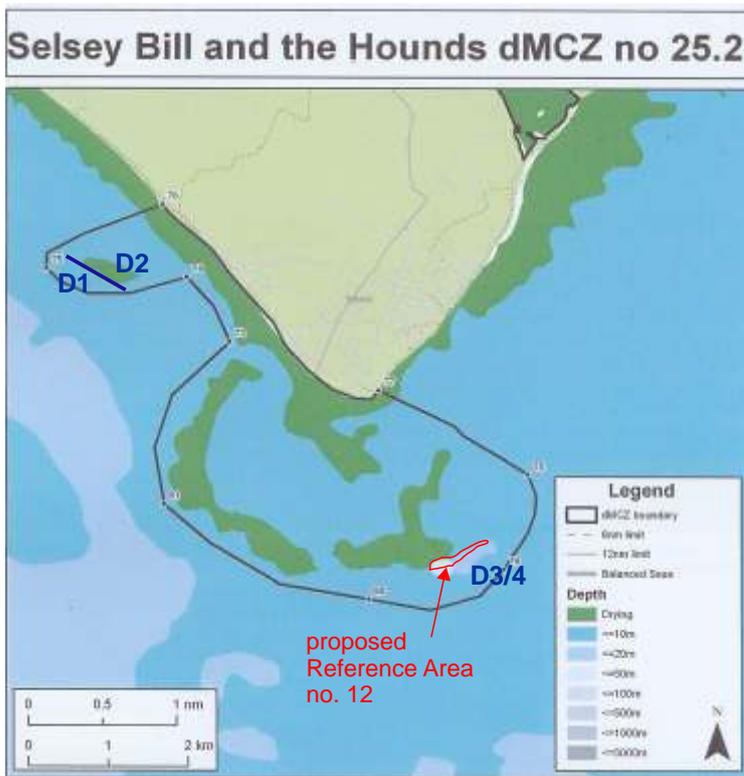


Selsey Bill and the Hounds recommended MCZ Mixon Hole recommended Reference Area

Seasearch Site Surveys 2012

This report summarises the results of surveys carried out in the recommended MCZ and Reference Area by Seasearch divers during the spring and summer of 2012. The aim of the surveys was to add detail of the habitats and species found within the area to support the designation process. Particular attention was paid to the Habitat and Species FOCI identified in the Ecological Guidance on the designation of MCZs. Surveys were carried out covering the two main features of the area, The Mixon Hole and The Hounds reef but unfortunately poor weather conditions prevented survey of any other features within the area.



Physical features of the Area

The boundary of the two recommended conservation zones is drawn tightly around the rocky features immediately off Selsey Bill. The geology consists of limestone overlying grey clay and the Mixon Hole represents the north side of a drowned river gorge which is kept open by the strong tidal currents through it. The north face of the hole is a clay cliff, vertical in its upper parts, from 5 -20 metres below sea level (photo above right). At the top of the cliff there is an overhanging limestone cap which juts out over the softer clay beneath (photo right).

At the base of the hole is a mixture boulders and cobbles of both clay and limestone fallen from the cliff above. As you move away from the cliff the seabed is increasingly dominated by empty slipper limpet shells.

The Hounds is a similar clay and limestone feature at a smaller scale with the cliff face generally about 2m high.



Features of the marine life

At both the Mixon Hole and the Hounds the shallow, upward facing, surfaces of the limestone cap are covered in a rich turf of red and brown seaweeds and sponges (photo right). There are few kelps and the largest seaweed is the non-native, invasive wireweed, *Sargassum muticum*, together with pod weed *Halidrys siliquosa*. There is a wide variety of smaller red seaweeds including branching coralline species. Amongst the seaweed turf are breadcrumb, sulphur and goosebump sponges.



At the base of the Mixon Hole the fallen limestone and clay boulders and cobbles are quite different. The clay remains bare and un-colonised whilst the upward facing parts of the harder limestone are covered in a mixed turf of sponges, hydroids and bryozoans (below).



The face of the clay cliff at both sites is often relatively bare as it is constantly eroding. This is exacerbated by the presence of piddocks, bivalve molluscs which bore into soft rock and weaken it, eventually causing pieces to break off and fall onto the flatter surfaces below. The piddock holes can be seen in the photo to the left, which is from The Hounds. Here the cliff also has carrot sponge and a short hydroid turf growing on it. Elsewhere there are encrusting bryozoans and worms, either forming a complex mass of tiny tubes over the surface, or other species boring into the soft clay. Most of the encrusting life is on the upper part of the cliff. Lower down the surfaces are largely bare, with the piddock siphons evident (below).



