

## **General Recommendations**

1. With a small number of exceptions, the important river herring spawning/nursery habitats on coastal streams have been made accessible through the construction of fishways. Many of these structures have become deteriorated and are often of obsolete design. The emphasis of future work should be on the replacement of these fish ladders in order to preserve or augment the populations they serve rather than to create new populations by accessing minor habitats.
2. Most river herring fisheries are under local control through the authority granted by Section 94 of Chapter 130. Many towns having this control, however, are unaware that approval of the Director of the Division of Marine Fisheries is required by the statute and often change their regulations without consulting DMF. In order to insure biologically sound and legally valid local management, the Director should inform cities and towns of this condition and request them to submit current regulations and subsequent changes for approval.
3. River herring passage issues have dealt primarily with upstream migration of adults. Downstream passage of adults and more importantly juveniles has been largely ignored and, in some systems, may be an important limiting factor in population productivity. Future work should take this into consideration and place appropriate emphasis on this phase of the life cycle and the problems which are associated with it.
4. Large numbers of juvenile herring are killed each year due to cranberry bog operations. A simple, inexpensive screening system has been developed which will prevent most of these losses. Despite publicizing the availability of this system through industry media, growers have been reluctant to utilize it. Appropriate screening of water withdrawal intakes to prevent stranding, mutilation, entrainment or impingement of young herring should be made a condition of any state permits required for the agricultural operation.
5. Shoaling of pond outlets and encroachment of vegetation has seriously impacted river herring populations in some systems. Deposition of sandy material at the outlets in combination with low late summer/fall water levels has prevented the escapement of large segments of year classes and caused them to be lost to the population either through winter kill or greatly reduced growth rates. Outlet structures which would retain depth, reduce deposition and provide for easier maintenance should be developed and installed at stream outlets where appropriate.
6. The emphasis of anadromous fish management in coastal streams has been on river herring, American shad and rainbow smelt. Consequently little is known about white perch and tomcod populations in the Commonwealth. In the future more attention should be directed toward these species and management strategies which would protect them should be developed.
7. Several large coastal streams, notably the Taunton, Charles and Neponset Rivers, appear to have excellent potential for development of American shad populations. Many years of stocking with adult fish and eggs have yielded negligible results, however. Other states have had success through hatchery egg taking and rearing to fry size before release. This technique should be developed in Massachusetts and applied to the above streams.
8. Removal of dams should be considered as an alternative to fishway construction where appropriate.

## Alphabetical Index of Streams

Stream Name	Town(s)	Page
Acushnet River	Acushnet	86
	Fairhaven	
	New Bedford	
Agawam River	Plymouth	104
	Wareham	
Assonet River	Berkley	30
	Freetown	
	Lakeville	
Bad Luck Brook	Abington	17
	Rehoboth	
Beaver Brook	Abington	72
	Brockton	
	East Bridgewater	
Bourne Pond Brook	Bourne	117
Buttonwood Brook	New Bedford	85
Cockeast Pond	Westport	79
Cole River	Dighton	21
	Swansea	
Cotley River	Berkley	51
	Taunton	
Dam Lot Brook	Raynham	49
East Branch Palmer River	Rehoboth	16
East Branch Westport River	Dartmouth	81
	Westport	
Fall Brook	Middleborough	61
Forge River	Raynham	45
Furnace Brook	Raynham	53
	Taunton	
Gibbs Brook	Wareham	110
Kickamuit River	Swansea	19
	Warren, RI	
Labor in Vain Brook	Dighton	29
	Somerset	
Lee River	Swansea	23
Mattapoissett River	Mattapoissett	90
	Rochester	
Meadow Brook	East Bridgewater	70
	Whitman	
Mill River	Taunton	43
Muddy Cove Brook	Dighton	34
Nemasket River	Lakeville	56
	Middleborough	
Oakland Mill Ponds	Taunton	42
Palmer River	Rehoboth	13
	Swansea	
	Warren, RI	
Paskamanset/Slocum River	Dartmouth	82
Pine Swamp Brook	Raynham	48
Poquoy Brook	Lakeville	54
	Middleborough	

