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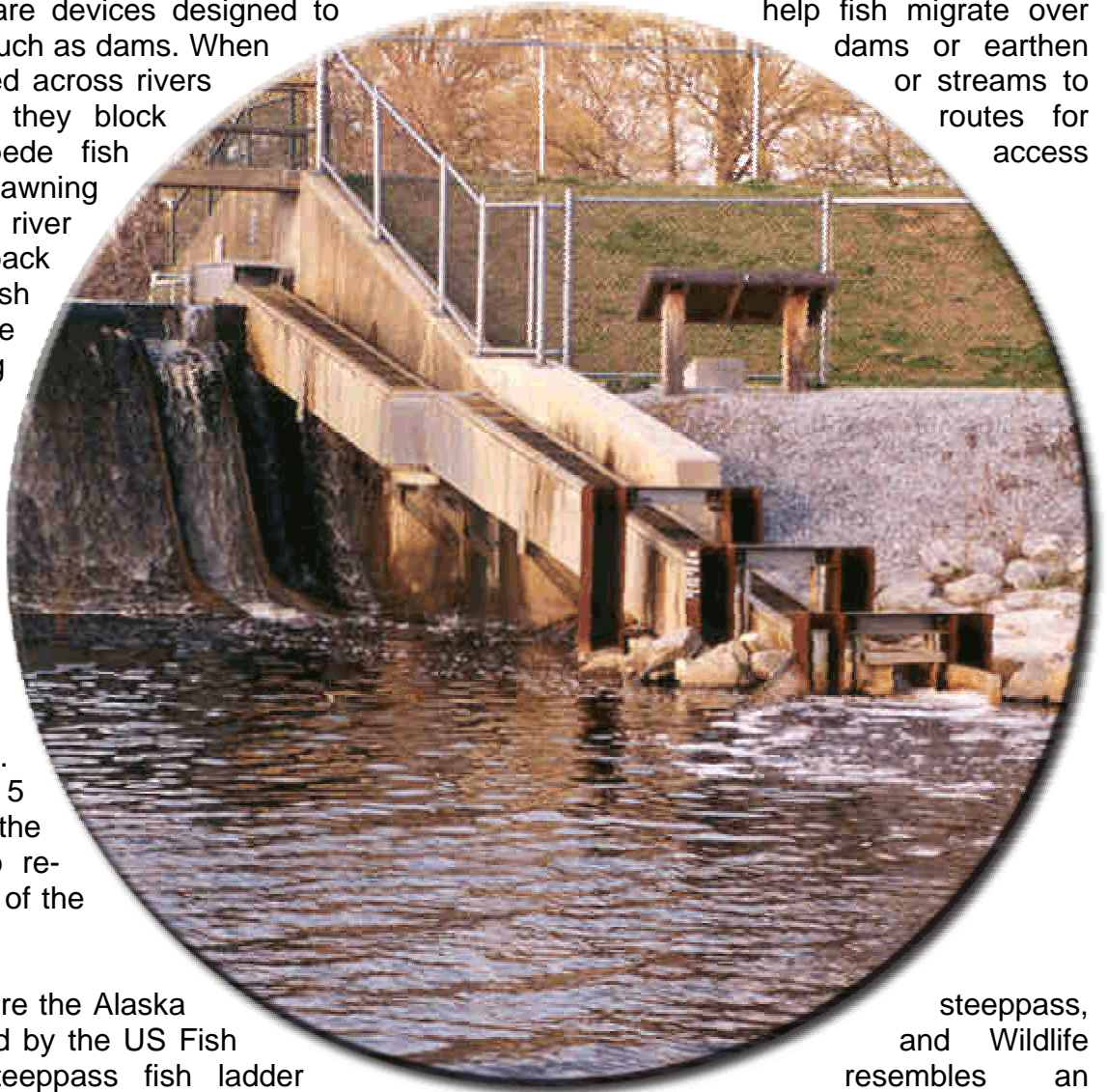
Overview

By constructing fish ladders, the EEP has worked to increase fish production through the creation of safe passageways to historic spawning and nursery grounds for migrating anadromous fish species. Fish ladders, or "fish ways", are devices designed to help fish migrate over obstacles in waterways, such as dams. When embankments are installed across rivers or streams to create lakes or ponds, they block routes for fish migration and impede fish access to and from suitable spawning habitat. Fish ladders help river herring (alewife and blueback herring) and other fish species migrate over these barriers, thus restoring access to historic spawning and nursery areas.

The EEP has constructed thirteen fish ladders on tributaries in New Jersey and Delaware to enhance fish migration in the Delaware Estuary Basin. On average, at least 5 years are required for the herring runs to begin to re-establish after installation of the ladders.

The type of fish ladders are the Alaska which were recommended by the US Fish Service. The Alaska steppass fish ladder aluminum chute and is installed at a gentle slope to

steppass, and Wildlife resembles an allow fish to swim up and





over the dam to spawning grounds. The fish ladders are equipped with interior baffles along their sides and bottom which slow the water flowing through them. This reduced flow allows fish to swim upstream with minimal effort. The bubbling water at the base of the ladder attracts fish to the ladder entrance.

| Pond/Lake/River | Location | Date Completed | Acres | Stream Miles |
|-------------------------|---------------|----------------|-------|--------------|
| Coursey Pond | Frederica, DE | 1996 | 58 | 2.70 |
| McColley Pond | Frederica, DE | 1996 | 49 | 21.15 |
| McGinnis Pond | Frederica, DE | 1996 | 31 | 11.81 |
| Silver Lake | Dover, DE | 1996 | 171 | 29.25 |
| Sunset Lake | Bridgeton, NJ | 1997 | 94 | 34.15 |
| Cooper River | Camden, NJ | 1998 | 190 | 2.36 |
| Garrison's Lake | Smyrna, DE | 1999 | 86 | 8.03 |
| Moore's Lake | Dover, DE | 1999 | 27 | 1.52 |
| Noxontown Lake | Milford, DE | 2004 | 162 | 6.09 |
| Newton Lake | Oaklyn, NJ | 2004 | 41 | 2.03 |
| Silver Lake (upper dam) | Milford, DE | 2004 | 27 | 2.15 |
| Silver Lake (lower dam) | Milford, DE | 2004 | * | * |
| Stewart Lake | Woodbury, NJ | 2004 | 38 | 5.34 |

* Included in Silver Lake (upper dam)

Goals

The goals of the fish ladder construction were to:

- Improve sport and commercial fisheries in the Delaware Estuary and in impoundments
- Increase prey for important predator species (e.g. weakfish and striped bass)
- Enhance scientific knowledge and experience
- Provide opportunities for public education

Actions Taken

The following actions were taken to achieve the fish ladder construction goals:

- Designed and installed thirteen fish ladders
- Stocked selected impoundments to supplement herring runs
- Monitored the success of the individual ladders



Accomplishments

As a result of actions taken, the EEP and its partners have accomplished the following:

- Increased spawning and nursery habitat by 1001 acres of impoundment and 133 miles of upstream habitat
- Increased fish production in ponds for adult/juvenile river herring and pond predators (e.g. largemouth bass)



- Increased fish production in the Delaware Estuary
- Conducted monitoring which has demonstrated:
 - All ladders have passed fish into respective impoundments;
 - Spawning has occurred upstream of the fish ladders;
 - Rate of adult herring passage generally increasing each year; and
 - Impoundments have proper physical and biological conditions to support growth of juvenile herring

Continuing Activities

As part of long-term commitments to the program, the EEP continues to:

- Ensure fish ladders are operated seasonally