At The Hounds, where the lower surfaces are much shallower, there are pavements of grey clay with piddocks burrowing vertically downwards.

The piddock shells themselves are not often seen as they are within the clay when alive and are extremely fragile so do not last long as empty shells. In the photo to the right a dead shell can be seen partly emerging from a burrow. This is the common piddock, *Pholas dactylus*.



The lower surfaces of the clay, where it is less cliff like, does provide a habitat for mobile species. These include edible crabs (photo right), velvet swimming crabs (below), spider crabs (both large and small) and other smaller crabs and squat lobsters. We did not see any larger lobsters and these and the edible crabs are exploited by potting, particularly at the Hounds where tidal conditions are less extreme.



Also present at both sites in small numbers were native oyster, *Ostrea edulis* (below), one of the priority species to be protected within MCZs. These are only frequently seen by divers in the eastern English Channel and never in large numbers.

In the bottom of the Mixon Hole, lesser spotted catsharks (below) were frequently recorded. Other fishes present included ballan wrasse, corkwing wrasse, and smaller species making use of borings and crevices, such as tompot blennies, black gobies and long-spined sea scorpion.



Other mobile species present included painted topshells, common whelk (below), stingwinkles, netted dogwhelks, arctic cowrie and cuttlefish.

Two rarely seen fishes in these waters were recorded. In April there was a male lumpsucker at the Hounds. Lumpsuckers are seen inshore during the spring breeding season but rarely outside it. In September there were up to 6 grey triggerfish, *Ballistoides capricus* (below right), seen along the overhanging lip at the top of the Mixon Hole cliff. These are a southerly species which occurs in our waters in late summer but probably does not breed here.



Human Uses:

The main uses of the area are potting for crabs and lobster, angling and scuba diving. All are limited by the exposure and tidal streams. The Hounds reef was extensively potted at the time of both of our surveys in April and July 2012. There is much broken clay at both sites but it is not possible to say how much of this is due to natural erosive processes and how much to human activities.



Snakelocks anemone in current



Bottom of the Mixon Hole with slipper limpets and barnacles

Benefits of Protection:

The area contains what appears to be unique habitat in the English Channel in the form of the 20m high clay cliff on the northern side of the Mixon Hole. This feature is already prone to natural erosion (left) due to piddock borings and strong tidal streams but since it contains soft rock could be easily physically damaged by bottom fishing activities. The same can be said for the, less dramatic, clay features at The Hounds. The area also includes harder limestone which supports a range of other marine flora and fauna.

The boundary is tightly drawn and does not include any seabed that would be suitable for trawling or dredging. It also excludes a number of other sites which have also been identified as of conservation interest, the Bracklesham Balls and the Outer Mulberry, and excludes an area of geological interest, the fossil beds in Bracklesham Bay. In terms of species it does not include sites from which FOCI species such as seahorse and native oyster have been recorded on the eastern side of Selsey Bill. There would be benefit in extending the area, but the core area currently proposed would be a start in recognising its importance..



Sulphur sponge and red seaweeds



Hydroid turf

This report has been written by Chris Wood based on Seasearch Survey records made by Chris Wood, James Lucey, Charlotte Bolton and Fiona Ravenscroft, and Observation records made by Belinda Vause and Tim Mapstone. Photos by Chris Wood and James Lucey. Seasearch would like to thank the volunteer divers for their records and also Mulberry Divers for taking us to the sites. Report published by Marine Conservation Society for Seasearch www.seasearch.org.uk

Technical Appendix

This Appendix contains more detailed information about the surveys undertaken and records made. It includes:

- dive details
- habitat sketches
- biotope list
- species list

The data has been entered into the Marine Recorder database and is available in Snapshot format on request.

Current proposal

The rMCZ and Reference Area are both tightly drawn around existing features shown on the chart. The Reference area covers the northern side of the Mixon Hole and the rMCZ covers the shallow reefs to the north and west of the Mixon Hole and the separate reef of The Hounds to the west as well as the surrounding seabed.

