



## Dr. Seong-Jik Park

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### Research Interest

- Remediation of contaminated marine and lake sediments
- Functional materials (e.g., biochar, adsorbents, membrane) for water treatment
- Nutrient management and cycling in water, soil, and sediments

### Education

- Ph.D., Department of Landscape Architecture and Rural Systems Engineering, Seoul National University, Republic of Korea
- B.E., Department of Bioresource Engineering, Seoul National University, Republic of Korea



## *In-situ* Capping for the Remediation of Sediments Contaminated with Nutrients and Heavy metals

A high level of contaminants has been observed in the aqueous environment for several decades, even while removing or reducing external pollution from industrial and domestic wastewaters. Because sediments in lakes act as a sink for the internal loading of contaminants, remediation strategies aim to reduce the release of contaminants from sediments to the overlying water. Therefore, remediation strategies often aim to reduce the contaminant release to the overlying water (which include in situ cappings, dredging, monitored natural remediation, in situ chemical injection, hypolimnetic oxygenation, phytoremediation, washing, and electrochemical remediation). Among them, *in-situ* capping is an economical and practical technique for the remediation of contaminated sediments by minimizing resuspension and transport of sediment particles, stabilizing sediments, and reducing the diffusion of dissolved contaminants into the overlying waters. Traditionally, capping with a thick (30-50 cm) layer of uncontaminated sediment was used to isolate contaminated sediments physically. Capping technology has developed rapidly from passive thick-layer capping to active thin-layer (2-5 cm) capping. This presentation includes applications of 1) activated carbon (AC) and nonwoven fabric mats to interrupt the nitrogen/phosphorus release, 2) new capping materials, such as bentonite, illite and zeolite as capping to stabilize sediment nutrients and interrupt their releases, 3) the active capping using limestone, steel slag, and activated carbon to remediate metal-contaminated marine sediments.

1:00 PM, Friday, April 23, 2021

<https://us02web.zoom.us/j/2549099173?pwd=Unl0RWZ6ZXpSL3ovekRwelfKWFOQT09>