime Safety Association (AMSA), United States Environmental Protection Agency (USEPA), the USEPA Science Advisory Board (USEPA SAB), and the National Oceanic and Atmospheric Administration (NOAA). NEBA applications for offshore decommissioning have been conducted by the authors as part of the comparative assessments for subsea structure for well fields in Australia, the North Sea, and the Gulf of Mexico.

A net environmental benefit analysis (NEBA) is an approach that incorporates ecosystem service values to help balance the risks, benefits and trade-offs between competing decommissioning options. NEBA provides a holistic environmental decision-making approach, incorporated as part of the comparative assessment process, that considers ecological, social and economic factors in developing decommissioning plans for offshore structures.