The features proposed for designation are:

Broad Scale Habitats: infralittoral rock with thin sands, thin mixed sediments, thin sandy sediments

Habitat FOCI: Peat and Clay exposures

Geology: Bracklesham Bay

Features within the area but NOT proposed for designation are:

Broad Scale Habitats: intertidal coarse/mixed sediments

Habitat FOCI: Common maerl (may not exist), Native oyster beds, Subtidal sands and gravels

Species FOCI (low mobility): Native Oyster

Species FOCI (high mobility): European Eel, Undulate Ray

Dive Details

Dive 1: 7th April 2012. The Hounds. Drift dive along reef using towed GPS. Habitat, species and photographic records.

Surveyor Chris Wood Position from 50° 44.047N 00°49.670W to 50°44.155N 00°49.859W, Survey Form NT12/014

Dive 2: 22nd July 2012: The Hounds. Slack water dive at eastern end of the reef. Habitat, species and photographic records. Surveyor Chris Wood. Position 50° 44.095N 00°49.742W, Survey Form NT12/098

Dive 3: 9th September 2012. Mixon Hole. Three pairs of divers, recording at intervals along the north face. Habitat, species and photographic records with collection of algae for identification. Surveyors Chris Wood, James Lucey, Charlotte Bolton, Fiona Ravenscroft, Belinda Vause & Chris Williams. Slight current running making impossible to swim to the westerly end of the hole.

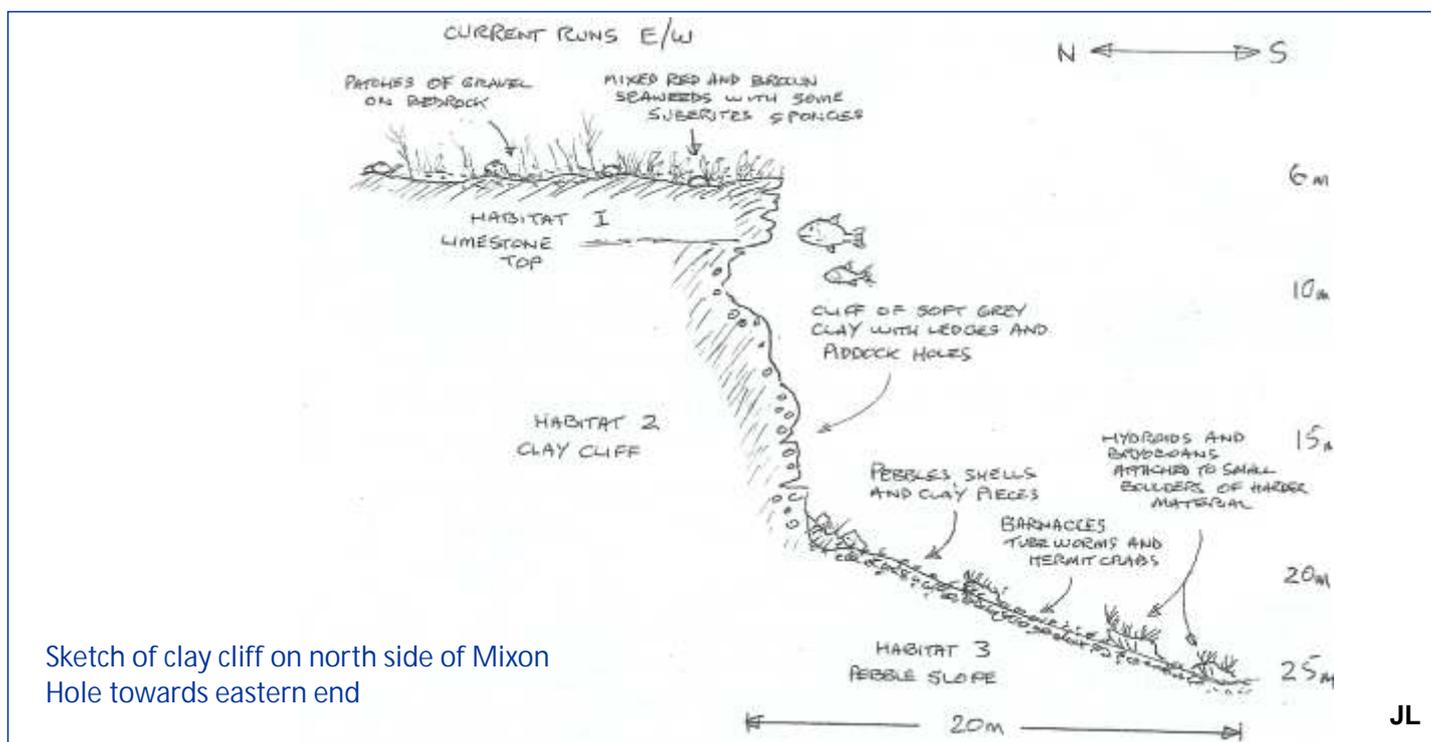
Positions West (CWo/BV) from 50° 42.276N 00°46.347W to 50°42.240N 00°46.375W, Survey Form NT12/186. Observation Form NT12/185.

