WF4313/6613-Fisheries Management

Class 17– Case study & habitat

In the news

Trout Run: Trail race meets fishing tournament at the Driftless Area Flyathlon

October 9, 2017 by Tom Hazelton

Runners must carry a fishing rod and fish along the route. They're allowed to enter one fish, which they must measure with the ruler on their race bib, photograph, and then release. Each inch of trout reduces total run time, and native trout—in this case, brook trout—score double. This scoring scheme allows for lots of flexibility when it comes to race preparation.

Events Calendar

SAT 14 Mill City Farmers Market
October 14 @ 8:00 am – 1:00 pm
Mill City Farmers Market

MON 16 Dead – Brew at Wicked Wort Brewing Co.
October 16 @ 7:00 pm – 8:00 pm
Wicked Wort Brewing Co.

SAT 21 Mill City Farmers Market
October 21 @ 8:00 am – 1:00 pm
Mill City Farmers Market

View More...

In This Issue

Issue 48 | October 2017 | Puzzles & Games

Announcements

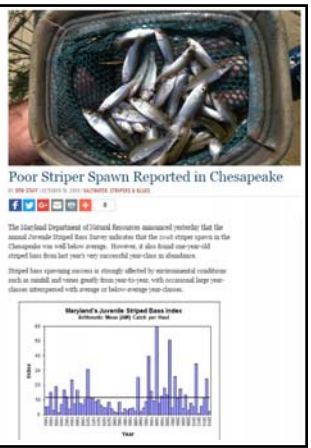
Paddlefish Lab

- Group 1
- Meet at Front of Thompson @ 1pm
- Bug spray, water, sunscreen, raingear
- Potential to get wet

