

## Research Trends and Results

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# Efforts for Effective and Efficient Maintenance Management of Port and Harbor Facilities

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### 1. Introduction

In order to hold down the cost of future improvements and renovations of port and harbor facilities while continuing to maintain necessary functions, a changeover to preventive maintenance-based maintenance management is demanded. NILIM is engaged in efforts to realize effective and efficient maintenance management, as outlined in this article.

### 2. Development of program for estimation of life cycle cost of port and harbor facilities

NILIM developed a program for estimation of the life cycle cost of port and harbor facilities (LCC calculation program). NILIM made this program available on its website, and is providing it to port administrators, etc. We are currently working to improve the program.

The LCC calculation program enables simple calculation of operation/maintenance management costs (rough calculation of repair costs) of port and harbor facilities based on the results of inspection and diagnosis of facilities and the number of years since construction, and is expected to contribute to drafting of systematic repair plans by administrators.

### 3. Study of form of inspection/diagnosis guidelines and maintenance management information database

“Guideline for Inspection and Diagnosis of Port and Harbor Facilities” was published in July 2014 to promote effective and efficient maintenance management of port and harbor facilities. This Guideline provides methods for efficient and effective inspection and diagnosis, etc. and is prepared in an easy-to-understand form using photographs. In the future, it will be used as a reference when establishing inspection and diagnosis plans.

To ensure that inspections, repairs, and other maintenance management work are performed accurately on an ongoing basis, a continuous grasp/accumulation of information on deterioration of facilities and utilization of that information are important. Therefore, in FY2013, a “Study Group on the Proper Form of Maintenance Management Information on Port and Harbor Facilities” was held, and a system for providing maintenance management information on port and harbor facilities to port administrators was studied. Based on the results, and also referring to the opinions of port administrators, in FY2014, a concrete study was conducted on a more user-friendly database of effective maintenance management information for maintenance management of port and harbor facilities.

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#### 4. Analysis of cavities in gravity mooring wharves

Due to the heightened importance of maintenance management, etc., we arranged/analyzed the condition of cavities inside the quaywall, etc. at aging port and harbor facilities throughout Japan based on a nationwide survey of facilities carried out in FY2013. Regarding the position of cavities, it was found that many cavities occurred near the quaywall normal line. In the future, the results of this analysis will be used to conduct more efficient surveys of cavities inside quaywalls.

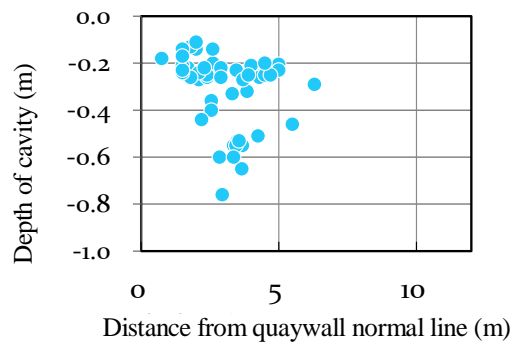


Fig. Position of cavity occurrence

#### 5. Conclusion

In the future, we will continue the efforts described here with the aim of contributing to labor-saving and rationalization of maintenance management work.

【Reference For more information concerning the maintenance management (LCC) calculation program, see:

<http://mailsv.ysk.nilim.go.jp/kakubu/kouwan/sekou/lcc.htm>