GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Zostera japonica***

Zostera japonica 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Najadales	Zosteraceae

Common name dwarf eelgrass (English)

Synonym *Zostera americana* , den Hartog
Zostera nana , Roth

Similar species *Zostera marina*

Summary Zostera japonica is one of approximately 60 seagrasses, or marine angiosperm species. The only documented invasive seagrass, it has invaded Pacific coast estuaries in Canada and the United States. Zostera japonica alters physical habitat structure as well as the richness and densities of resident fauna

view this species on IUCN Red List

Species Description
Zostera japonica is a submerged hydrophyte of intertidal marine and estuarine habitats. It is a monoecious, predominantly annual, glabrous herb. The rhizomes creep or ascend, and produce roots and shoots at the nodes. Internodes can be variable in length but are more or less elongate. The stems are flattened and branched, and the branches are partly sterile and abbreviated. The roots are mostly un-branched and arranged in two groups with two or more roots in each group. The leaves are simple and distichously arranged. Leaves are typically flat, linear, entire, and exhibit 3 parallel veins. The inflorescence is a flattened spadix enclosed by a spathe. The flowers are small, hydrophilous, and unisexual and lack a perianth. Rhizomes are from 0.5-1.5mm in diameter. Internodes are from 1-3cm long. Leaves can reach lengths of up to 30cm, and widths of 0.8-1.3mm. The leaf sheath can be up to 6cm in length and membranous (Shin and Choi, 1997). NOAA (2004) reports that, \"when this species grows on tidal flats, the leaves are short and narrow, but when growing completely submerged in lagoons, the leaves are longer and wider.\"

Lifecycle Stages
Harrison and Bigley (1982) report that, \"The establishment of new populations of *Zostera japonica* occurs mainly by seed germination although the chance of a seedling surviving its 1st summer is small. Once established, patches expand in area exponentially in spring and may help to stabilize the sediment.\"

Uses
Animals associated with *Zostera japonica*\r\n beds can benefit from available food resources, i.e. primary production, detritus, and epiphytes. The above- and below-ground biomass of *Z. japonica*\r\n also provide refuge from predators and buffer environmental stresses, such as tidal energy (Lee *et al.* 2001).

Habitat Description
Shin and Choi (1997) state that, \"*Zostera japonica* can be found in broadly sheltered bays on sandy or muddy coasts at depths of up to 1-3 metres. It is also found along cool to subtropical seacoast in its native range.\" NOAA (2004) reports that, \"*Z. japonica* is commonly found growing on sheltered tidal flats, but can also be found in brackish (estuarine) coastal lagoons.\"

Reproduction
Zostera japonica is a monoecious species that reproduces both vegetatively (clonally) and sexually (*via* seed production). New sites are primarily colonized by seeds.

General Impacts
Zostera japonica was first documented on the North American Pacific Coast in the late 1950s, and has since colonised historically unvegetated tidal flats and significantly altered physical habitat structure (Baldwin and Lovvorn 1994). Durance (2002) concluded that *Z. japonica* has contributed to declines in shorebird foraging habitats by causing changes in benthic invertebrate community structure. Posey (1988) noted that the introduction of *Z. japonica* "… has changed the physical habitat as well as the richness and densities of resident fauna.\" Larned (2003) demonstrated that *Z. japonica* invasions alter water column-benthos nutrient fluxes.

Management Info
Chemical: Entrix (2003) reported that, \"Both imazapyr and glyphosate killed off the eelgrass canopy of both *Zostera japonica*\r\n and *Z. marina*. These species were killed if herbicide was applied on dry specimens at low tide, although the imazapyr was more toxic. If applied with a film of water overlying the bed, then no effect was recorded. Within 12 months post-treatment, all impacted eelgrass beds had recovered.\"
Physical: During April 2003 in Humboldt Bay (California, USA) University of California (UC) Extension workers began removing *Z. Japonica* with the help of volunteers. They attempted to install sections of plastic over *Z. Japonica* to kill it by shading, but found that the bay's strong tides pulled the sheets away (Rushton, 2005). The author reported that digging up *Z. Japonica* resulted in rapid revegetation by native eelgrass *Z. Marina*.

Pathway
The fact that several areas where *Zostera japonica* is abundant are sites of intensive oyster cultivation suggests that the plant was introduced as a contaminant (probably seeds) in shipments of Japanese oysters in the first few decades of the 20th

Principal source: Shin and Choi, 1997. Taxonomy and distribution of *Zostera* (Zosteraceae) in eastern Asia, with special reference to Korea

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

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ALIEN RANGE

[3] CANADA

[17] UNITED STATES

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