

Fish Habitat Structure Strategies and Fish Response



Ben Page
Lake Habitat Section Chief
PA Fish & Boat Commission





Structural Fish Habitat

- Spawning/Nesting
- Juvenile Cover
- Ambush Cover
- Foraging
- Refuge



1939. Pap. Mich. Acad. Sci.,
Arts, and Letters. 24(2): 183-193.

File: Fish Ecology

R 11 00

EXPERIMENTS IN THE USE OF
BRUSH SHELTERS BY FISH
IN MICHIGAN LAKES*

IMMANUEL A. RODEHEFFER

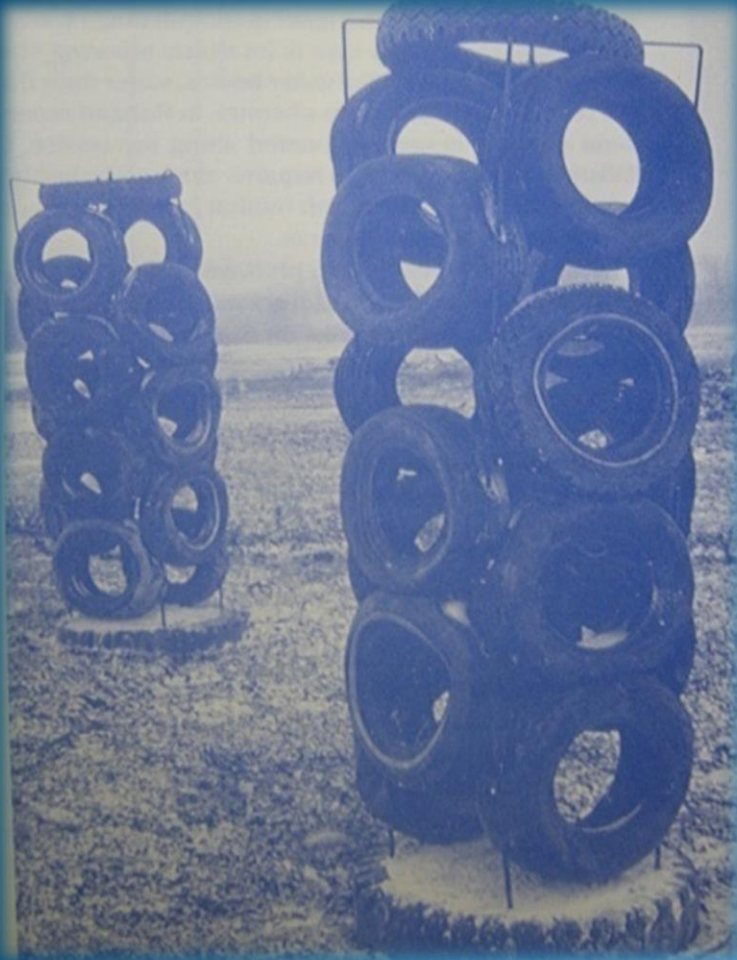
1939

IN THE recent development of the lake-improvement aspect of game-fish management artificial shelters of brush and other material have been installed in the hope of bettering the conditions for fish life (Hubbs and Eschmeyer, 1938). Proposals for shelter improvement have met with ready acceptance as relief labor projects since such projects utilize much unskilled labor and involve only a small outlay of money for materials. As a consequence, many thousands of brush shelters have been made and sunk in the inland lakes of the northern states, at a reported cost of several hundred thousand dollars. Very little effort and money have been expended, however, in any extensive and adequate attempt to test the success of these structures. Few men of competent training have been available to make such tests, and the supervisors of the emergency conservation work have not found it possible or expedient to support the research which might have placed environmental control on a more secure and permanent basis.

