Sea-level Fen

State Rank: S1 - Critically Imperiled

A very narrow Sea-level Fen, with twig sedge. Photo: Patricia Swain, NHESP.

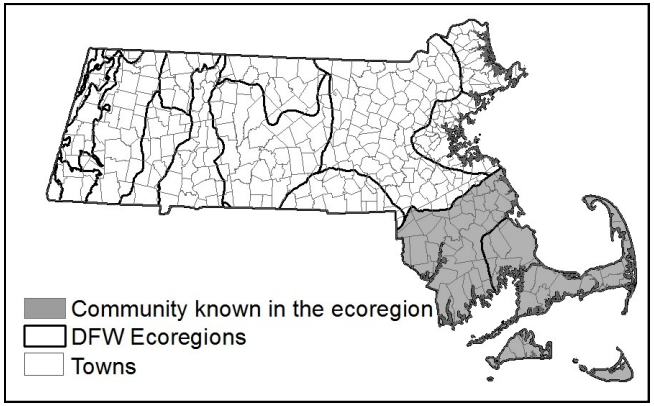
Sea-level Fens are herbaceous/ graminoid peatlands that occur at the upland edges of ocean tidal marshes. The combination of upland freshwater seepage and periodic brackish overwash produces a plant community of mixed freshwater and estuarine species.

Description: Sea-level Fens are herbaceous/graminoid peatlands just above normal high tide at the upland edge of estuarine tidal marshes. Periodic brackish overwash mixed with freshwater seepage from sandy uplands produces a plant community of mixed freshwater and estuarine species on sedgy peat over sand or gravel. Sea-level Fens are near their northern limits in Massachusetts and are better developed to the south where they include more specialized species.

Characteristic Species: Sphagnum moss commonly forms the peat mat in all acidic peatlands – mixed with sedge peat in Sea-level Fens. Three diagnostic species are identified in regional descriptions: saltmarsh straw-sedge, saltmarsh spike-sedge, and saltmarsh (or Olney's) threesquare. Other common species include New York aster, spatulate-leaved sundew, Canada rush, pondshore-rush, swamp-candles, common reed (native and invasive exotic subspecies), white beak-sedge, swamp-rose, common threesquare, poison ivy, marsh St. John's-wort, and large cranberry. Occasional shrubs include poison sumac, swamp azalea, bayberry, groundsel-tree, and eastern red cedar.

Differentiating from Related Communities: Natural communities on acidic peatlands all occur on sphagnum peat. The depth, density, and strength of the underlying peat control the structure and composition of each type of peatland community through the extent that plants growing on it are isolated from nutrients carried by ground water. Sea-level Fens are most identifiable by location: they occupy the interface between estuarine marshes and upland. Saltmarsh straw-sedge, saltmarsh spike-sedge, and saltmarsh (or Olney's) threesquare are diagnostic of Sea-level Fens. Twig-sedge at the edges of salt marshes is also used as an indicator of Sea-level Fens. Acidic Graminoid Fens (AGF) are differentiated by the dominance of graminoid and herbaceous species and lack of extensive shrubs. Threeway sedge and buckbean are characteristic of wet, nutrient enriched edges of AGF. Interdunal Marsh/Swales occur as part of a coastal dune system. They are graminoid- or shrub-dominated communities occurring in shallow basins (swales) between dunes. Some are fen-like with cranberries and sedges growing on shallow peat, but occurring in dune systems is the defining characteristic. Acidic Shrub Fens (ASF) are composed primarily of low-growing, interwoven shrubs. Dense water-willow and sweet gale are indicative and characteristic. ASF are wetter with a less well-developed sphagnum mat than other acidic peatlands.

Sea-level Fen with invading phragmites. Photo: Patricia Swain, NHESP.



Habitat for Associated Fauna: Few animals are likely to differentiate between Sea-level Fens and other wetlands: species sensitive to salt would avoid Sea-level Fens during and after salt water incursions, otherwise the fens would be part of the habitat of mobile wetland and upland animals. Songbirds can use shrubby parts of the community as nesting or foraging habitat.

Examples with Public Access: None of the known sites are entirely in conservation ownership. If visited, care should be taken not to create trails across the easily damaged peat surface.

Sea-level Fen with phragmites along tidal streams. Photo: Patricia Swain, NHESP.

From: *Classification of Natural Communities of Massachusetts* http://www.mass.gov/nhesp/
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