

LECTURE 3.3:
STREAM TROUT MANAGEMENT IN WISCONSIN:
ROLE OF HABITAT MANAGEMENT

1. Trout management in Wisconsin integrates fish, habitat and people.

[OVERHEAD: Copy of Trout Regulations Brochure]

- 1.1. Stocking program is moving toward wild strain management.
- 1.2. Habitat management is dedicated to improving and enhancing stream habitat.
- 1.3. Angling regulations are tailored to individual streams.

2. Habitat management program.

- 2.1. Trout habitat management was born in Wisconsin.

- 2.1.1. Trout stream habitat manipulations began in 1930s (disorganized era).
- 2.1.2. Trout stream habitat research on 25 streams in 1950s (early research era).
- 2.1.3. Intensive research on Lawrence Creek in 1960s (intensive research era).
- 2.1.4. Guidelines for trout stream habitat manipulations (White and Brynoldson 1967).
- 2.1.5. Dedicated funding for trout stream habitat manipulations (1977 to present).
- 2.1.6. Evaluation of the trout habitat program was undertaken in 1988 (Hunt 1988).

- 2.2. Success of habitat management increased after 1977.

[OVERHEAD: Copy of Trout Stamp Page from Brochure]

- 2.2.1. Trout stamp program brought habitat projects under central authority.
- 2.2.2. Projects became more standardized and rigorously planned.
- 2.2.3. Evaluations often lack pre-treatment replication and reference zones.
- 2.3. Success of habitat management favored both brook and brown trout, unless mixed.
 - 2.3.1. Total population abundance increased for both brook and brown trout.
 - 2.3.1.1. Brook trout populations increased 54% (46%) of the time.
 - 2.3.1.2. Brown trout populations increased 55% (23%) of the time.
 - 2.3.1.3. Populations increased without regard to average size.
 - 2.3.2. Legal (≥ 6 inches) population abundance increased more for brown trout.
 - 2.3.2.1. Brook trout populations increased 43% (29%) of the time.
 - 2.3.2.2. Brown trout populations increased 57% (33%) of the time.
 - 2.3.2.3. Larger brown trout are more favored than smaller brook trout.
 - 2.3.3. Brown trout did better than brook trout in mixed populations.

- 2.3.3.1. Brook trout populations increased 43% (33%) of the time.
- 2.3.3.2. Brown trout populations increased 83% (83%) of the time.
- 2.3.3.3. Larger brown trout may out-compete smaller brook trout.
- 2.3.3.4. Brook trout may be exposed to higher angler exploitation.

2.4. Structures were not all equally effective for improving trout populations.

2.4.1. Bank covers and current deflectors were generally best.

[OVERHEAD: Diagram of Bank Cover & Current Deflector]

- 2.4.1.1. Prior to 1977, 75% habitat projects improved trout populations.
- 2.4.1.2. After 1977, 92% habitat projects improved trout populations.
- 2.4.1.3. Cover for adult fish is favored, which leads to increased numbers.
- 2.4.1.4. Channel may deepen and thereby increase area of spawning gravel.
- 2.4.1.5. Such structures are more difficult to fish than others (see below).

2.4.2. Stream-bank debrushing, brush bundles, and half-logs were poor.

[OVERHEAD: Diagram of Brush Bundle]

- 2.4.2.1. Such techniques often caused populations to decline.
- 2.4.2.2. Cover may be improved, but fish may be more vulnerable to angling.

2.4.3. Small species may be disfavored, through predation by large trout.

[OVERHEAD: Diagram of Half Log]

- 2.4.4. Rainbow trout are rare, so effects on this species are not well understood.
- 2.4.5. Increased angling may negate increased trout populations.

2.5. Land acquisition seeks to return watershed to natural conditions.

- 2.5.1. Fishery areas become part of public land holdings.
- 2.5.2. Land use is changed to enhance water quality.

2.6. Priority watersheds seek to change poor land uses.

- 2.6.1. State and county agencies work together with landowners.
- 2.6.2. Landowners are given credit for improving land uses.
- 2.6.3. Riparian corridors are returned to natural vegetation (buffer strips).
- 2.6.4. Reduced use of fertilizers and chemicals to improve water quality.
- 2.6.5. Improved tillage practices to control erosion.