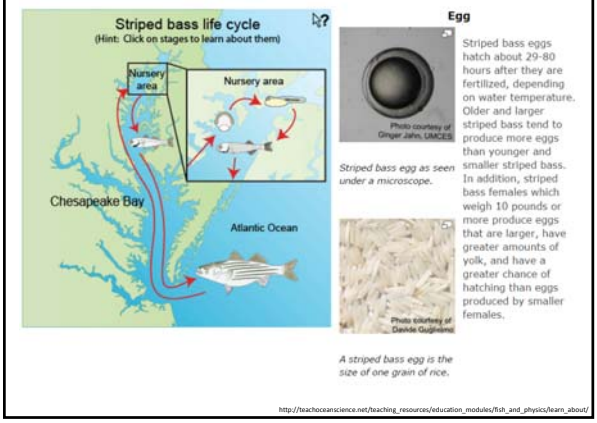
Class Topics

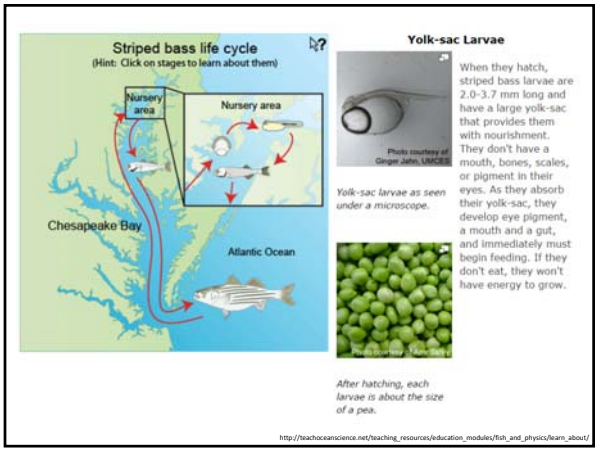
Management case study
Habitat

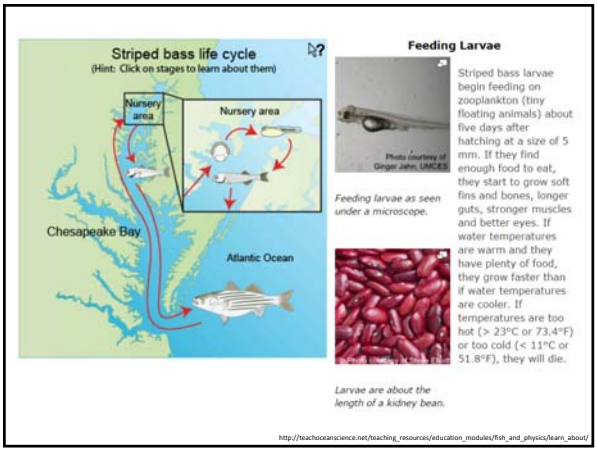
Stripers

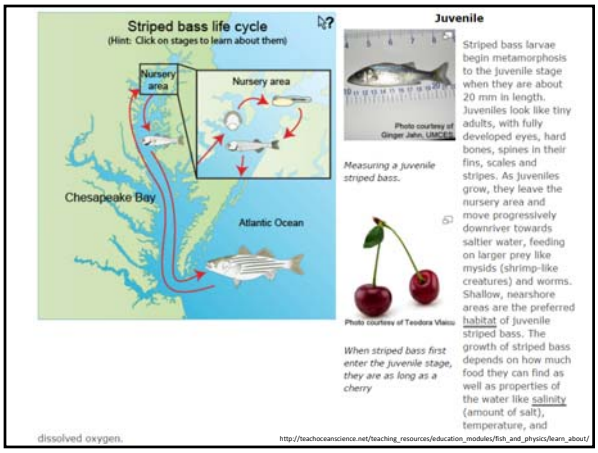


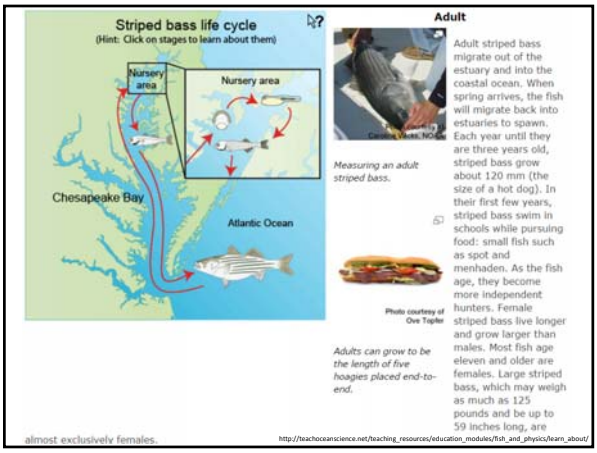
http://www.onthewater.com/poor-striper-spawn-reported-chesapeake/

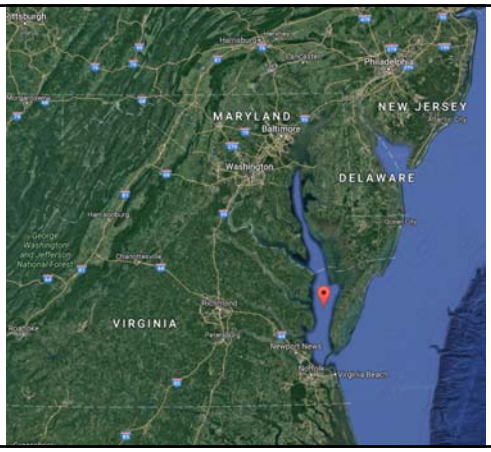


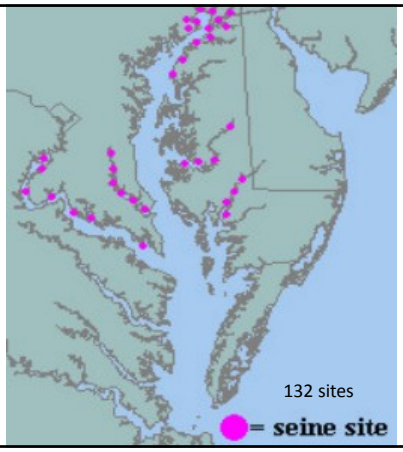


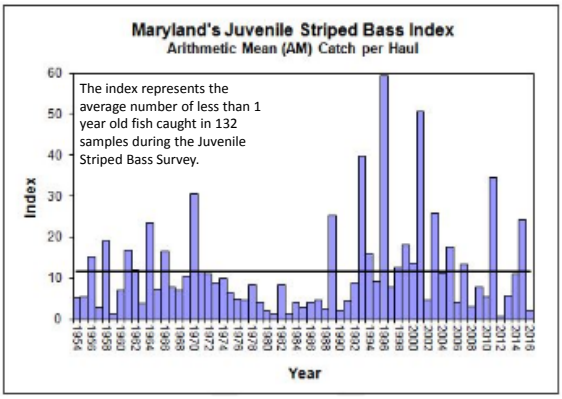












Is it an issue?

- Recruit overfishing?
- Habitat?
- Environmental conditions?

