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## Introduction to Special Edition: The Oceans and National Income Accounts: An International Perspective

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A growing recognition of the oceans as a key natural resource for national and regional economies, coupled with increasing concern about the ecological health and sustainability of oceans has resulted in a number of countries around the world undertaking steps to measure the economic value of the oceans within national statistical systems, particularly national income and product accounts. This comes at the same time that national income accounting itself is increasingly concerned with issues of resource and environmental sustainability through the movement towards “green GDP”.

Unlike other natural resource industries, such as those associated with agriculture, mining, or forest resources, the oceans’ complex mixture of extractive resources, its influences on the lands in coastal regions, and the diversity of geographic circumstances ranging from islands to continents make the measure of ocean economic values a particularly challenging proposition. These challenges are only enhanced by the different approaches to national economic data and income accounting undertaken by countries and the underlying national data systems upon which measurement must be built.

To explore these issues and begin to identify improved approaches to measuring ocean values that might ultimately lead to a common international standard, the Center for the Blue Economy (CBE) of the Middlebury Institute of International Studies at Monterey, California convened a meeting of invited experts from governments, international organizations, and academic institutions to explore ways in which the economic values of oceans and marine resources can be incorporated into national income accounts. The participants came from ten countries in North America, Asia, and Europe.

The symposium was held at the Asilomar Conference Center in Pacific Grove, California over four days in October 2015. The Loker Foundation, the Ocean Foundation, the Betty and Gordon Moore Foundation, the Korean Maritime Institute, the Partnerships for Environmental Management for the Seas of Southeast Asia (PEMSEA), and the Chinese National Marine Data Information Center provided funding for the conference.

The papers in this Special Edition of the Journal were presented at the symposium and are organized around three major themes:

- What is ocean?
- How is the definition of ocean changing?

- How can incorporating ocean economic values into national income accounts improve efforts at sustainable development?

The question of “what is ocean” examined how ocean related economic values are currently measured using national and international statistical systems in a number of countries. An article by Park and Kildow that appeared in Volume 1 (2014) of this journal was presented at the conference as a way of opening discussion on this topic. (Because it has already been published, it is not included in this special edition but may be accessed in that volume of the Journal.)

China has perhaps the most extensive and detailed definition of ocean related industries, as described in the paper by Wang, which compares the industry definitions of the Chinese accounts to those used in other countries. This paper provides the most complete overview comparison of a number of different definitions of “ocean”.

The Canadian approach is described in the paper by DeMaio and Irwin, which explores the use of the North American Industrial Classification System (NAICS) and examines the challenge of avoiding double counting in the creation of an ocean account. The European approach is examined in three papers. Kalaydjian examines the creation of a maritime economy database for the European Union with particular attention to the geographic aspects of ocean accounting. The European experience with developing ocean related accounts stemmed in large part from requests by policymakers who were engaged in creating an overall Maritime Strategy Directive for the European Union. This directive set forth goals for ecosystem based management which are to be monitored in part through measures of ocean economic values as described in the paper by Oinonen et al.

The papers by Talento and Supramoko examine issues of incorporating oceans into national income accounts in developing countries. Talento discusses how the United Nations System of National Accounts, which serves as a template for the development of internationally consistent national accounts, can inform the the creation of ocean accounts in the context of the Philippines System of National Accounts. Supramoko looks at the early stages of creating ocean account in Indonesia, where the ability of such an account to measure the economic value of natural resources in the oceans and coastal areas is a high priority.

A common theme in all of the descriptions of the industrial composition of the ocean economy is the existence of gaps in the data caused by industrial taxonomic

systems and the need to protect confidentiality of reported data as the geographic level of detail increases. The paper by Fernandez-Macho uses Data Envelopment Analysis to examine data gaps and their implications for construction of ocean accounts.

The term “blue economy” is increasingly being used to describe the economic values associated with oceans, but the term has yet to acquire a precise agreed-upon meaning. McIlgorm describes the evolution of the term in the Australian context, while Ebarvia takes a wider perspective on the issue through the activities of PEMSEA, the Partnerships for Environmental Management for the Seas of Southeast Asia, an international organization that has been undertaking a cooperative effort to create a common system of ocean accounts for several years. These papers propose frameworks that link ocean accounts with evolving definitions of a “blue economy” in ways that address sustainability through the potential incorporation of ecosystem service valuation with traditional national income accounts.

Incorporating ecosystem services in ocean accounting is also discussed in the papers by Oinonen et al. and Fernandez-Macho. In addition to examining the industrial framework of European ocean accounts, these two papers examine how economic and noneconomic information may be combined to address sustainability issues.

In his paper, Spalding takes a somewhat different approach to incorporating sustainability by suggesting that the industries to be included in the ocean economy explicitly incorporate economic activities and technologies directly targeted at increasing the sustainability of oceans.

The paper by Colgan provides a more detailed summary of conference themes based on the papers and discussions at the symposium, in addition to proposing a research agenda to build on those themes and issues.

Improving the measurement of ocean economic values, incorporating them into standard national economic data systems, and using this information to support sustainable development in both the developing and developed worlds is now an established field of research and policy development. The papers in this special edition represent the substantial evolution of thinking and activities in this field, but also indicate that significant challenges remain at both the national and international levels.