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## **ECOLOGICAL SYSTEM: ATLANTIC COASTAL PLAIN BLACKWATER STREAM FLOODPLAIN FOREST**

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**Summary:** This Atlantic Coastal Plain system, which is apparently most abundant in the Carolinas, occurs in floodplains of small streams that carry little mineral sediment (blackwater streams). These streams have their headwaters in sandy portions of the Coastal Plain. The water is usually strongly stained by tannins but has little suspended clay and is not turbid. Depositional landforms may be absent or present only in limited variety and of small size. Soils are usually strongly acidic. Periodicity of flooding ranges from long (semipermanent) in the wettest portions to short in higher gradient streams. Some small blackwater streams have most of their flow from sandhill seepage and have limited fluctuation in water levels. Vegetation varies from north to south, but generally consists almost entirely of forests of wetland trees, but occasional, small shrubby sloughs may also be present. A variety of tree species may be present; wetter examples (especially toward the northern range limits of this system) are often strongly dominated by *Taxodium distichum* (bald-cypress) and *Nyssa biflora* (swamp blackgum). Other examples have mixtures of these species with *Quercus* (oak) spp. and other bottomland hardwoods tolerant of blackwater conditions. Species richness ranges from low to moderate, but is lower than in comparable brownwater systems. Flooding is an important ecological factor in this system and may be the most important factor separating it from adjacent systems. Flooding brings nutrients and excludes non-flood-tolerant species. Unlike river systems, flooding tends to be variable and of shorter duration.

**Range:** This system is potentially found throughout the Atlantic Coastal Plain north to Maryland, Delaware and New Jersey, but it is most abundant in North Carolina and South Carolina. United States: DE, FL, GA, MD, NC, NJ, SC, VA.

### **Delaware Estuary Associations:**

- Atlantic White-cedar / Seaside Alder Swamp
- Coastal Plain Atlantic White-cedar - Red Maple Swamp

### **CLASSIFIERS FOR ATLANTIC COASTAL PLAIN BLACKWATER STREAM FLOODPLAIN FOREST**

**Primary Division:** 203

**Land Cover Class:** Woody Wetland

**Spatial Scale & Pattern:** Linear

**Required Classifiers:** Natural/Semi-natural; Vegetated (>10% vasc.); Wetland

**Diagnostic Classifiers:** Riverine / Alluvial [Blackwater]

**Non-diagnostic Classifiers:** Forest and Woodland (Treed)

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## **ATLANTIC WHITE-CEDAR / SEASIDE ALDER SWAMP**

*Chamaecyparis thyoides* / *Alnus maritima* Woodland

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**Range:** This swamp type occurs along streams of the Delmarva Peninsula in Delaware and Maryland.

**Environmental Description:** This open-canopy Atlantic white-cedar swamp occurs along streams of the Delmarva Peninsula. It is also found in artificial mill ponds. The substrate is peat and muck characterized by hummock-and-hollow microtopography.

**Vegetation Description:** The tree canopy is characterized by low-statured *Chamaecyparis thyoides* (Atlantic white-cedar) in association with *Pinus taeda* (loblolly pine). Other woody associates include *Alnus maritima* (seaside alder), *Morella cerifera* (wax-myrtle), *Ilex glabra* (inkberry or inkberry or little gallberry), and *Clethra alnifolia* (coastal sweet-pepperbush). The herbaceous layer is comprised of *Decodon verticillatus* (swamp-loosestrife), *Peltandra virginica* (green arrow-arum), *Nymphaea odorata* (white water-lily), *Carex exilis* (meager sedge), *Dichanthelium dichotomum* (witchgrass), *Oxypolis rigidior* (common water-dropwort), *Triadenum virginicum* (Virginia marsh St. John's-wort), *Dulichium arundinaceum* (threeway sedge), *Glyceria obtusa* (Atlantic mannagrass), *Rhynchospora alba* (white

beaksedge), *Carex atlantica* (prickly bog sedge), *Selaginella apoda* (meadow spike-moss), *Drosera rotundifolia* (roundleaf sundew), *Juncus militaris* (bayonet rush), *Vaccinium macrocarpon* (large cranberry), *Calopogon tuberosus* (tuberous grass-pink), and *Eriocaulon decangulare* (ten-angle pipewort). Floating mats within mill ponds have a unique species assemblage including *Xyris difformis* (bog yellow-eyed-grass), *Fuirena* (umbrella-sedge) spp., *Hypericum mutilum* (dwarf St. John's-wort), *Juncus pelocarpus* (brown-fruit rush), *Juncus canadensis* (Canadian rush), *Fimbristylis* (fimbry) sp., and *Rhynchospora macrostachya* (tall horned beaksedge).