"While this year's (2016) striped bass index is disappointing, it is not a concern unless we observe poor spawning in multiple, consecutive years," said Fishing and Boating Services Director David Blazer. "Very successful spawning years, as recently as 2011 and 2015, should more than compensate for this below-average year-class. Nonetheless, the department and our partners will continue to work to maintain a sustainable fishery for our commercial watermen and recreational anglers."

HABITAT MANAGEMENT

Why is habitat important?

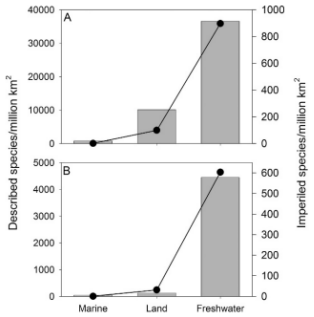


Fig. 3. The number of described (bars) and imperiled species (lines) of eukaryotes (A) and chordates (B) in fresh waters is much higher than would be expected from the area of the globe covered by freshwater habitats. This pattern holds true for chordates, which have been well inventoried, and for all eukaryotes, for which the data are very incomplete and probably biased. Numbers of described species are from Palmer et al. (1997), Groombridge and Jenkins (2002), and Balian et al. (2008). Imperiled species include species listed by IUCN (2007) in the following categories: extinct, extinct in the wild, critically endangered, endangered, and vulnerable.

Strayer, D. L., and D. Dudgeon. 2010. Freshwater biodiversity conservation: recent progress and future challenges.

Conservation status

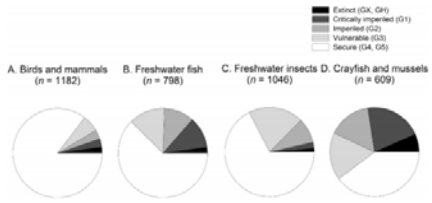


Fig. 4. Conservation status of birds and mammals (A), freshwater fishes (B), freshwater insects (C), and crayfish and mussels (D) in the US in the late 1990s (from Master et al. 2000), showing that freshwater animals, especially those that disperse poorly, are more highly endangered than their terrestrial counterparts. The number of species in each group (n) is given in parentheses. Freshwater insects includes only Odonata and Plecoptera. The conservation status of other freshwater insects was not assessed. Assessment codes are NatureServe designations.

Strayer, D. L., and D. Dudgeon. 2010. Freshwater biodiversity conservation: recent progress and future challenges.

Challenges to biodiversity

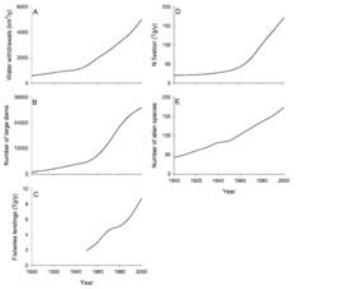
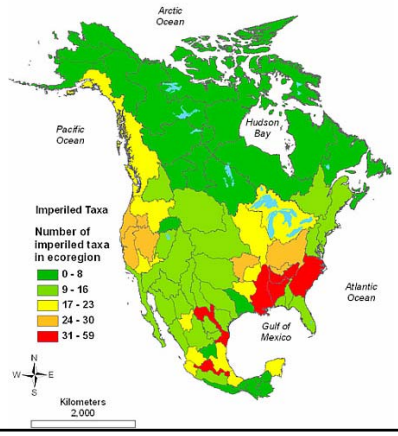


Fig. 1. Five examples of rising human pressures on the world's freshwater ecosystems. A—Global water withdrawals (after Gleick 1993). B—Number of large (>15 m high) dams (International Commission on Large Dams 2008). C—Fisheries landings from inland waters (Allan et al. 2005a). D—Global inputs of anthropogenically fixed N. Input from all natural sources is ~110 Tg/y (Vitousek 1994, Galloway et al. 2008). E—Number of known alien species in the Laurentian Great Lakes (Ricciardi 2006).

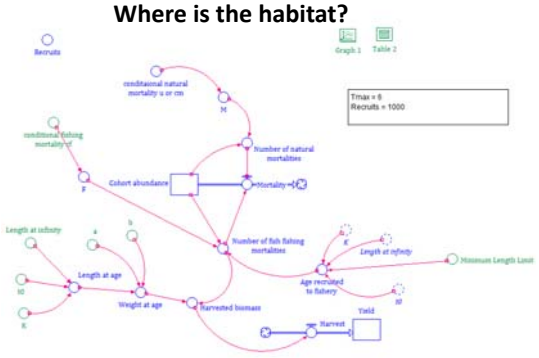
Strayer, D. L., and D. Dudgeon. 2010. Freshwater biodiversity conservation: recent progress and future challenges.



