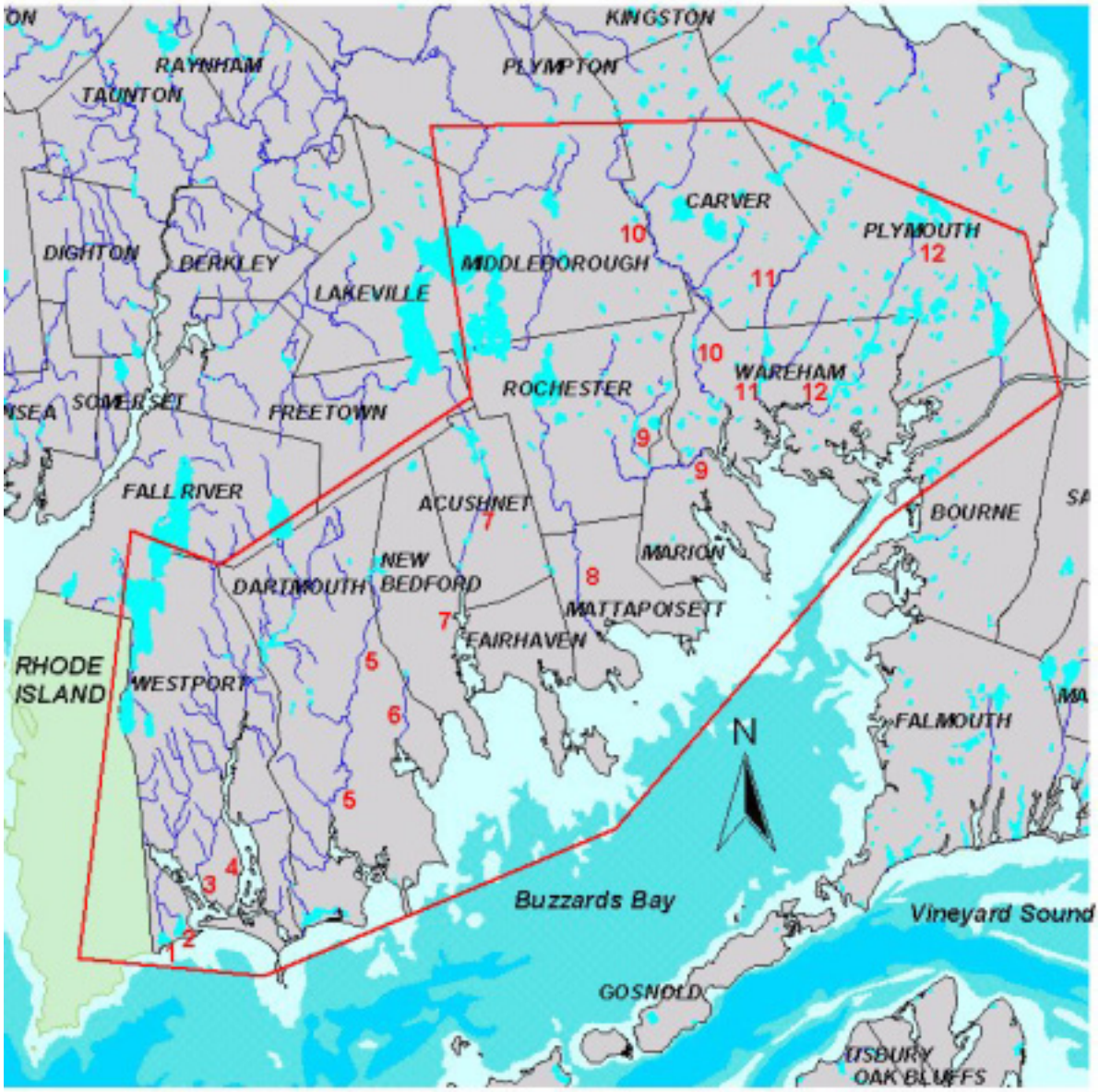
BUZZARDS BAY DRAINAGE



Area outlined in red represents the Massachusetts towns included in this report as part of the Buzzards Bay drainage area.