<b>Stream Name</b>	<b>Town(s)</b>	<b>Page</b>
Poquoy Brook, cont.	Raynham	54
Rattlesnake Brook	Freetown	32
Red Brook	Plymouth	112
	Wareham	
Richmond Pond	Westport	78
Richmond Pond	Taunton	52
Rocky Run	Rehoboth	15
	Swansea	
Runnins River	Seekonk	11
Satucket River	East Bridgewater	65
Segreganset River	Dighton	37
	Taunton	
Sippican River	Marion	96
	Rochester	
	Wareham	
Stump Brook	Halifax	66
Taunton River	Berkley	27
	Bridgewater	
	Dighton	
	Fall River	
	Halifax	
	Middleborough	
	Raynham	
	Somerset	
	Taunton	
Ten Mile River	Attleborough	7
	East Providence, RI	
	North Attleborough	
	Plainville	
	Seekonk	
Three Mile River	Dighton	39
	Norton	
	Taunton	
Tinkham Pond	Acushnet	95
	Mattapoisett	
Town River	West Bridgewater	74
Tributary above Berkley Street	Taunton	41
Wankinco River	Carver	100
	Plymouth	
	Wareham	
West Branch Westport River	Adamsville, RI	80
	Westport	
Weweantic River	Carver	98
	Middleborough	
	Wareham	
Winnetuxet River	Carver	63
	Halifax	
	Plympton	

## Alphabetical Index of Towns

<b>Massachusetts Towns</b>	<b>Stream</b>	<b>Page</b>
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	Beaver Brook	72
Acushnet	Acushnet River	86
	Tinkham Pond	95
Attleborough	Ten Mile River	7
Berkley	Assonet River	30
	Cotley River	51
	Taunton River	27
Bourne	Bourne Pond Brook	117
Bridgewater	Taunton River	27
Brockton	Beaver Brook	72
Carver	Wankinco River	100
	Weweantic River	98
	Winnetuxet River	63
Dartmouth	East Branch Westport River	81
	Paskamanset/Slocum River	82
Dighton	Cole River	21
	Labor in Vain Brook	29
	Muddy Cove Brook	34
	Segregansett River	37
	Taunton River	27
	Three Mile River	39
East Bridgewater	Beaver Brook	72
	Meadow Brook	70
	Satucket River	65
Fairhaven	Acushnet River	86
Fall River	Taunton River	27
Freetown	Assonet River	30
	Rattlesnake Brook	32
Halifax	Stump Brook	66
	Taunton River	27
	Winnetuxet River	63
Lakeville	Assonet River	30
	Nemasket River	56
	Poquoy Brook	54
Marion	Sippican River	96
Mattapoisett	Mattapoisett River	90
	Tinkham Pond	95
Middleborough	Fall Brook	61
	Nemasket River	56
	Poquoy Brook	54
	Taunton River	27
	Weweantic River	98
New Bedford	Acushnet River	86
	Buttonwood Brook	85
North Attleborough	Ten Mile River	7
Norton	Three Mile River	39
Plainville	Ten Mile River	7
Plymouth	Agawam River	104
	Red Brook	112

<b>Mass. towns, continued</b>	<b>Stream</b>	<b>Page</b>
Plymouth, cont.	Wankinco River	100
Plympton	Winnetuxet River	63
Raynham	Dam Lot Brook	49
	Forge River	45
	Furnace Brook	53
	Pine Swamp Brook	48
	Poquoy Brook	54
	Taunton River	27
Rehoboth	Bad Luck Brook	17
	East Branch Palmer River	16
	Palmer River	13
	Rocky Run	15
Rochester	Mattapoissett River	90
	Sippican River	96
Seekonk	Runnins River	11
	Ten Mile River	7
Somerset	Labor in Vain Brook	29
	Taunton River	27
Swansea	Cole River	21
	Lee River	23
	Kickamuit River	19
	Palmer River	13
	Rocky Run	15
Taunton	Cotley River	51
	Furnace Brook	53
	Mill River	43
	Oakland Mill Ponds	42
	Richmond Pond	52
	Segregansett River	37
	Taunton River	27
	Three Mile River	39
	Tributary above Berkley Street	41
Wareham	Agawam River	104
	Gibbs Brook	110
	Red Brook	112
	Sippican River	96
	Wankinco River	100
	Weweantic River	98
West Bridgewater	Town River	74
Westport	Cockeast River	79
	East Branch Westport River	81
	Richmond Pond	78
	West Branch Westport River	80
Whitman	Meadow Brook	70

<b>Rhode Island Towns</b>	<b>Stream</b>	<b>Page</b>
Adamsville, RI	West Branch Westport River	80
East Providence, RI	Ten Mile River	7
Warren, RI	Kickamuit River	19
	Palmer River	13

