

Economic Valuation of Seto Inland Sea by Using an Internet CV Survey

Tsuge, Takahiro.¹, Washida, Toyoaki.²

1. Graduate School of Economics, Kobe University, Kobe, Japan, 2. Kobe University

In this paper, we estimate the economic value of the natural environment damaged at the Seto Inland Sea after the ratification of the Setouchi Law and the value of the natural environment that survived, using a CV survey on an internet web site. In the CV survey, we make use of three environmental preservation proposals. The first proposal is to restore 4ha of filled up land. By estimating the WTP of this proposal, we can appraise the value of the natural environment that was destroyed as a result of the original reclamation. The second proposal includes transplanting seaweeds into an area of 10ha offshore. The third proposal is the preservation of the shore area, a natural habitat for rare animal species, under the National Trust Program. By estimating the WTP for proposals 2 and 3, we can appraise the value of the areas immediately and a little farther offshore.

The WTP results we obtained from residents of the prefectures adjacent to the Seto Inland Sea are: ¥7,697 for the first proposal, ¥6,459 for the second, and ¥10,850 for the third. From residents of other prefectures, we obtained the following WTP values: ¥4,577 for the first proposal, ¥4,435 for the second, and ¥7,617 for the third. Multiplying each WTP by the populations of the corresponding prefectures we derive overall social WTP of ¥238.8 Billion, ¥220.1 Billion and ¥375.4 Billion, for the three proposals, respectively.

Following, we estimate the value of the natural environment damaged in the Seto Inland Sea as a result of reclaiming projects by extending the object area under the first proposal to the whole reclaimed area preserved by the Setouchi Law. This value was found to be over ¥200 Trillion. Also, by extending the object area under the second proposal to the area of the seaweed farms of Seto Inland Sea, we estimate the value of the existing natural environment somewhat more distant from the shore. Similarly, by extending the object area under the third proposal to include all the length of the Seto Inland Seashore as specified by the Environment Agency, we can estimate the value of the existing natural environment immediately offshore. Combining the values estimated for the extended proposals 2 and 3, we found the overall value of the existing natural environment of the Seto Inland Sea to be over ¥458 Trillion.

The results point out that in the 25 years since the introduction of the Setouchi Law, we have been destroying every year over ¥8 Trillion worth of natural environment by reclaiming land. Furthermore, at the Seto Inland Sea, some seaweed farms and natural shore areas, natural habitat to rare marine life forms like the horseshoe crab or the fiddler crab have survived, but their value amounts to no more than one year's worth of Japan's GDP.