Stream Names:

1 - Richmond Pond
2 - Cockeast Pond
3 - West Branch Westport River
4 - East Branch Westport River
5 - Paskamanset River
6 - Buttonwood Brook
7 - Acushnet River
8 - Mattapoisett River
9 - Sippican River
10 - Weweantic River
11 - Wankinco River
12 - Agawam River

Buzzards Bay Drainage

Richmond Pond Westport

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
1.6	First	7.6	River herring

No Obstructions

Richmond Pond outlet to Buzzards Bay

Fishway None

Remarks:

Richmond Pond is a 67 acre salt pond which lies on the Massachusetts / Rhode Island border at the western end of Buzzards Bay. Under high water conditions, the pond drains into the Bay and conversely, salt water enters the pond on higher tides. Apparently there is enough freshwater input to support an annual run of river herring. There is no other significant habitat in the drainage and no opportunity for further development.

Cockeast Pond Westport

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
0.1	First	7.6	River herring, white perch

Obstruction # 1 Cockeast Pond outlet Westport

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Pond Acreage	Year Built	Owner	GPS
0.1	Culvert, circular	Corrugated metal	2	2	99.0	-	-	41º 30’ 35.131” N 71º 05’ 53.262” W

Cockeast Pond outlet/fishway

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Natural boulder vortex	Stone	5.0	8.0	8.0 (channel width)	1	1.0	1.0	5.0	Fair Passable

Remarks:

This 99 acre salt pond enters the Westport River at its mouth. Herring are able to access the pond through the short connecting stream and, although they appear to prefer higher tidal stages and the darkness of night, there is no real obstruction. Plans for modification of the road culvert have been discussed and care should be taken to insure continued fish passage and maintenance of salinity levels adequate to sustain this population. A small, traditional bait-fishery is carried on at this location.

West Branch Westport River Westport, MA; Adamsville, RI

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
3.4	Second	6.3	River herring, smelt

Obstruction # 1 Gray's Mill Pond Dam Adamsville, RI

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
3.4	Dam	Stone and wood	17.5	6.5	3.0	-	-	41º 33' 20.989" N 71º 07' 35.801" W

Gray's Mill Pond Dam and Ladder

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Alaskan Steeppass	Aluminum	24.0	1.5	-		-	-	-	Excellent Passable

Remarks:

Grays Mill Pond provides the only accessible river herring spawning area in this system. This 3 acre impoundment on the Massachusetts/Rhode Island line was equipped with a wooden Denil ladder, built by the Town of Westport and installed by DMF in 1995. This was washed away by high water in 2001 and replaced with an aluminum Denil fishway in 2002. A small run of river herring has existed here and this population can be expected to increase in size with improved access to the pond.

East Branch Westport River Westport, Dartmouth

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
9.7	Fifth	6.5	River herring, white perch, tomcod, smelt

Obstruction # 1 Forge Pond Dam Westport

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
8.6	Dam	Concrete	73	12	2.9	-	-	41º 37’ 52.384” N 71º 03’ 13.964” W

Forge Pond Dam

Fishway None

Obstruction # 2 Noquochoke Lake Dam Westport, Dartmouth

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
9.7	Dam	Concrete	126	9.0	165.0	1942	City of Fall River	41º 38’ 19.569” N 71º 02’ 48.620” W

Noquochoke Lake Dam

Fishway None

Remarks:

Two large dams obstruct fish passage on this branch of the Westport River. The first, which forms a 3 acre impoundment, is incorporated into a rock ledge, making any attempt at fishway construction difficult and costly. The second, at the outlet of 165 acre Lake Noquochoke, presents similar fishway construction problems due to its height and proximity to a state highway. While the potential habitat in the headwater impoundment is very attractive, the costs of providing passage relegate this stream to a low priority. Lake Noquochoke also exhibits large fluctuations in flow and periodically levels fall below dam crest height, causing discharge to cease.

Paskamanset/Slocum River Dartmouth

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
10.2	First	6.5	Alewife, blueback, smelt

Obstruction # 1 Russells Mills Pond Dam Dartmouth

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
0.0	Dam	Concrete with wooden boards	25.0	6.0	2.9	Rebuilt 2001	Town of Dartmouth	41º 34’ 16.661” N 71º 00’ 16.430” W

Russells Mills Pond Dam

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with fiberglass baffles	18.0	3.0	4.5	7	6.0	-	-	Good Inefficient passage
Weir-pool	Concrete	61.0	5.0	7.0	12	2.0	3	5.5	Good Passable