## Appendix 1: Anadromous species of the Commonwealth of Massachusetts

Alewife (*Alosa pseudoharengus*)  
Blueback (*Alosa aestivalis*)  
American shad (*Alosa sapidissima*)  
Rainbow smelt (*Osmerus mordax*)  
White perch (*Morone americana*)  
Atlantic salmon (*Salmo salar*)  
Brook trout (aka Salter trout) (*Salvelinus fontinalis*)  
Rainbow trout (aka Steelhead trout) (*Oncorhynchus mykiss*)  
Brown trout (sea run) (*Salmo trutta*)  
Coho salmon (*Oncorhynchus kisutch*)  
Lamprey (*Petromyzon marinus*)  
Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)  
Shortnose sturgeon (*Acipenser brevirostrum*)  
Gizzard shad (*Dorosoma cepedianum*)  
Hickory shad (*Alosa mediocris*)  
Tomcod (*Microgadus tomcod*)  
Striped bass (*Morone saxatilis*)

## Appendix 2: State River Herring Regulations

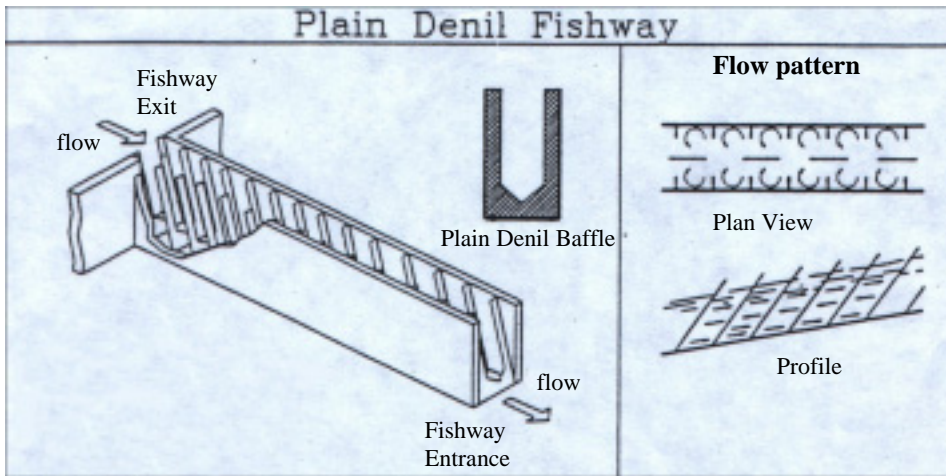
The following regulations affect the catch of river herring (alewives and bluebacks) in cities and towns without local control. These regulations establish catching days, daily catch limits, and gear restrictions and are being promulgated to establish consistent state management of river herring not under the local control of a city or town by operation of M. G. L. c. 130, s.94. These regulations are easily understood, readily enforceable, and will help assure adequate escapement of river herring for spawning.

Below is section 6.17 of 322 CMR:

### 6.17 River Herring

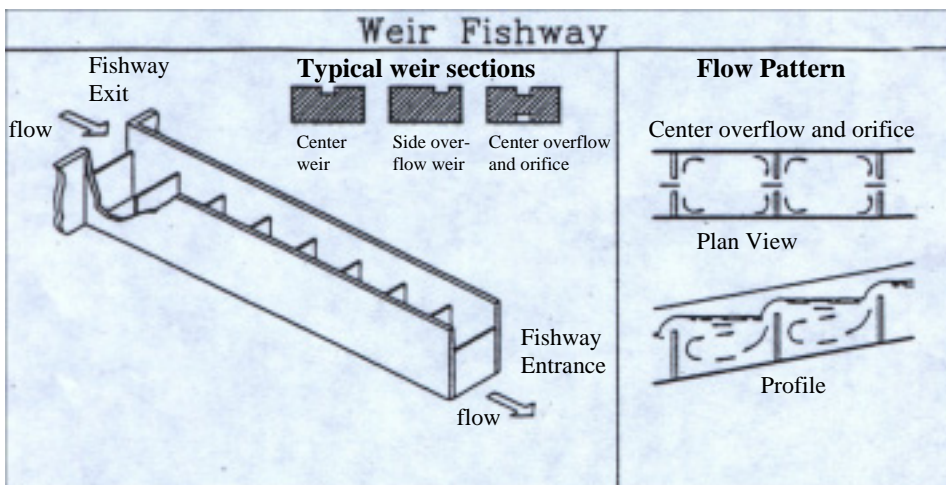
- 1) Purpose. This regulation is promulgated to establish consistent state management of river herring fisheries not under local control of a city or town by operation of M. G. L. c. 130 s. 94.
- 2) Definition. For purpose of this regulation, the term River Herring means those species of fish known as alewives (*Alosa pseudoharengus*) and bluebacks (*Alosa aestivalis*).
- 3) Catching Days. It is prohibited and unlawful for any person to catch river herring on Tuesdays, Thursdays, and Sundays.
- 4) Daily Catch Limit. It is prohibited and unlawful for any person to catch more than 25 river herring per day.
- 5) Gear Restrictions. It is prohibited and unlawful to catch river herring with any net other than hand-held dip nets.
- 6) Exception. These regulations shall not apply to the catching of river herring in cities and towns which have acquired local control by operation of M. G. L. c. 130, section 94, or to the catching of herring authorized by the Director under 322 CMR 4.02 (1)(b) and (1)(c).