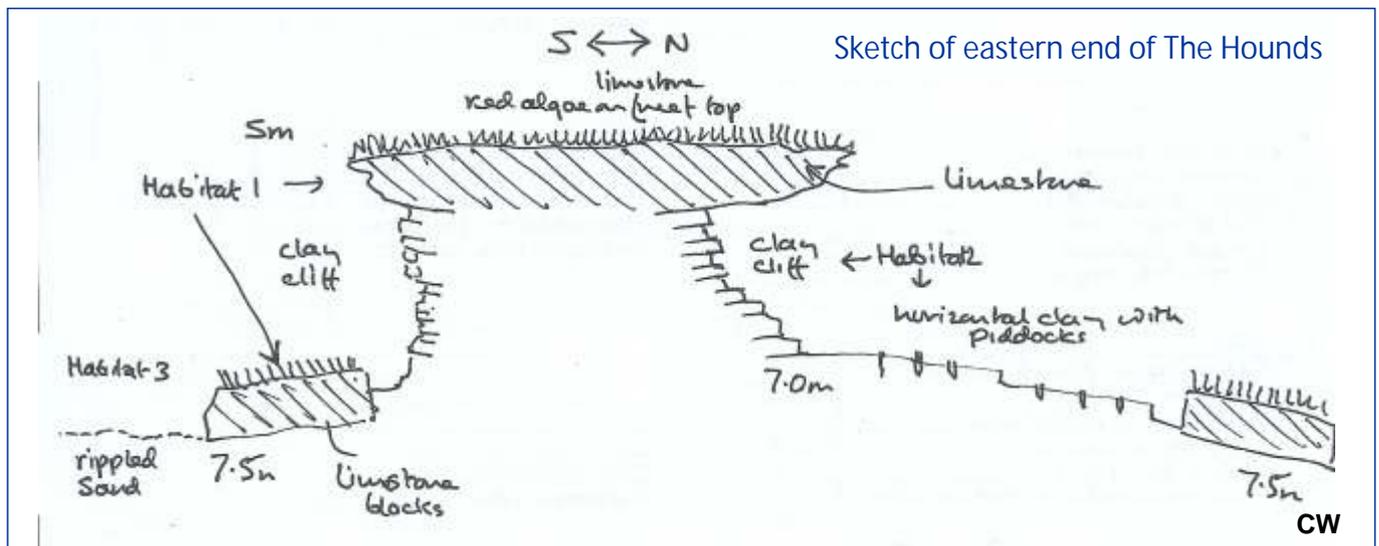
Centre (CB/FR) from 50° 42.282N 00°46.341W to 50°42.254N 00°46.361W Survey Form NT12/195.

East (JR/CWi) from 50° 42.300N 00°46.325W to east. Out position not accurately recorded. Survey Form NT12/204.

Dive 4: 9th September 2012. Mixon Hole. One pair of divers drifting along length of Hole. Observation level records made. Surveyor Tim Mapstone. Position not accurately recorded. Observation Form NT12/187.