In supplying some needed evaluations of the effectiveness and practicability of brush shelters, and in planning the continuation of such studies, it was gratifying to have the coöperation of the Bio-



Structure Program History



Structure Type and Placement

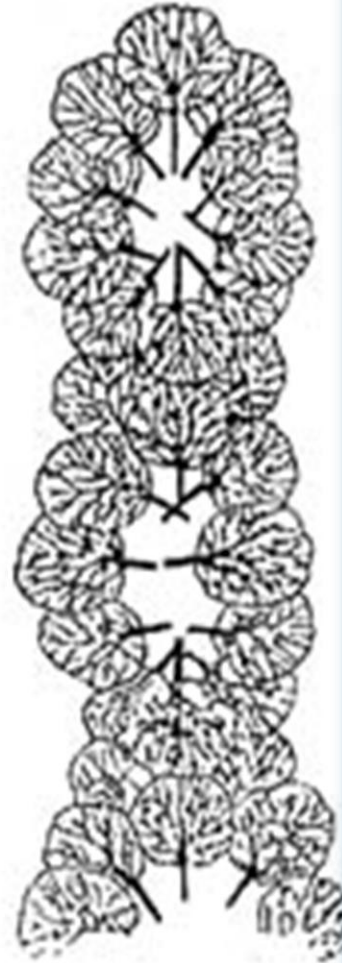
Dense



**Continuous
open center**



**Discrete
open center**



Fish Attractor

VS.

Large Scale Fish Habitat Enhancement

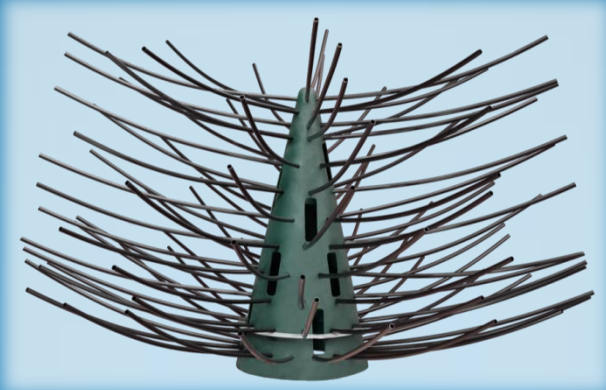


Large Scale Habitat Enhancement



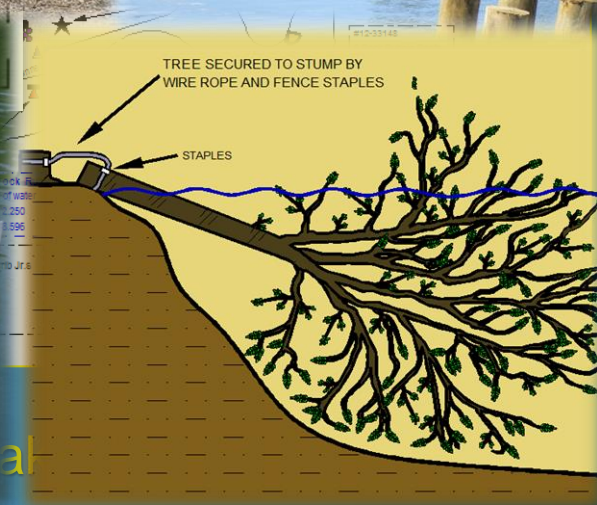
Large Scale Habitat Projects





Drawdown Opportunities





Short Vertical Plank Structure (SVP or Shorty)





Short Vertical Plank Structure (SVP or Shorty)