Russells Mills Pond Ladder, lower Denil section

Russells Mills Pond Fishway, upper weir-pool section

Obstruction # 2 Smith Mills Dam Dartmouth

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
6.8	Dam	Granite blocks	28	4.0	9.2	-	-	41º 38’ 24.271” N 70º 59’ 06.675” W

Smith Mills Dam

Fishway None

Obstruction # 3 Turner’s Pond Dam New Bedford

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
10.2	Dam	Concrete with wooden boards	6.0	5.6	86.7	1949	City of New Bedford	41º 40’ 43.884” N 70º 58’ 38.814” W

Turner’s Pond Dam

Fishway None

Remarks:

The Paskamanset River originates in swampland and Turners Pond, an 87 acre impoundment on the New Bedford/Dartmouth line. It flows through two additional impoundments, each with an obstructing dam. Only the lowermost, at Russells Mills, is equipped with a fishway. This structure, a weir-pool/Denil combination, has operated ineffectively for years. Modifications to the ladder entrance, done in 2000, deepened the entrance channel and improved passage noticeably. The installation of an additional Denil baffle at the lower end of the ladder would significantly increase efficiency.

A small population of river herring has managed to maintain itself here despite poor access to the impoundment. The recently improved passage should produce an increase in population size. If this results in numbers of river herring reaching the Smith Mills dam, a fishway installation should be considered at that location.

Buttonwood Brook New Bedford

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
3.2	First	6.9	None known

Obstruction # 1 Buttonwood Park Pond Dam New Bedford

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS	
2.0	Dam	Concrete	13.0	4.0	11.6	1960	City of New Bedford	41º 37’ 55.852” 70º 57’ 13.607”	N W

Buttonwood Park Zoo

Fishway None

Remarks:

This small stream flows through New Bedford's Buttonwood Park and is impounded there, forming an 11.6 acre pond. The spillway configuration makes fishway installation difficult which, combined with the relatively small impoundment size, makes this a low priority site.

Acushnet River — New Bedford, Fairhaven, Acushnet

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
8.2	Third	6.5	Alewife, blueback, smelt

Obstruction # 1 — Acushnet Sawmill Dam — Acushnet

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
4.4	Dam	Concrete and stone	118	4.6	6.5	1900	Acushnet Sawmill Co.	41º 41’ 03.933” N 70º 55’ 07.191” W

Acushnet Sawmill Dam

Fishway — Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Notched weir-pool	Concrete	33.0	3.0	4.2	6	1.8	0.8	Varied (2.0-3.0)	Fair Inefficient passage

Acushnet Sawmill Ladder

Obstruction # 2 Hamlin St. Dam Acushnet

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
5.3	Dam	Concrete with wooden boards	4.7	1.7	12.5	1920	Town of Acushnet	41º 41’ 46.484” N 70º 54’ 52.097” W

Hamlin Street Dam

Fishway None

Obstruction # 3 New Bedford Reservoir Dam Acushnet

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
8.1	Dam and elevation change	Granite with wooden boards	50	11	220.0	1867	City of New Bedford	41º 43’ 43.426” N 70º 53’ 54.880” W

New Bedford Reservoir Dam

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with wooden baffles	264.0	3.0	5.0	26	5.0	-	-	Excellent Passable

New Bedford Reservoir Ladder

Remarks:

This system has been the focus of much anadromous fish development work in recent years. With funding available through the New Bedford Harbor Cleanup Fund (administered by the New Bedford Harbor Trustees Council) and a large spawning/nursery habitat available in the headwater, the potential for significantly increasing the size of the existing river herring population is considerable. Three dams on the river, although all currently passable to varying degrees, form obstructions which limit the population's productivity.

The first dam, at the Acushnet Sawmill, is equipped with an inefficient weir-pool ladder. Fish have difficulty finding the ladder entrance due to heavy vegetation growing in the tailrace area which has eliminated any defined channel. For a number of reasons including fish passage, environmental benefits and a willing dam owner, the structure is being considered for removal and a feasibility study of that alternative has recently been completed. Should removal not be determined to be a viable option, more efficient fish passage facilities must be provided.

The Hamlin Street dam, the second on the stream, is also the subject of a feasibility study for full or partial breaching. While herring have been able to pass this obstruction under suitable flow conditions it remains a limiting factor in the population’s ability to reach its potential. Again, if removal is decided against, a fishway must be installed at this location.

