

# Coastal reclamation and restoration in RO Korea

**Bong-Oh Kwon**, Jong Seong Khim

School of Earth and Environmental Sciences & Research Institute of Oceanography,  
Seoul National University, Seoul 08826, Republic of Korea

Coastal wetlands play essential roles in maintaining various ecosystem services being recognized as one of the most important coastal habitats. A total area of coastal wetlands in the Yellow Sea is about 10,486 km<sup>2</sup>, its bigger than the area of Wadden Sea (about 4,000 km<sup>2</sup>). But, the drastic land cover change and its impacts in the Yellow Sea have long been significant issues in terms of coastal vulnerabilities, but holistic data analysis is limited. The present study first reports 40-year-long geographical changes of the Yellow Sea coasts including all three neighboring countries of China, DPR Korea, and RO Korea. The total area of the Yellow Sea coastal wetlands has been considerably reducing for the past 36 years, from ~10,500 km<sup>2</sup> (1980s) to ~6,700 km<sup>2</sup> (2010s), say ~1% annual loss. According to the ecosystem services valuation for the Yellow Sea, a total loss was estimated as ~8 billion USD year<sup>-1</sup> with relatively high proportional loss (up to 25%) of climate regulating services (viz., carbon sequestration). Overall, huge losses in ecosystem services being provided by the Yellow Sea natural tidal flats need immediate action to prevent or at least alleviate accelerating ecological deteriorations. Recently, the public values and ecological values of tidal flats have been discovered and widely recognized in terms of environmental roles and/or ecological resources. Korean society has been recently promoting the restoration of coastal wetlands and the Korean government has sustainably propelled plans to restore tidal flats destroyed in 2009. As of 2018, a total of 10 tidal flat restoration projects were completed. As a second stage of national policy for tidal flats, 'National Master Plan for Utilizing Tidal Flats as Ecological Resources' was launched in 2015. The project ended with only nine sites being restored over a nine-year period, covering 1.08 km<sup>2</sup> of tidal flat and 3.4 km of tidal flat waterway. The project will also promote sustainable tidal flat fishery and boost local customized ecotourism through branding the restored tidal flats that will benefit local residents.