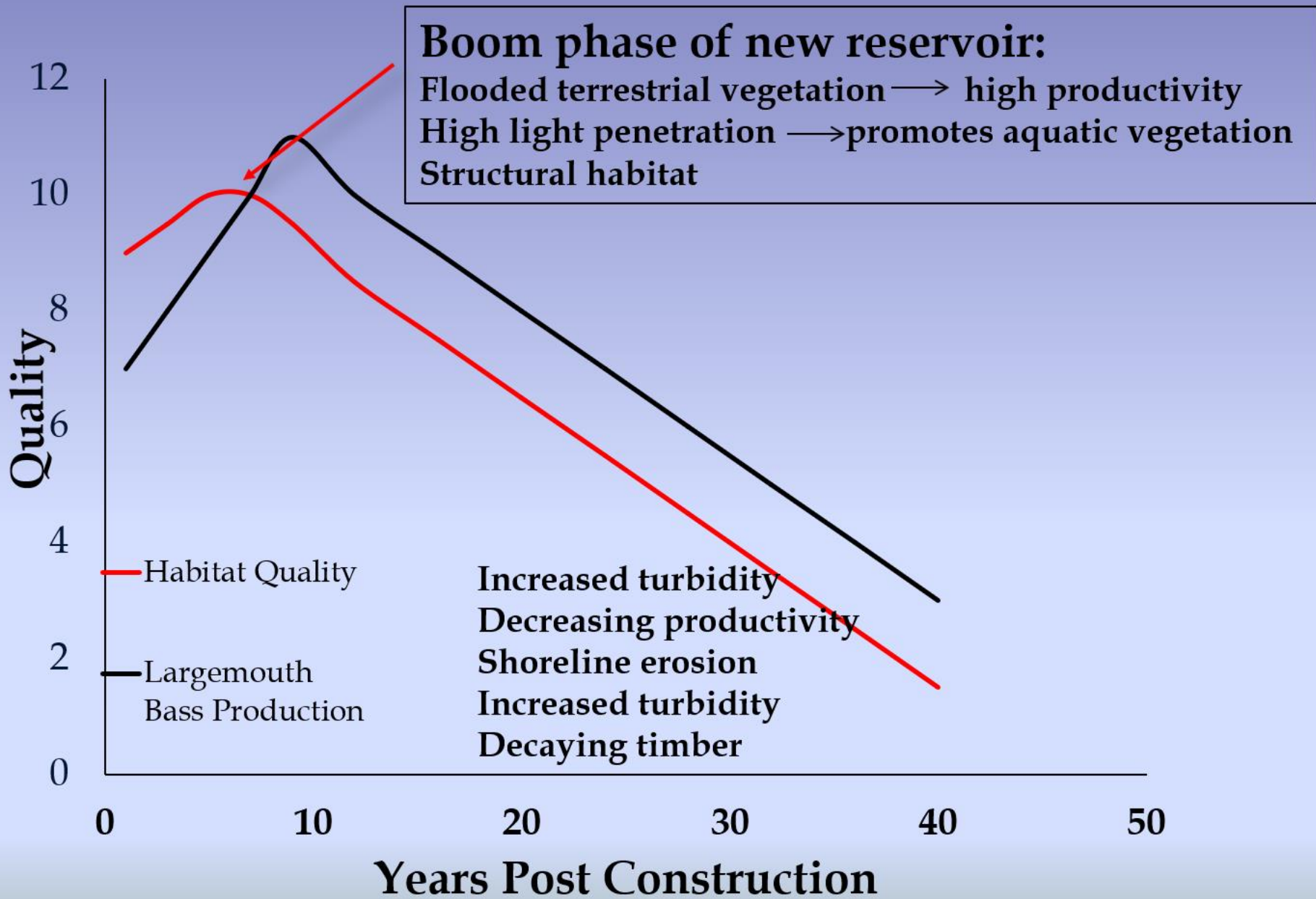


Black Willow Growth During Drawdown

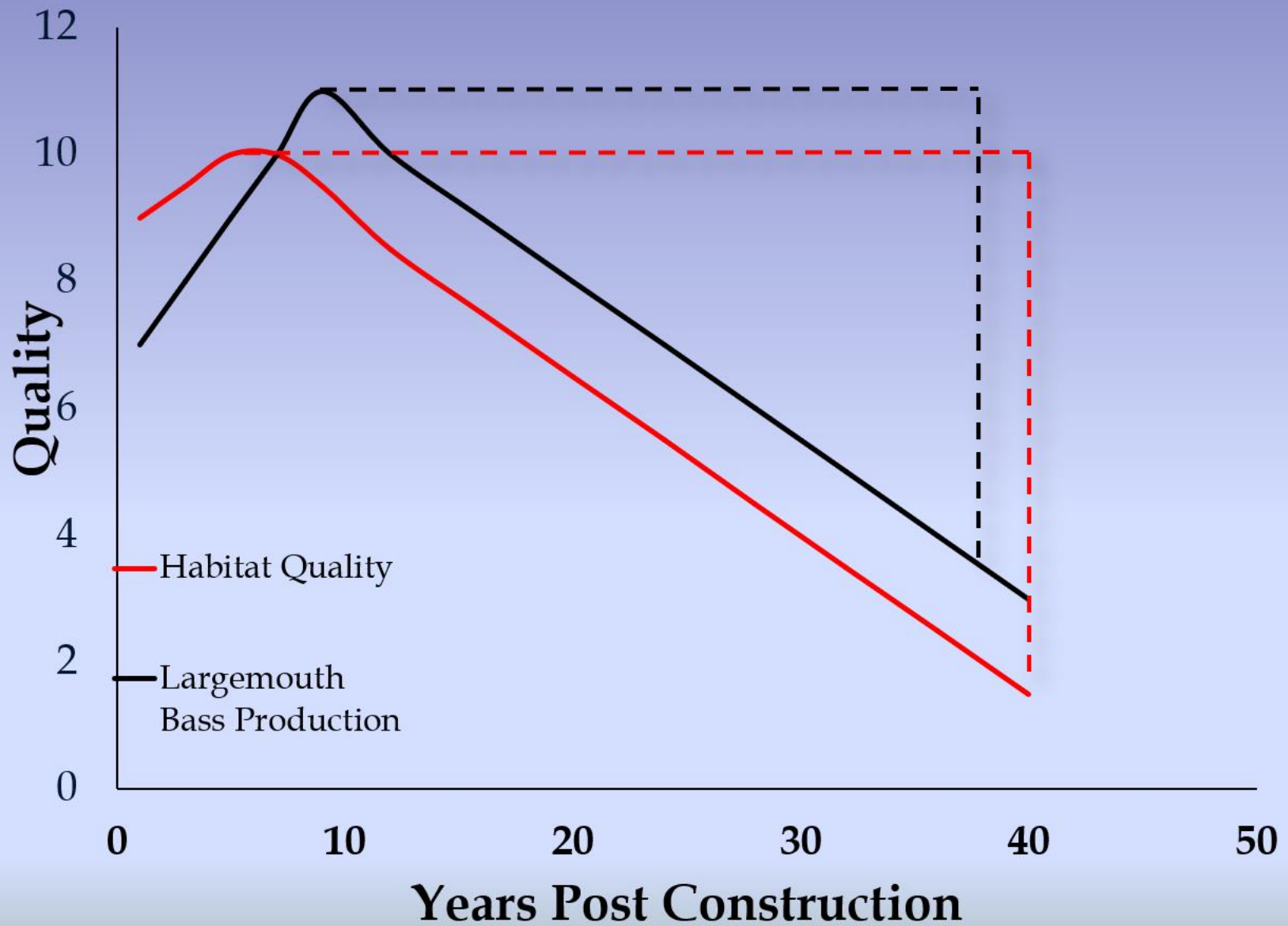


Black Willow Growth During Drawdown

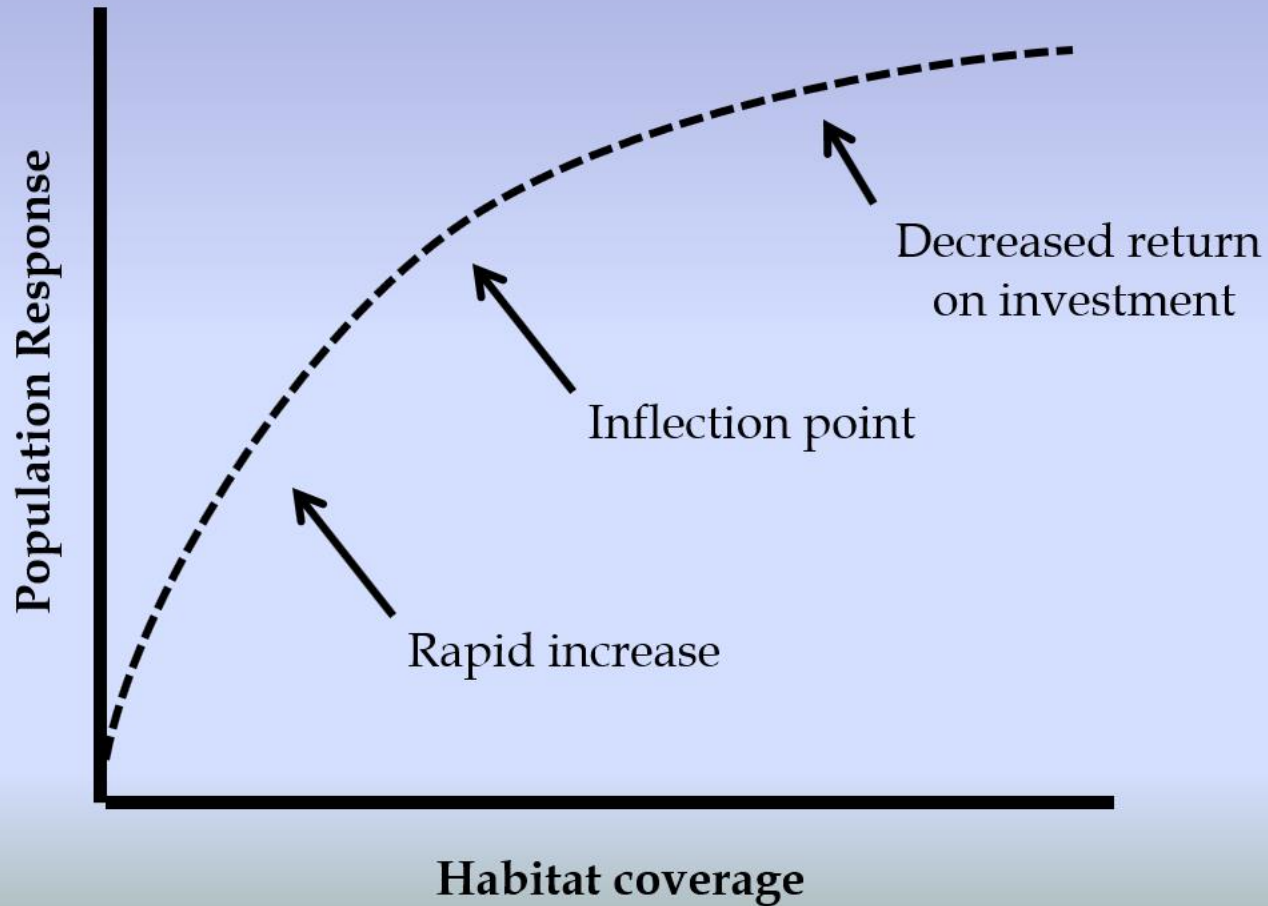




*Graeb, South Dakota State University



How much habitat is needed to increase GROWTH?



Habitat Effect Hypotheses

Increased system productivity

- **Increased periphyton**
- Increased recruitment of fishes
- **Increased growth rates**



Reservoir Fisheries Habitat Questions

Can we link habitat **QUANTITY** to population qualities?

- Recruitment, growth, and mortality

How much habitat is needed to increase **GROWTH** of **ADULT** Largemouth Bass?

- Decrease activity
- Decrease home range
- Increase consumption of high energy prey (Shad, Bluegill, etc.)

PFBC Habitat Web Page Videos

- Pymatuning Res., Crawford Co.
 - [Pymatuning Video.mp4](#)
- Beltzville Lake, Carbon Co.
 - [Beltzville Lake \(edited bsp\).mp4](#)
- Presque Isle Bay, Erie Co.
 - https://youtu.be/_7lGRcE6cx8
- Quemahoning Res., Somerset Co.
 - <https://youtu.be/XLrj4Oz4Ld4>



Questions?

Ben Page

Lake Habitat Section Chief

Division of Habitat Management

bepage@pa.gov