An 11 foot dam at 220 acre New Bedford Reservoir is the third and last obstruction on the system. Although the spillway at this dam has passed fish under ideal flow conditions, this structure has severely limited the number of fish spawning in the Reservoir. A state-of-the-art Denil fishway, designed by DMF with assistance from the U.S. Fish and Wildlife Service and funded by the New Bedford Harbor Cleanup Fund, was constructed in 2002. In anticipation of the fishway installation, DMF initiated alewife stocking at the Reservoir in 1999 in order to accelerate the recovery of this population.

Mattapoisett River Mattapoisett, Rochester

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
11.1	Fifth	6.0	Alewife, blueback, smelt

Obstruction # 1 Route 6 Crossing Mattapoisett

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS	
0.7	Dam	Concrete with metal spillway gates	19.0	7.0	2.5	-	Town of Mattapoisett	41º 39’ 25.533” 70º 50’ 03.390”	N W

Dam at Route 6 Crossing

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with wooden baffles	58.0	3.0	5.0	16	8.6	-	-	Excellent Passable

Ladder at Route 6 Crossing

Obstruction # 2 Rounseville Road Crossing Rochester

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
8.7	Dam	Stone with wooden boards	11.0	4.0	0.0	-	-	41º 44’ 10.582” N 70º 51’ 45.888” W

Dam at Rounseville Road Crossing

Fishway None

Obstruction # 3 Rochester Fish Hatchery Rochester

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
9.7	Dam	Concrete with wooden boards	7.0	5.6	31.8	-	MA Department of Fish & Wildlife	41º 44’ 53.016” N 70º 51’ 49.382” W

Rochester Fish Hatchery Dam

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Stream baffle	Stone	1790	10	10	15	Varied (0.5-1)	-	Varied (10-50)	Good Passable

Stream Baffles at Rochester Fish Hatchery

Obstruction # 4 Snipatuit Pond Outlet Rochester

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
11.1	Dam control structure	Concrete with wooden boards	4.0	2.4	710.0	1986	Private	41º 45’ 45.877” N 70º 52’ 09.022” W

Snipatuit Pond Dam and Ladder

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Weir-pool	Concrete with wooden baffles	44.0	4.0	5.3	6	Varied (2.4)	-	8.0	Excellent Passable

Remarks:

The dam and fishway at the first impoundment on the Mattapoisett River at Route 6 were both replaced in 1996. The new fishway is a Denil design which provides optimal passage around this obstruction. Water levels in the impoundment are controlled by the Fairhaven Water Department and must continue to be regulated with fish passage in mind.

The second obstruction is a concrete flume with wooden stoplogs at Route 105 (Rounseville Road). These boards are reportedly removed annually with the arrival of the herring. Another obstruction occurs at a fish hatchery owned by the Massachusetts Division of Fisheries and Wildlife. Fish avoid this dam by means of a bypass channel with stone stream baffles to overcome the elevation change. A third dam, at the outlet of 710 acre Snipatuit Pond, is surmounted by a concrete and wood weir-pool ladder incorporated into the dam structure.

This fishery is controlled by a Tri-Town Herring Committee representing the towns of Mattapoisett, Marion and Rochester. In addition, a citizens group called Alewives Anonymous has assisted in the maintenance of this run. This organization has also installed an electronic fish counter at the outlet of Snipatuit Pond which has been in place for 14 years. A second counter has been added to the exit end of the first fishway. Estimates based on these counts have ranged from 40,000 to 130,000 fish annually.

Tinkham Pond

Mattapoisett, Acushnet

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
1.2	Second	5.4	None known

Obstruction # 1

Tinkham Pond control structure

Mattapoisett

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS	
1.2	Dam control structure	Concrete and stone with wooden boards	2.4	1.6	16.8	1932	Mattapoi-sett Cranberry Co.	41º 40’ 56.092” 70º 51’ 23.814”	N W

Dam control structure at Tinkham Pond

Fishway

None

Remarks:

This small stream drains a 16.8 acre impoundment called Tinkham Pond. Flow is diverted through a cranberry bog system before joining the Mattapoisett River. While the potential habitat in the impoundment is considerable, the contribution it would make to the system given the acreage available in Snipatuit is negligible. This and the potential problems created by the bog diversion make this stream a low priority for development.