Habitat sketches





Sublittoral Habitats/Biotopes recorded

Description	MNCR 04:05 Code	Location
barren rippled fine sand	SS.SSa.IFISA	south-east of The Hounds
clay bedrock with horizontal surfaces and pitted cliffs up to 15m high	CR.MCR.SfR.Pid	The Hounds, southern end Mixon Hole north side
Limestone bedrock and boulders with mixed seaweeds and sponges	IR.MIR.KR.XFoR	The Hounds, northern end Mixon Hole, north side in shallows
Clay and limestone boulders, cobbles and Crepidula shells	CR.MCR.CFaVSCuSPH CR.MCR	part of bottom of Mixon Hole remainder of bottom of Mixon Hole

Species List

Scientific Name	Common Name	Site	Abundance	Notes
Sponges				
<i>Scypha ciliata</i>	purse sponge	M	R	
<i>Grantia compressa</i>	flattened purse sponge	H	C	on seaweeds
<i>Suberites ficus</i>	sea orange	H/M	O-F	amongst seaweeds
<i>Suberites carnosus</i>		M	R	
<i>Suberites massa?</i>		H	O	on clay
<i>Phorbas plumosum</i>		M	O	
<i>Amphilectus fucorum</i>	shredded carrot sponge	H/M	R-O	on clay and limestone
<i>Halichondria panicea</i>	breadcrumb sponge	H	O-F	widespread in the area
<i>Halichondria bowerbanki</i>		M	O	
<i>Hymeniacidon perleve</i>		M	O	in bottom of Hole
<i>Haliclona cinerea</i>		H	O	amongst seaweeds
<i>Dysidea fragilis</i>	goosebump sponge	M	O	widespread in the area
<i>Porifera indet.</i>	various encrusting sponges	H/M	O-F	

Scientific Name	Common Name	Site	Abundance	Notes
Cnidariana	Hydroids & Anemones			
<i>Abietinaria abietina</i>		M	O	
<i>Amphisbetia operculata</i>		M	R	
<i>Hydrallmania falcata</i>	helter-skelter hydroid	H	R-O	
<i>Sertularella rugosa?</i>		M	O	
<i>Sertularia sp.</i>	squirrel's tail hydroid	M	R	
<i>Kirchenpaueria pinnata?</i>		M	P	
<i>Nemertesia anteninna</i>	antenna hydroid	M	O	
<i>Plumularia setacea</i>		H	F	
<i>Aglaophenia pluma</i>		M	O	on pod weed
<i>Anemonia viridis</i>	snakelocks anemone	H/M	R-F	
<i>Urticina felina</i>	dahlia anemone	M	O	
Annelida	Segmented Worms			
<i>Filograna implexa</i>	vermicelli worm	M	R	on clay
<i>Salmacina dysteri</i>		M	R	on clay
<i>Pomatoceros sp.</i>	keel worm	M	O-C	
<i>Polydora sp?</i>		M	F	in clay
Crustacea	Barnacles, crabs and lobsters			
<i>Balanus sp.</i>	barnacles	M	R-C	
<i>Mysidacea</i>	mysid shrimp	H	F-O	
<i>Paguridae</i>	hermit crabs	H	R-F	
<i>Galathea squamifera</i>	squat lobster	H/M	R	
<i>Inachus sp.</i>	sponge spider crab	M	R-O	
<i>Maja squinado</i>	spiny spider crab	H	O	
<i>Cancer pagurus</i>	edible/brown crab	H/M	R-F	
<i>Ncora puber</i>	velvet swimming crab	H/M	R-F	
<i>Jassa falcata?</i>	tube dwelling amphipod	H	R-F	
Mollusca	Molluscs			
<i>Gibbula cineraria</i>	grey topshell	H/M	R-O	
<i>Calliostoma zizyphinum</i>	painted topshell	H/M	R-O	
<i>Crepidula fornicata</i>	slipper limpet	M	R-O	also many empty shells
<i>Triva arctica</i>	arctic cowrie	M	R	
<i>Ocenebra erinacea</i>	sting winkle	M	R	
<i>Buccinum undatum</i>	common whelk	H/M	R-O	on sand and rock features
<i>Hinia reticulata</i>	netted dog whelk	M	R	
<i>Archidoris pseudoargus</i>	sea lemon	H	R	eggs
<i>Mytilus edulis</i>	blue mussel	M	R	
<i>Ostrea edulis</i>	european oyster	H/M	R	BAP/FOCI species
<i>Gastrochaenia dubia?</i>		M	O	
<i>Pholas dactylus</i>	common piddock	H/M	F-C	boring in clay
<i>Barnea candida</i>		M	R	
<i>Sepia officinalis</i>	cuttlefish	M	R	
Phoronida	horseshoe worms			
<i>Phoronis hippocrepia</i>		H	O	
Bryozoa	sea mats and sea mosses			
<i>Alcyonidium diaphanum</i>	finger bryozoan	M	R	
<i>Crisia sp.</i>		M	O	
<i>Membranipora membranacea</i>	sea mat	M	O	
<i>Electra pilosa</i>	frosty sea mat	H/M	R-F	
<i>Flustra foliacea</i>	hornwrack	M	R-O	
<i>Bugula plumosa/turbinata</i>	spiral bryozoans	M	R	
<i>Parasmittina trispinosa</i>	encrusting bryozoan	H/M	R- F	
<i>Aetea anguinea</i>	snakes head coralline	M	R	
<i>Schizomavella linearis</i>		M	R-O	

