

# How to Motivate Students to Take Responsible Ocean Behavior: Ocean Literacy Study

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One important objective of ocean education is the enhancement of learners' ocean literacy, including, but not exclusive to ocean conceptual understanding, problem-solving ability, attitude toward ocean, and care about the ocean public issues. Ocean literacy may be a key to (1) link public with understanding of ocean and ocean's influence, (2) applying ocean knowledge to solve problems and issues regarding the ocean and its resources, and (3) to inform and taking responsible actions to public issues. However, previous studies have rarely surveyed citizens' ocean literacy, and to confirm the impact of ocean literacy on citizens' willingness to take responsible action. This study attempted to fill this gap by conducting such an inquiry. This study explored public ocean literacy in Taiwan. To measure ocean literacy in terms of ocean concept understanding, attitudes toward the ocean, and interesting in studying ocean issues, Ocean Conception Test (OCT, multiple-choice question), Attitudes toward Ocean Inventory (AOI, 5 point Likert scale), and employed the and the Interesting in Studying Ocean Issues Instrument (ISOI) were constructed. Totally 324 subjects participated in this study. The OCT is a 75 questions questionnaire to measure ocean concept understanding. The mean score was 45.02 (SD =11.03). Three major misconceptions were: (1) what is the major mechanism causing sea level rise; (2) what is the major mechanism causing storm surge; (3) The reason why Kuroshio is called 'black current'. The mean score of AOI is 3.48 (SD =0.52), showed subjects had a positive attitude toward marine science. With respect to ISOI, the analysis revealed that the top 3 most interested topics of marine issues subjects were: 'coral reef ecosystem', 'dead zones', and 'ocean resource conservation'. Besides, attitudes toward ocean explained significantly more variance in willingness to take ocean responsible action than of ocean concept understanding. This work may be of importance in providing researchers with a better understanding of citizens' ocean literacy. It is our hoped that this analysis and discussion will encourage the inclusion and replication of the public understanding of ocean.

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