

Fish Habitat Outcome: What Can Local Governments Do?

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If the fish are there, they will come!



And they will fish!





And they will eat!

A person wearing a red shirt, waders, and a camouflage hat is standing in a lake, pulling a large, light-colored net. The net is partially submerged and has several red floats along its edge. In the background, there is a wooden pier extending into the water, and a shoreline with several houses and trees. The water is calm with some ripples.

**Changes in land use are
associated with changing habitat**

A photograph of a stream in a wooded area. The water is very turbid, appearing yellowish-brown, indicating high levels of sediment. The banks are covered with dry leaves and branches. A large tree trunk is visible on the right side of the frame.

Changes related to Urbanization

**Increased Runoff + Increased
Erosion =**

**Increased Nutrients, Sediments,
and Toxins in Streams +
Increased Water Demands**



Brook Trout

Giant Stonefly
and other sensitive insectsBrown Trout replaces
Brook TroutMost sensitive species
absentNo trout
and only tolerant insects

Percent Impervious Surface

<5%

- Water cool and clean
- Stream banks and bottom typically stable
- Trout can be found
- Endangered species can be found
- Many fish species
- Many salamander species
- Many freshwater mussels
- Many insect taxa

5-10%

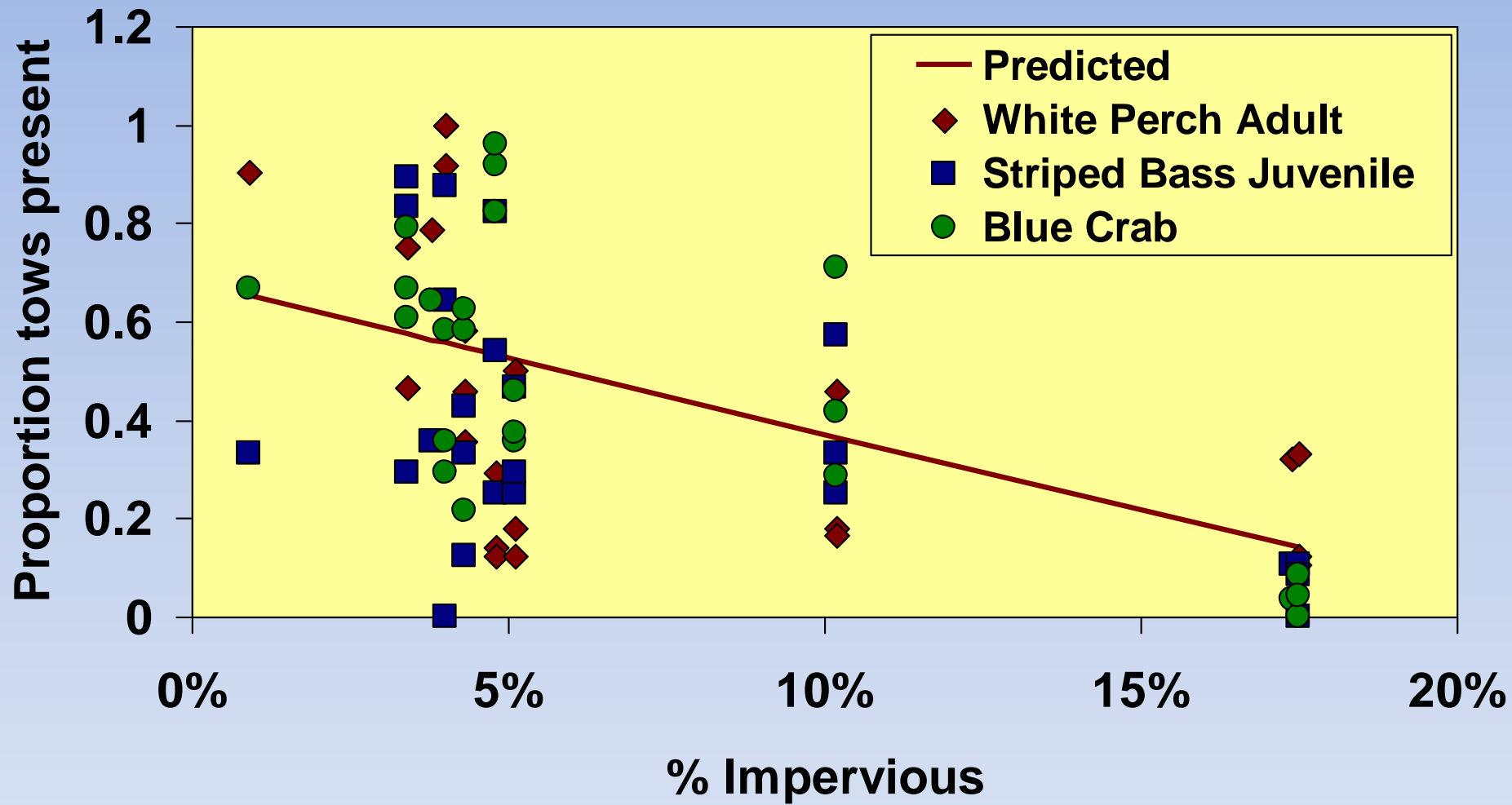
- Water may be warmer and slightly polluted
- Erosion may be evident
- No brook trout
- Most rare and endangered species absent
- Many pollution tolerant fish
- Fewer salamander species
- Only tolerant mussels
- Fewer insect taxa

