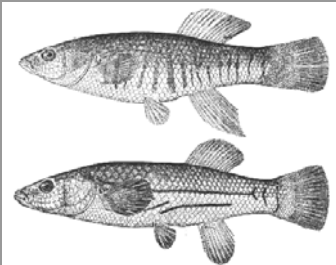
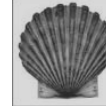


Salt panes may seem too inhospitable to support many animals, but a surprising number can be found there at any given time. When the highest tides of the month or season flood the marsh surface, small fish and juvenile finfish, shrimp, and baby crabs may make their way into salt panes, negotiating their way across the forest of submerged marsh grass stalks to the relative refuge of an open salt panne. If these animals do not leave with the receding tide waters, they will be residents of the salt panne, at least until the next highest high tide floods the marsh surface. Hence the interest in salt panes displayed by various birds; their meals may be a captive audience!

Once thought to be mosquito traps, salt panes were at one time systematically ditched and drained. Ironically, the more we have come to understand the ecology of these marsh pools, we recognize that the small fish that periodically occupy these wetlands are effective mosquito consumers. Marsh restoration today often includes the artificial creation of salt panes and pools to create rich habitats for wildlife – and mosquito control.



Salt panes are flooded periodically by tides, allowing access to small fish such as mummichogs.



*OUR PRODUCTIVE
SALT MARSHES*

THE SALT MARSH PANNE



*a unique
coastal
wetland*

Photo: Judy Preston



*Center for Coastal and
Watershed Systems, Yale
School of Forestry and
Environmental Studies*

**Connecticut
Sea Grant**



**TIDEWATER
INSTITUTE**

A closer look

The next time that you look out over a summer salt marsh, make note of where you see concentrations of shore birds at certain times of the day. A closer look may well reveal the location of a salt panne: a shallow, mud-bottomed depression on the marsh surface.



These unique habitats contain a small world of plants and animals that have learned to live

Salt pannes are formed when debris from an incoming tide, or a slab of winter ice remains behind on the marsh surface.

in tough conditions that include seasonally very warm water that is also increasingly salty as the summer season progresses. This pocket of life is what attracts wading shorebirds, who know that they will find food in these small irregular shaped pools on the marsh surface.

Salt pannes are formed when debris from an incoming tide, or a slab of winter ice remains behind on the marsh surface, smothering the existing vegetation and establishing a barren area. They are flooded periodically by spring tides (the highest monthly tides associated with the full moon and new moon), which bring fresh sea-borne nutrients inland, in addition to small salt marsh fish such as mummichogs. As the summer progresses, these shallow pools bask in the sun, which evaporates the salt water, leaving behind a salty brine. Sometimes a salt panne will dry out

completely during a dry summer, creating even harsher conditions for the residents of these unique places. Similar to salt pannes, tidewater pools form when a marsh first emerges and are the result of uneven accumulations of mud that remain filled with water, even at low tide. Unlike some pannes, pools have water in them year round.



Some of the marsh's most interesting, colorful and hearty plants colonize salt pannes, such as the common glasswort

Some of the marsh's most interesting, colorful and hearty plants colonize salt pannes. These include members of the glasswort family such as the jointed, or common glasswort (*Salicornia europaea*). This plant is shaped like a swollen stick figure on the marsh; a bright green in the spring and summer that turns deep red in the fall to color entire swales of the marsh surface. Although considered edible, glasswort – also called pickleweed – is best left to adorn the marsh. Seaside lavender (*Limonium carolinianum*) produces one of the marsh's loveliest flowers. It resembles the common statice flower used in florist bouquets, and creates a haze of pale lavender in the late summer. Marsh orach is an inconspicuous plant with triangular, fleshy leaves. It also can be an early colonizer of salt pannes.



Once thought to be mosquito traps, salt pannes were at one time systematically ditched and drained.

The high salt concentration and warm waters associated with salt pannes mean that not many plants can live there; the diversity of species is low.

The plants that do survive there all display some adaptation to exist where others cannot. The glasswort, lavender and orach all have fleshy leaves and stems that, not unlike desert plants, are a way of storing fresh water in an environment where it is tough to find. The jointed glasswort sends excess salt to the tips of its fleshy stalks; in the fall these tips dry up and break off at one of the joints – a clever way to jettison unwanted salt concentrations.

The difficult environs of the salt panne is further complicated by soils that are frequently waterlogged, which makes them devoid of oxygen – an essential component for most organisms. Fortunately, while certain plants have developed ways around this difficulty, other organisms have evolved to live in just such a place. Bacteria – too small for the unaided human eye to see – perform the essential task of breaking down the rich organic materials in the anoxic (without oxygen) soils associated with salt pannes and much of the salt marsh. Their un-lauded efforts are responsible for a considerable part of what makes salt marshes among the most productive natural communities on the planet. They convert the soil into food for many other plant and animal species in the marsh ecosystem.