3. Stocking program.

3.1. Trout domesticate readily, but often survive poorly in the wild.

- 3.1.1. Accustomed to being hand fed (not able to forage on wild prey).
- 3.1.2. Accustomed to being near people (not wary of birds or anglers).

3.1.3. Can rear more domestic trout within each hatchery (tolerant of crowding).

3.2. Wild trout often survive better in the wild.

3.2.1. Fed by automatic feeders—wary of humans.

3.2.2. Raised in covered raceways—accustomed to cover.

3.2.3. Can rear fewer wild trout within each hatchery (intolerant of crowding).

3.3. Performance of wild trout may be better than domestic trout.

3.3.1. Fewer domestic trout survive from stocking to harvest.

3.3.2. Fewer wild trout are stocked because more survive.

3.3.3. Cost-benefit must include fixed and marginal rearing costs and survival rate!

3.3.3.1. Rainbow trout cost \$0.24 to rear (\$0.16 marginal) and \$3.06 to harvest.

3.3.3.2. Steelhead trout cost \$0.72 to rear (\$0.05 marginal) and \$0.52 to harvest.

4. Angling regulations.

[OVERHEAD: Copy of Trout Regulation Categories]

4.1. Headwaters produce brook trout (Category 1).

4.1.1. No streams in Portage County.

4.1.2. No length limit reflects limited growth potential (shaded by brush).

4.1.3. Bag limit (10/day) reflects low exploitation—hard to fish (bugs and brush).

4.2. Middle sections produce brook and brown trout. (Category 2).

4.2.1. Little Plover River and most other streams in Portage County.

4.2.2. Length limit (7 inches) reflects better growth potential (some sunlight).

4.2.3. Bag limit (5/day) reflects higher exploitation—easier to fish (more open).

4.3. Lower sections produce brown trout (Category 3).

4.3.1. Flume Creek (tributary to Little Wolf River) in northeastern Portage County.

4.3.2. Length limit (9 inches) reflects better growth potential (open to sunlight).

4.3.3. Bag limit (3/day) reflects highest exploitation—easiest to fish (open).

4.4. Lowest sections produce large brown and rainbow trout (Category 4).

4.4.1. Several sections of the Tomorrow River (see Category 5).

4.4.2. Length limit (12 inches) reflects best growth potential (open to sunlight).

4.4.3. Bag limit (3/day) reflects highest exploitation—easiest to fish (open).

4.5. Notable streams produce trophy brown trout (Category 5).

4.5.1. Special restrictions may be used for these waters.

4.5.1.1. Wolf River—Langlade County.

4.5.1.1.1. Artificial lures only, with barbless hooks.

- 4.5.1.1.2. Daily bag limit—no harvest is permitted.
 - 4.5.1.1.3. Special season—March to May and October to November 15.
 - 4.5.1.2. Tomorrow-Waupaca River—Amherst (RR bridge) to Nelsonville (1st Street).
 - 4.5.1.2.1. Artificial lures only.
 - 4.5.1.2.2. Daily bag limit—1/day.
 - 4.5.1.2.3. Length limits—brown trout, 18 inches; brook trout, 10 inches.
 - 4.5.2. Lake Superior tributary streams harbor anadromous trout and salmon.
 - 4.5.2.1. Length limit varies with each species.
 - 4.5.2.1.1. Brook trout must exceed 8 inches.
 - 4.5.2.1.2. Brown trout must exceed 10 inches.
 - 4.5.2.1.3. Salmon must exceed 12 inches.
 - 4.5.2.1.4. Rainbow trout must exceed 26 inches.
 - 4.5.2.2. Bag limit varies with each species.
 - 4.5.2.2.1. Aggregate limit for trout and salmon (5/day).
 - 4.5.2.2.2. Species limit for brown trout (2/day).
 - 4.5.2.2.3. Species limit for rainbow trout (1/day).
 - 4.6. Complexity of regulations makes enforcement difficult.
 - 4.6.1. Must know where you are fishing at all times (maps in pamphlet).
 - [OVERHEAD: Copy of Trout Species Identification Page]**
 - 4.6.2. Must know which species of trout you catch (pictures in pamphlet).
 - 4.6.3. Wardens resisted trout regulations because of these problems.
 - 4.6.4. Anglers must voluntarily comply with regulations to be effective.
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