Sippican River

Wareham, Marion, Rochester

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
5.0	Third	6.0	Alewife

Obstruction # 1

Hathaway Pond Dam — Marion

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
3.6	Dam	Concrete with wooden boards	20.0	5.0	21.5	1900	Private	41º 44’ 02.360” N 70º 47’ 39.373” W

Hathaway Pond Dam

Fishway

Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Weir-pool	Concrete with wood baffles	85.0	2.0	4.8	8	Varied (2.6)	-	Varied (9.5-30.7)	Fair Inefficient passage

Hathaway Pond Ladder

Obstruction # 2 Leonards Pond Dam Rochester

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
5.0	Dam	Wood	18.0	4.1	42.9	1900	Hiller Brothers Cranberry	41º 44' 53.539" N 70º 48' 16.686" W

Leonards Pond Dam and Ladder

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Wood	30.0	2.2	2.5	16	3.0	-	-	Fair Inefficient passage

Remarks:

The Sippican River is formed by the confluence of its east and west branches. Each of these tributaries flows through a complex system of cranberry bogs and related reservoirs. The two impoundments on the main stem, Hathaway and Leonards Ponds, comprise the only significant herring habitat on the system. The fishway at Hathaway Pond, though functional, has a 200 foot entrance channel and is incapable of discharging sufficient attraction flow to deflect migrating fish from the main channel. A barrier dam across the stream just above the ladder entrance would solve this problem. The second ladder is a wooden Denil installed in 1993 by DMF. It too is functional but less than optimal due to competing attraction flow from the dam spillway; a barrier dam would be useful here as well. Alewives Anonymous, a local volunteer group, installed a counter at this location in 1995. Counts have ranged from a low of 306 fish in 1995 to a high of 957 in 2000 with an average of 555 per year. The Sippican River fishery is also managed by the Tri-Town Committee of Mattapoisett, Marion and Rochester through Section 94 of Chapter 130.

Weweantic River

Wareham, Carver, Middleborough

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
16.6	Fourth	6.3	River herring, smelt, white perch, tomcod

Obstruction # 1

Horseshoe Pond Dam — Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
4.3	Dam	Concrete	44.5	6.0	59.0	1920	Private	41º 45’ 55.047” N 70º 44’ 51.047” W

Horseshoe Pond Dam

Fishway None

Obstruction # 2

Tremont Mill Pond Dam — Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
7.5	Dam	Concrete	32	24	30.5	1920	Town of Wareham	41º 47’ 22.583” N 70º 45’ 51.720” W

Tremont Mill Pond Dam

Fishway None

Remarks:

The Weweantic River has its source in swamplands of Middleborough and Carver. The upper reaches of the system are tied to a complex system of cranberry bogs and their associated reservoirs, obstructing dams and water withdrawals. The lower section, however, does have potential for anadromous fish development.

The first obstruction to fish passage is just above the point of tidal influence. This 6 foot dam creates a 59 acre impoundment called Horseshoe Pond. An old millrace is capable of passing fish under ideal flow conditions although its entrance location is too far downstream of the dam. A Denil fishway has been designed for this location and, until funding for construction is secured, modifications to the millrace could provide improved passage into the pond.

The second obstruction on the stream is at 30 acre Tremont Mill Pond. A 24 foot high dam associated with an unused hydroelectric station would prevent fish passage into this impoundment. Although the acreage is significant, the height of this dam would make any attempt at installing a fishway difficult and expensive. Fishway construction at this site should not be considered until river herring are utilizing the lower impoundment to its greatest potential.

Of special interest on this river is the unique rainbow smelt fishery which takes place each spring. Section 34 of Chapter 130 prohibits fishing for or possessing Massachusetts smelt from March 15th to June 15th. Due to a Special Act of Legislature, however, residents of Wareham, Rochester, Marion and Mattapoisett may take smelt from the Weweantic from the 1st of March through the 1st of April using nets of a specified size. This is the only spring smelt fishery permitted in the Commonwealth and the population appears to be maintaining itself successfully.