HABITAT AND HABITAT MANAGEMENT

habitat loss has been identified as the primary threat factor, more significant than invasive species or overexploitation (Dextrase and Mandrak 2006; Venter et al. 2006).

Where is the habitat?



Fish Habitat

What is habitat

NSW Fisheries Management Act 1994 fish habitat means: any area occupied, or periodically or occasionally occupied, by fish or marine vegetation (or both), and includes any biotic (living) or abiotic (non-living) component.

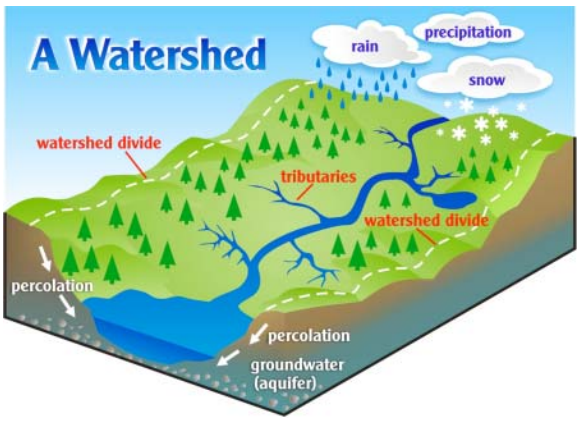
Water & Land

Inland habitat types

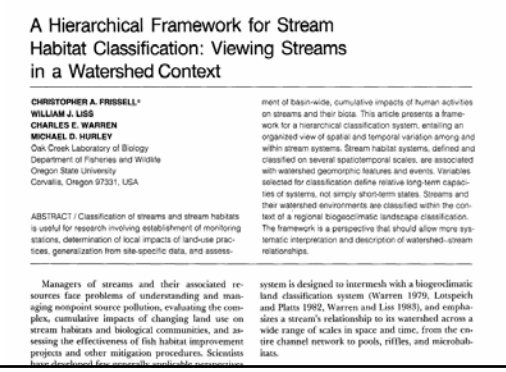
1. Streams
2. Lakes & Reservoirs

Habitat

- 119 public lakes
- 123,000 stream miles
- 225,000 freshwater acres



Hierarchical organizations



A Hierarchical Framework for Stream Habitat Classification: Viewing Streams in a Watershed Context

CHRISTOPHER A. FRISSELL*
WILLIAM J. LISS
CHARLES E. WARREN
MICHAEL D. HURLEY
Oak Creek Laboratory of Biology
Department of Fisheries and Wildlife
Oregon State University
Corvallis, Oregon 97331, USA

ABSTRACT / Classification of streams and stream habitats is useful for research involving establishment of monitoring stations, determination of local impacts of land-use practices, generalization from site-specific data, and assessment of basin-wide, cumulative impacts of human activities on streams and their biota. This article presents a framework for a hierarchical classification system, entailing an organized view of spatial and temporal variation among and within stream systems. Stream habitat systems, defined and classified on several spatiotemporal scales, are associated with watershed geomorphic features and events. Variables selected for classification define relative long-term capacities of systems, not simply short-term states. Streams and their watershed environments are classified within the context of a regional biogeoclimatic landscape classification. The framework is a perspective that should allow more systematic interpretation and description of watershed–stream relationships.

Managers of streams and their associated resources face problems of understanding and managing nonpoint source pollution, evaluating the complex, cumulative impacts of changing land use on stream habitats and biological communities, and assessing the effectiveness of fish habitat improvement projects and other mitigation procedures. Scientists have developed few generally applicable perspectives system is designed to intermesh with a biogeoclimatic land classification system (Warren 1979, Lotspeich and Platts 1982, Warren and Liss 1983), and emphasizes a stream's relationship to its watershed across a wide range of scales in space and time, from the entire channel network to pools, riffles, and microhabitats.