Scientific Name	Common Name	Site	Abundance	Notes
Tunicata		Sea Squirts		
<i>Molgula sp.</i>		H	F	
<i>Diplosoma spongiforme</i>		H/M	R-O	
<i>Didemnum maculosum</i>		M	R	
<i>Lissoclinum perforatum?</i>	perforated sea squirt	M	R	
<i>Dendrodoa grossularia</i>	gooseberry sea squirt	M	R-O	
<i>Perephora listeri</i>		M	R	
Pisces		Fishes		
<i>Scyliorhinus canicula</i>	lesser spotted catshark	H/M	R-F	
<i>Pollachius pollachius</i>	pollack	H	R	
<i>Trisopterus luscus</i>	bib/pouting	H/M	R-F	
<i>Taurulus bubalis</i>	long spined sea-scorpion	H	R	
<i>Labrus bergylta</i>	ballan wrasse	H/M	R-F	
<i>Crenilabrus melops</i>	corkwing wrasse	H/M	R-F	
<i>Parablennius gattorugine</i>	tompot blenny	H/M	R-O	
<i>Lipophrys pholis</i>	shanny	M	R	
<i>Gobiusculus flavescens</i>	two spot goby	M	R-C	
<i>Gobius niger</i>	black goby	H/M	R-F	
<i>Pomatoschistus pictus?</i>	painted goby	M	R	
<i>Gobiidae indet.</i>	various small gobies	M	O-F	
<i>Callionymus sp.</i>	dragonets	M	R	
<i>Cyclopterus lumpus</i>	lumpsucker	H	R	nesting
<i>Balistoides capriscus</i>	grey triggerfish	M	R	rare summer visitor
Algae		Seaweeds		
<i>Jania rubens</i>	slender beaded coral weed	H	F	
<i>Corallinaceae</i>	encrusting pink algae	M	R-O	
<i>Calliblepharis ciliata</i>	fringe weed	M	O-F	
<i>Dilsea carnosa</i>	red rags	H/M	O	
<i>Chondrus crispus</i>	caragheen	H/M	O-F	
<i>Polyides rotundus</i>	discoïd fork weed	H/M	O	
<i>Gracilaria bursa-pastoralis</i>	shepherd's purse wart weed	M	O-F	
<i>Plocamium cartilagineum</i>		H/M	R-A	
<i>Ceramium sp.</i>	banded pincer weed	M	O	
<i>Halurus equisetifolius</i>	sea horsetail	H/M	F-O	
<i>Halurus flosculosus</i>	Mrs Griffith's little flower	M	O-F	
<i>Heterosiphonia plumosa</i>	siphoned feather weed	M	O	
<i>Cryptopleura ramosa</i>	fine-veined crinkle weed	M	O	
<i>Delessaria sanguinea</i>	sea beech	M	R	
<i>Halopithys incurvus</i>	red sea pine	M	O	
<i>Polysiphonia sp.</i>	siphon weed	H	A	
<i>Sphondylothamnion multifidum</i>	whorled bush weed	M	O	
<i>Rhodophycota indet.</i>	various red seaweeds	H/M	A	
<i>Cladostephus spongiosus</i>	hairy sponge weed	M	R-O	
<i>Dictyota dichotoma</i>	brown fan weed	M	R-O	
<i>Desmarestia ligulata</i>	desmarest's flattened weed	H	R	
<i>Laminaria hyperborea</i>	forest kelp	H/M	R-O	
<i>Laminaria digitata</i>	oarweed	M	R	
<i>Saccarhina latissima</i>	sugar kelp	H/M	O	
<i>Saccorhiza polyschides</i>	furbellows	M	R	
<i>Halidrys siliquosa</i>	podweed	M	R	
<i>Sargassum muticum</i>	wireweed (japweed)	H/M	R-F	invasive species