### Appendix 3: Fishway Designs and Examples



#### Denil Fishway

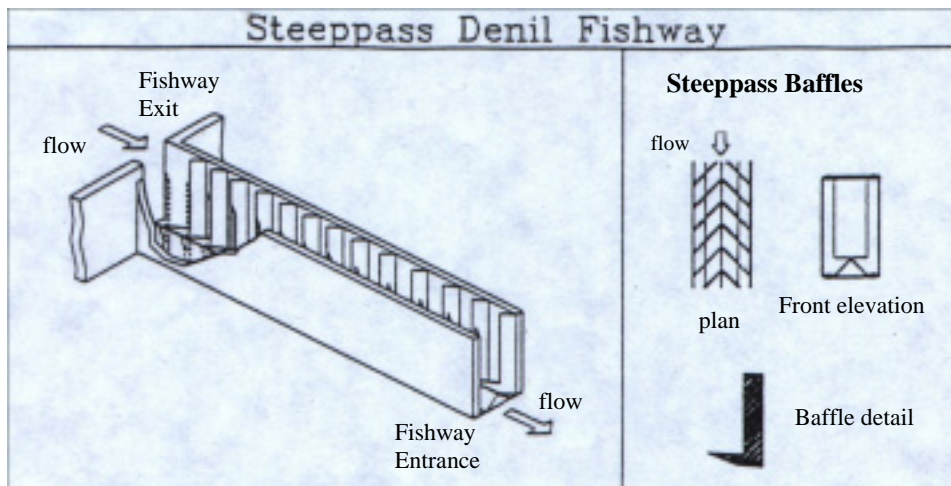
- Slope: 10-25%
- Resting pools are required between long segments
- Limited by large water depths
- Greater discharge of water than the other fishways, and therefore a greater attraction capability.



#### Weir Fishway

- Slope usually 10%
- Sensitive to water level fluctuations





### Steeppass Fishway

Fishway designs taken from:

Fish Passageways and Diversion Structures  
 Section 3  
 United States Fish & Wildlife Service  
 Presented by:  
 Branch of Aquatic Resources Training  
 National Education and Training Center  
 June 17-21, 1996  
 Richland, Washington

## Examples of fishways in use:

### Denil Fishways



Denil – Newton Lower Falls Dam, Newton



Denil – Ipswich Mills Dam, Ipswich

Weir pool fishways



Notched weir pool fishway – Pleasant St. Dam, Weymouth



Notched weir-pool – Broad St. Dam, Weymouth



Weir pool – Triphammer Pond Dam, Hingham





Weir pool – Benoit's Pond Dam, Bourne

### Steeppass Fishways



Alaskan Steeppass – Newfield St. Dam, Plymouth



Alaskan Steeppass – Elm St. Dam, Kingston

### Stream Baffles



Stream baffles – Brook St. Culvert, Kingston



### Vertical Slot Fishways



Modified Ice Harbor vertical slot fishway – Pawtucket Dam, Lowell

### Fish Lifts



Fish lift – hopper rising with fish – Essex Dam, Lawrence

#### **Appendix 4: Abbreviations used in this publication:**

DCR**	Department of Conservation and Recreation
DMF	Division of Marine Fisheries
DPW	Department of Public Works
EOEA	Executive Office of Environmental Affairs
GPS	Global Positioning System
NOAA	National Oceanic and Atmospheric Administration
USFWS	United States Fish and Wildlife Service

\*\*DCR is a new agency that was once two separate agencies: Department of Environmental Management (DEM) and the Metropolitan District Commission (MDC)