Wankinco River

Wareham, Carver, and Plymouth

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
7.3	Second	6.1	River herring

Obstruction # 1

Parker Mills Dam

Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
0.7	Dam	Concrete with wooden boards	10.8	7.5	74.7	1900	Town of Wareham	41º 46’ 01.789” N 70º 43’ 19.891” W

Parkers Mills Dam and Ladder

Fishway

Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with wooden baffles	123.7	3.0	4.5	42	4.8	-	-	Good Passable

Obstruction # 2a Tihonet Pond Dam Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
2.5	Dam	Concrete with wooden baffles	8 (including fishway)	8.9	90.0	1977	A.D. Makepeace Co.	41º 47’ 20.413” N 70º 42’ 44.952” W

Tihonet Pond Dam

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with fiberglass and wooden baffles	86.0	2.0	3.8	37	8.0	-	-	Good Inefficient passage
Notched weir-pool	Concrete with wooden baffles	62.0	4.5	8.0	7	1.9	1.5	6.6	Good Inefficient passage

Upper (weir-pool) Section of Tihonet Pond Ladder

Lower (Denil) section of Tihonet Pond Ladder

Obstruction # 2b Tihonet Pond Outlets Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
2.5	Dam	Earth, stone and concrete	4.5	15	90.0	1900	A.D. Makepeace Co.	41º 47’ 14.612” N 70º 43’ 07.677” W

Tihonet Pond Outlet

Fishway None

Obstruction # 3 At base of impoundment north of Tihonet Pond — Carver/Plymouth

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
4.0	Bog sluice	Concrete with wooden baffles	10.0	6.2	6.9	1955	A.D. Makepeace Co.	41º 48’ 30.678” N 70º 42’ 59.225” W

Bog Sluice at base of impoundment Upstream of Tihonet Pond

Fishway None

Remarks:

The Wankinco is another southeastern Massachusetts stream which is highly manipulated by cranberry bog diversions. From its source in East Head Pond it flows through a long series of bogs forming several impoundments along its course. The first two, Parker Mills Pond and Tihonet Pond, provide spawning and nursery habitat for river herring. The dam at Parker Mills Pond is provided with a concrete and wood Denil ladder. This ladder functions well but entrance to the structure is difficult at low tidal stages. Also, care must be taken to insure maximum flow through the ladder for optimal attraction to the entrance.

Tihonet Pond has two outlets, the eastern-most of which is equipped with a fishway. This combination weir-pool and Denil style ladder functions adequately with proper flow adjustment. The problem that occurs at this impoundment is the attraction flow from the west outlet which causes migrating herring to be diverted into a dead end channel. Careful adjustment of flows from the two outlets could increase the numbers of fish which reach the spawning area. Further development within this system is not justified due to numerous small obstructions and competing water usage by the cranberry growers.

Agawam River

Wareham, Plymouth

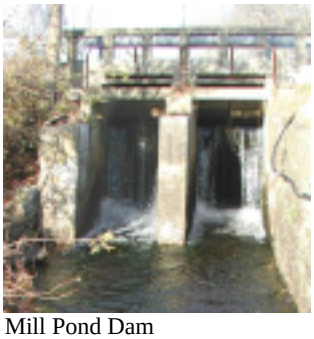
Stream Length (mi)	Stream Order	pH	Anadromous Species Present
11.3	Third	6.8	Alewife, blueback, American shad, smelt, white perch, trout, gizzard shad

Obstruction # 1

Mill Pond Dam

Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
2.9	Dam	Concrete with wooden baffles	6.9	6.6	147.4	1900	Town of Wareham	41º 45’ 44.416” N 70º 40’ 33.584” W



Mill Pond Dam

Fishway

Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Alaskan Steeppass	Aluminum	20.0	1.2	1.85	-	2.3	-	-	Excellent Passable
Notched weir-pool	Concrete and wood	117.0	6.0	Stream width	10	3.0	1.0	12	Poor Inefficient passage
Stream baffle	Stone	445.0	4.4	6.0	9	1	-	Varied (20-55)	Poor Inefficient passage

Lower (Steeppass) section of at Mill Pond

Upper (stream baffle) section of ladder at Mill Pond

Obstruction # 2 Maple Park Dam Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
5.0	Dam	Earthen with wood pilings	12.7	10.4	2.5	-	-	41º 46’ 58.735” N 70º 39’ 19.076” W

Maple Park Dam

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with wooden and fiberglass baffles	93.0	2.1	3.7	34	5.9	-	-	Good Passable

Ladder at Maple Park Dam

Obstruction # 3 Glen Charlie Pond Dam Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
5.1	Dam	Concrete with wooden boards	33	16	154.9	1900	AD Makepeace Co.	41º 47’ 05.315” N 70º 39’ 15.228” W

