

Dispersal mechanisms of the *Halophila ovalis* population in the Northwestern Pacific: A preliminary study

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Abstract

In recent years, climate change, coastal development and marine pollution are causing dramatic decline of marine ecosystems, especially seagrass ecosystem which locates exclusively in subtidal zone. Understanding their dispersal mechanisms and connectivity are very important for restoration, conservation and management of seagrasses. *Halophila ovalis* (R. Br.) Hook. f. is a widely distributed species in the Indo-Pacific. Around Taiwanese water, it can be found in Taiwan, Penghu Islands and Dongsha atoll. Previous literature indicated their fruits and seeds which digested by birds were have a much higher germination rate. Therefore, the biotic vector such as migratory birds may play an important role on their long distance dispersal. If the migratory shore birds are responsible for carrying new recruits from different geographic populations (countries), a temporal genetic structure shift could be expected. In this study, we performed the sampling for consecutive years in Penghu, Qigu and Dongsha atoll to reveal a possible temporal population structure shift to test the biotic dispersal hypothesis. A temporal genetic structure shift between 2017 and 2018 was observed. This indicates either migratory birds or local adaptation may play an important role on shaping the genetic structure of *H. ovalis* in a small scale.

Keyword: seagrass, *Halophila ovalis*, population connectivity, dispersal mechanism