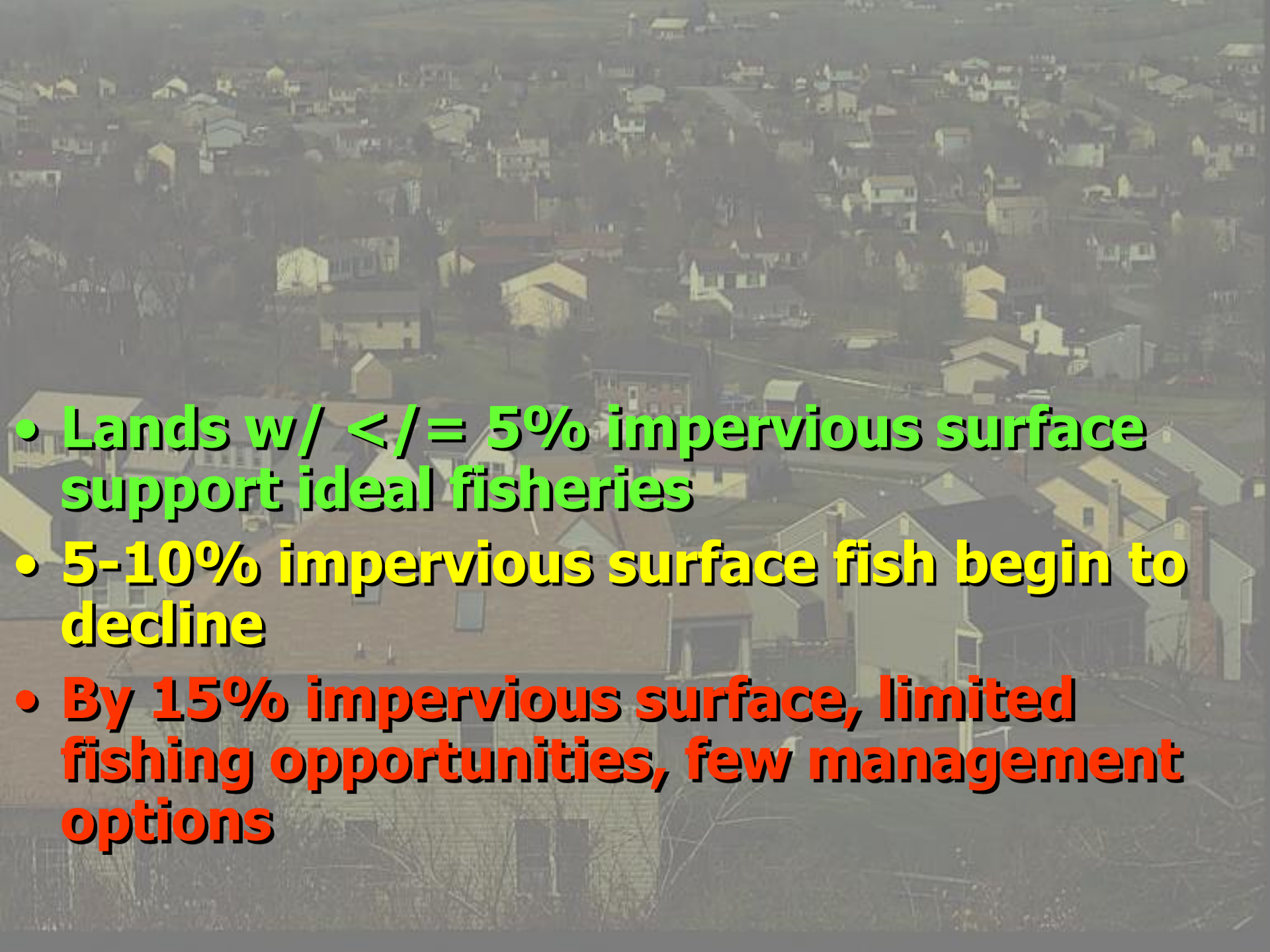
10-20%

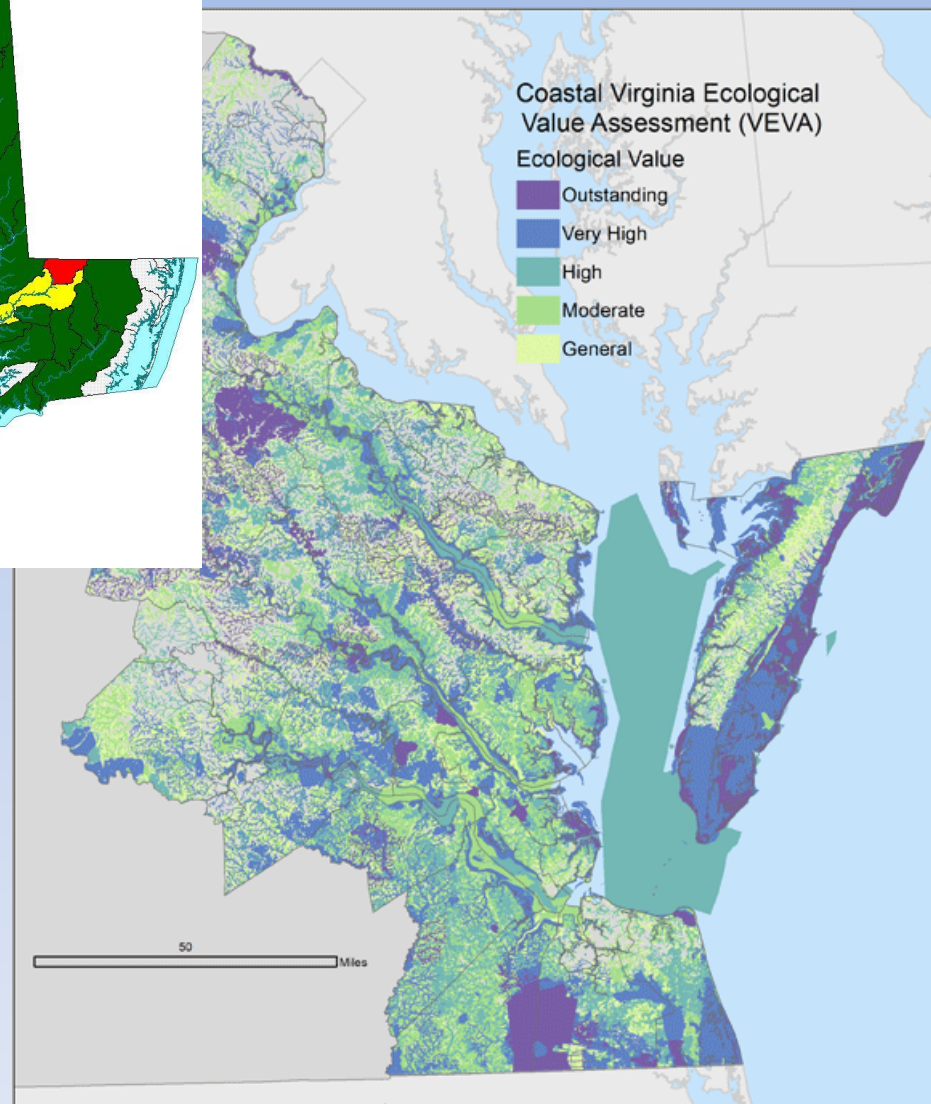
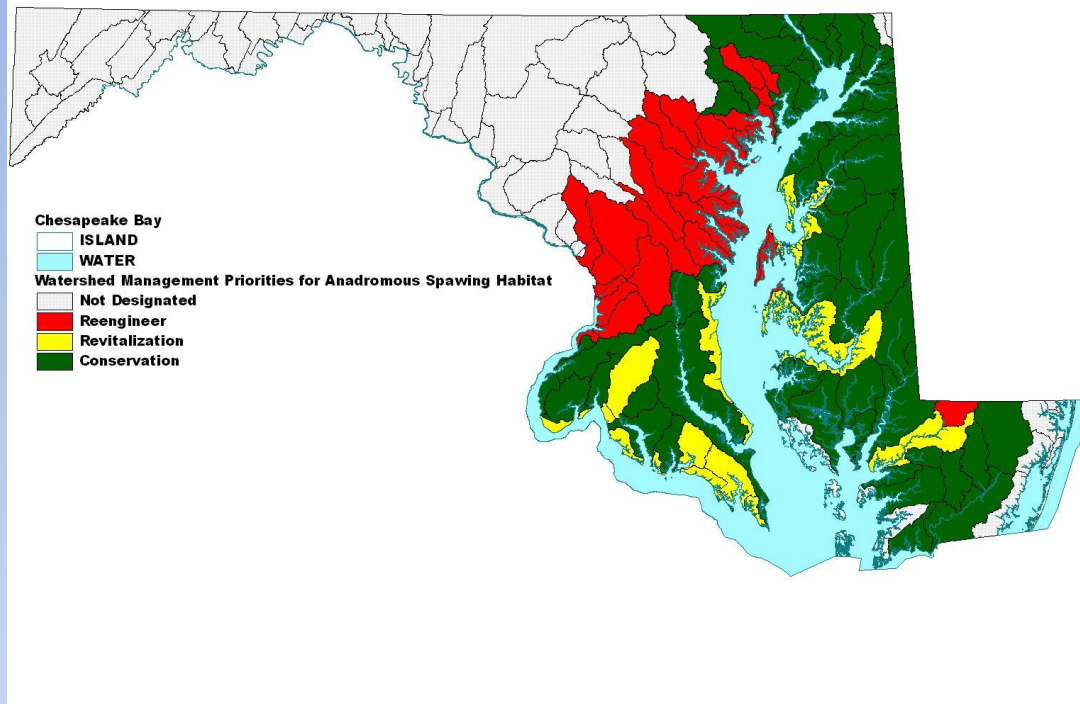
- Water warmer
- Erosion usually obvious
- Trout absent
- Rare stream species absent
- Fewer fish species
- Only three tolerant salamander species
- No native mussels
- Mostly tolerant insects

>20%

- Water warm and pollution usually evident
- Unstable habitat
- Trout absent
- Non-native species dominate some streams
- Only tolerant fish species
- One salamander species
- No native mussels
- Only tolerant insects



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- **Lands w/ \leq 5% impervious surface support ideal fisheries**
 - **5-10% impervious surface fish begin to decline**
 - **By 15% impervious surface, limited fishing opportunities, few management options**



An aerial photograph showing a wide river flowing through a landscape of bare trees and wetlands. The river has several bends and smaller channels branching off. In the background, a small town or village is visible on a peninsula. The text "Sustainable Growth Includes Fish Habitat in the Planning Process" is overlaid in yellow on the left side of the image.

**Sustainable Growth
Includes Fish Habitat in the
Planning Process**

A photograph of a flooded road. The water is murky and reflects the sky. On the right side of the road, there are two diamond-shaped warning signs. The top one is yellow with black text that reads "ROAD SUBJECT TO FLOODING". The bottom one is red with white text that reads "DO NOT DRIVE INTO WATER". In the background, there are green trees and a utility pole. A small white sign with a blue symbol is also visible further down the road.

**What is good for fish
is good for people**



Land Conservation is Fish Conservation

www.dnr.maryland.gov/fisheries/fhep