**Noteworthy Associated Plant and/or Animal Species:** *Alnus maritima* (seaside alder).

**Characteristic Species:** *Alnus maritima* (seaside alder), *Chamaecyparis thyoides* (Atlantic white-cedar).

**Management Concerns:** This association may be of artificial origin, as a result of damming. More information is needed.

**Reference Sites:** Prime Hook, DE.

**Global and State Conservation Ranks and Reasons:** GNR (17-Apr-2000). DE: SNR.

**VegBank Link for Plot Data:** [http://vegbank.org/natureserve/element\\_global.2.685928](http://vegbank.org/natureserve/element_global.2.685928)

**References:** Eastern Ecology Working Group n.d., Harrison 2004.

MOST ABUNDANT SPECIES		
STRATUM	LIFEFORM	SPECIES
Tree canopy	Needle-leaved tree	<i>Chamaecyparis thyoides</i> (Atlantic white-cedar)
Tree canopy	Needle-leaved tree	<i>Pinus taeda</i> (loblolly pine)
Shrub/sapling (tall & short)	Broad-leaved deciduous shrub	<i>Alnus maritima</i> (seaside alder)
Herb (field)	Forb	<i>Decodon verticillatus</i> (swamp-loosestrife)

## COASTAL PLAIN ATLANTIC WHITE-CEDAR - RED MAPLE SWAMP

*Chamaecyparis thyoides* - *Acer rubrum* - *Magnolia virginiana* Forest

**Range:** This association is found in New Jersey, Delaware, and Maryland.

**Environmental Description:** This is a mixed Atlantic white-cedar - red maple swamp of New Jersey, Delaware and Maryland.

**Vegetation Description:** In addition to *Chamaecyparis thyoides* (Atlantic white-cedar) and *Acer rubrum* (red maple), other canopy associates include *Magnolia virginiana* (sweetbay), *Nyssa sylvatica* (blackgum), and *Pinus rigida* (pitch pine). *Ilex opaca* (American holly) occasionally occurs in the subcanopy. The shrub layer is characterized by *Vaccinium corymbosum* (highbush blueberry), *Clethra alnifolia* (coastal sweet-pepperbush), *Ilex glabra* (inkberry or little gallberry), *Gaylussacia frondosa* (dangleberry), *Rhododendron viscosum* (swamp azalea), *Smilax rotundifolia* (roundleaf greenbrier), and *Smilax laurifolia* (blaspheme-vine). The herbaceous layer may have sparse to moderate cover and includes species such as *Osmunda cinnamomea* (cinnamon fern), *Mitchella repens* (partridgeberry), *Woodwardia virginica* (Virginia chainfern), *Sarracenia purpurea* (purple pitcherplant), *Triadenum virginicum* (Virginia marsh St. John's-wort), *Pogonia ophioglossoides* (rose pogonia), *Boehmeria cylindrica* (small-spike false nettle), *Carex collinsii* (Collins' sedge), and *Carex folliculata* (northern long sedge). In canopy openings, *Orontium aquaticum* (golden club) and *Iris versicolor* (harlequin blueflag) may also occur. Sphagnum mosses form a moderately dense to dense bryophyte layer; species include *Sphagnum magellanicum* (Magellan's peatmoss), *Sphagnum cuspidatum* (toothed peatmoss), *Sphagnum pulchrum* (beautiful peatmoss), *Sphagnum flavicomans* (peatmoss), *Sphagnum recurvum* (recurved peatmoss), and *Sphagnum fallax* (flat-top bogmoss).

**Characteristic Species:** *Chamaecyparis thyoides* (Atlantic white-cedar), *Magnolia virginiana* (sweetbay)

**Reference Sites:** Brendan Byrne State Forest, NJ

**Global and State Conservation Ranks and Reasons:** GNR (1-Dec-1997). DE: SNR, NJ: S4.

**VegBank Link for Plot Data:** [http://vegbank.org/natureserve/element\\_global.2.683516](http://vegbank.org/natureserve/element_global.2.683516)

**References:** Breden 1989, Breden et al. 2001, Clancy 1996, Eastern Ecology Working Group n.d., Harrison 2004, Harrison et al. 2004, Karlin 1988, Olsson 1979

<b>MOST ABUNDANT SPECIES</b>		
<b>STRATUM</b>	<b>LIFEFORM</b>	<b>SPECIES</b>
Tree canopy	Needle-leaved tree	<i>Chamaecyparis thyoides</i> (Atlantic white-cedar)
Tree canopy	Broad-leaved deciduous tree	<i>Acer rubrum</i> (red maple)
Tree canopy	Broad-leaved deciduous tree	<i>Magnolia virginiana</i> (sweetbay)
Tall shrub/sapling	Broad-leaved deciduous shrub	<i>Vaccinium corymbosum</i> (highbush blueberry)
Herb (field)	Fern or fern ally	<i>Osmunda cinnamomea</i> (cinnamon fern)