Class roadmap

1. Elements of aquatic habitat
2. Elements of aquatic habitat management
3. Stream habitat Examples
   1. Lower Missouri River
   2. Pahsimeroi River

Elements of aquatic habitat

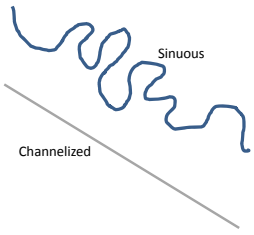
1. Amount
2. Chemical
   - Dissolved oxygen, pH,salinity
3. Physical
   - Sediment, turbidity, substrate
4. Biological
   - Macrophytes, Woody debris

Elements of aquatic habitat <u>management</u>

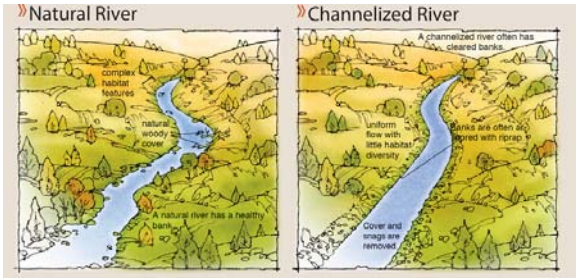
1. Restoration
2. Conservation
3. Mitigation

Amount

Sinuosity

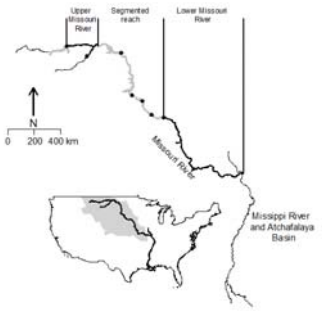


Stream channelization

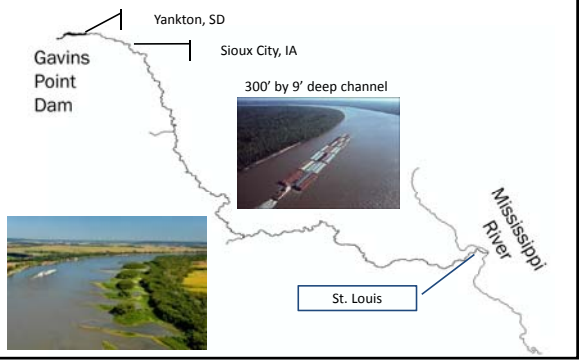


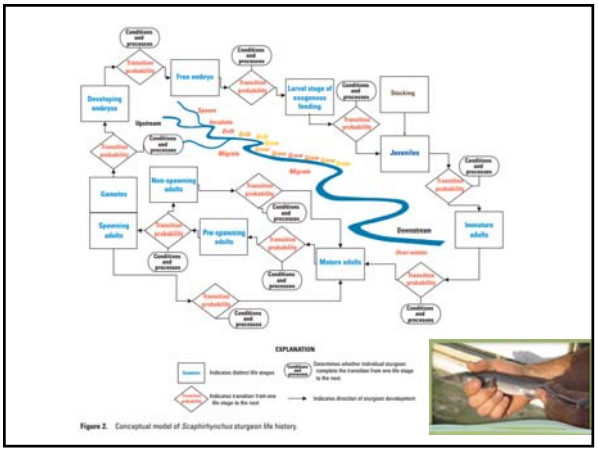
http://www.in-fisherman.com/files/2014/06/Natural-Channelized-Rivers-In-Fisherman.jpg

Restoration Example



Lower Missouri River

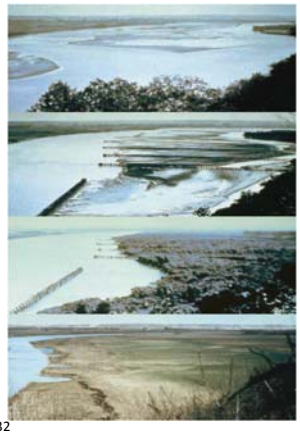




Lo. Mo. River @ Yankton

Channelization of the river

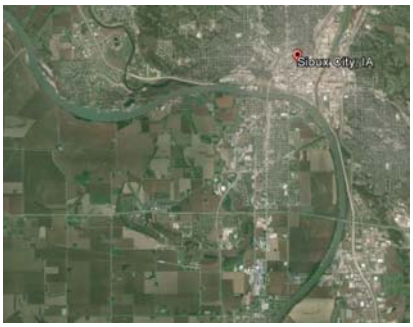
Indian Cave Bend on the Missouri River near river mile 517, about 18 miles upstream from Rulo, Nebraska. They illustrate the river before (1934; top photo) and after (1935, 1946, and 1977) the construction of brush dikes that narrowed and channelized the river.



https://www.nap.edu/read/13019/chapter/4#32

Straightening Meanders

Lo. Mo. River @ Sioux City



Maintaining channels

Training outer bends