Glen Charlie Pond Dam

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with wooden and fiberglass baffles	579.0	2.1	3.7	50	5.9	-	Varied (16.0-43.0)	Good Passable

Glen Charlie Pond Ladder

Obstruction # 4 Besse Bog Reservoir Dam Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
6.9	Dam	Concrete with metal slots and wooden boards	11.85	10.7	27.3	-	A.D. Makepeace Co.	41º 48’ 38.642” N 70º 38’ 28.355” W

Besse Bog Reservoir Dam

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with wooden baffles	157.0	3.0	4.5	36	5.0	-	-	Excellent Passable

Ladder at Besse Bog

Obstruction # 5 Kennard Bog Dam Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
9.0	Dam	Concrete with wooden boards	9.0	4.0	16.1	1945	A.D. Makepeace Co.	41º 49’ 59.342” N 70º 37’ 37.489” W

Kennard Bog Dam and Ladder

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Alaskan Steeppass	Aluminum	42.0	2.0	-	-	2.25	-	-	Excellent Passable

Remarks:

The Agawam system supports a very productive river herring fishery largely due to the more than 500 acres of spawning and nursery habitat available in its ponds and impoundments. The difficulty in maintaining this fishery is that 5 fish ladders are required to enable the herring to reach these habitats including the river's headwaters in Halfway Pond. In recent years much effort has gone into replacing or modifying these structures, most of which were either deteriorated or of inefficient design.

The first fishway, a weir-pool ladder, at Route 6 in Wareham was fitted with an aluminum steeppass insert in 2000. This installation was funded by the National Oceanographic and Atmospheric Administration and designed and installed by DMF with the assistance of the USFWS and the Town of Wareham. Although the steeppass greatly increased the rate of fish passage through this portion of the fishway, an upstream notched weir-pool section beneath the road has eroded baffles and noticeably slows movement into the impoundment.

The next fishway, which actually bypasses two dams at Maple Park, works well. The entrance, however, is often missed by fish due to greater attraction flow from the dam's spillway. In 2002 the Town of Wareham installed a barrier screen to direct fish into the ladder and this approach was successful.

A deteriorated wooden ladder at Besse Bog Reservoir was replaced by DMF in 1994 with a concrete and wood Denil fishway. This ladder functions efficiently but requires careful adjustment of flow to provide sufficient attraction to the entrance.

The final fishway, at Kennard Bog dam, was replaced in 2002 with an aluminum steeppass ladder. This work was also funded by a grant from NOAA, designed by DMF and USFWS. Installation was carried out by the property owner, A.D. Makepeace, Inc.

In addition to the river herring, the Agawam River also supports a small rainbow smelt population, and in recent years numbers of gizzard shad have been observed. The smelt spawn immediately below the first dam. Gizzard shad have been taken at the catching station at Rt. 6 during operation of the herring fishery.

Gibbs Brook Wareham

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
2.0	First	6.2	River herring

Obstruction # 1 Gibbs Brook Culvert Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
0.1	Culvert	Concrete	4.1	0.0	0.0	-	-	41º 45’ 20.484” N 70º 39’ 12.952” W

Downstream end of Gibbs Brook Culvert

Fishway None

Obstruction # 2 Dick's Pond Dam Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
0.3	Dam	Concrete with wooden boards	3.5	2.1	41.8	-	-	41º 45' 30.383" N 70º 39' 14.729" W

Dick's Pond Dam and Ladder

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Notched weir-pool	Concrete with wood baffles	23.0	Varied (3.5 and 20)	4.6	6	Varied (1.3 and 2.0)	Varied (0.6 and 1.0)	Varied (3.0 and 4.0)	Poor Inefficient

Remarks:

The only significant spawning area available on this stream is 42 acre Dicks Pond. In order to reach the pond, herring must first enter and traverse more than 500 feet of underground culvert. After exiting the culvert, the fish can enter the pond via a small notched weir-pool fishway. This system has served as a source of fish for the DMF transplant program. While potential for substantial increases in population numbers is limited, the current production is sufficient to warrant diligent management and enforcement.

Red Brook

Wareham, Plymouth

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
5.4	First	6.9	River herring, trout

Obstruction # 1

Stream baffle below Route 25 Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
1.4	Culvert	-	-	-	0.0	-	-	41º 46’ 34.002” N 70º 37’ 50.599” W

Stream Baffle downstream of Route 25

Fishway

Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Stream baffle	Granite and stone	N/A	13.0	13.0	1	1.5	1.7	N/A	Fair Inefficient passage

Obstruction # 2 Southbound Route 25 crossing Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
1.5	Culvert	-	-	-	0.0	-	-	41º 46’ 35.361” N 70º 37’ 51.069” W

Southbound Route 25 Crossing

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Trench with baffle	Concrete trench, stone stream baffle	88.0	3.0	6.0	1	1.0	-	N/A	Poor Inefficient passage

Obstruction # 3 Northbound Route 25 crossing Wareham

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
1.5	Culvert	-	-	-	0.0	1979	-	41º 46’ 36.353” N 70º 37’ 51.125” W

Northbound Route 25 Crossing

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Notched weir-pool	Wooden boards, metal slots, stone stream baffle	88.0	6.0	Culvert wall	5	Varied (1.0-1.5)	1.8	Varied (8.0-56)	Fair Inefficient passage

Obstruction # 4 White Island Pond Dam Bourne

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Impoundment Acreage	Year Built	Owner	GPS
4.3	Bog sluice	Concrete and steel with wooden boards	20.0	7.4	294.0	1900, rebuilt 1950	A.D. Makepeace Co.	41º 48’ 16.904” N 70º 37’ 10.375” W

White Island Pond Dam

Fishway Present

Design	Material	Length (ft)	Inside W (ft)	Outside W (ft)	# of Baffles	Baffle H (ft)	Notch W (ft)	Pool L (ft)	Condition/ Function
Denil	Concrete with wooden baffles	103.0	2.0	3.5	28	Varied (4.3 and 7.0)	-	-	Excellent Inefficient passable

White Island Pond Ladder

Remarks:

River herring migrating up Red Brook have nearly 300 acres of spawning and nursery habitat available in White Island Pond. Despite this large area, the population has never reached its apparent potential. This is possibly due to a combination of poorly maintained fish passage facilities and cranberry bog water diversions.

The first obstruction on the stream is actually a stream baffle which backs water up into the Route 25 culverts. A notch in this baffle allows fish to pass under spring flow conditions. Baffles in the culverts themselves increase water depth for passage but are poorly maintained and create difficulties for migrating fish. The Town of Wareham and DMF are aware of the difficulties in passage here, and attempt to make adjustments as needed. A third ladder at the outlet of White Island Pond enables fish to access the headwater pond if properly adjusted. Sediment deposited at the ladder's exit at the time of this survey made it temporarily inoperable.

Bog operations that have impacted this population include delaying migration by diverting stream flow, stranding of downstream migrating juveniles (see general recommendations) and poor fishway adjustment and regulation. With proper management this system should be capable of increased production.

Bourne Pond Brook Bourne

Stream Length (mi)	Stream Order	pH	Anadromous Species Present
0.4	First	7.7	Alewife

Obstruction # 1 Bourne Pond outlet Bourne

River Mile	Type	Material	Spillway W (ft)	Spillway H (ft)	Pond Acreage	Year Built	Owner	GPS
0.4	Dam control structure	Concrete with wooden boards	1.1	1.0	10.6	-	-	41º 44’ 56.681” N 70º 35’ 53.879” W

Bourne Pond outlet

Fishway None

Remarks:

This small stream flows from 10.6 acre Bourne Pond to the Cape Cod Canal. A concrete outlet structure has functioned as a fish ladder. The tide-dependent entrance to the stream and the lack of adequate outflow from the pond give this stream a low priority for future work.

Buzzards Bay Drainage Recommendations:

1. Fish passage at the first two dams on the Acushnet River must be improved either by full or partial removal of the obstructions or by construction of efficient fishways.

2. An additional Denil baffle should be added to the entrance of the fishway on the Paskamanset River at Russells Mills in Dartmouth.

3. A short-term solution to the fish passage issue at Horseshoe Pond on the Weweantic River is to modify the existing millrace, possibly by inserting a section of aluminum steeppass. A long term answer, should funding become available, is to install a permanent Denil ladder.

4. Improvements should be made to the section of fishway under Route 6 on the Agawam River in Wareham in order to allow this system to reach its potential.

5. Cranberry bog owners on streams that have anadromous fish runs should be made aware of the impacts their operations have on these populations as well what measures can be taken to avoid them. Appropriate screening methods, flow regulation and mandatory fish kill reporting should be included in the conditions section of all state issued permits.