Alewives in Maine: Identifying Population Structure across Multiple Scales

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P. Stetson





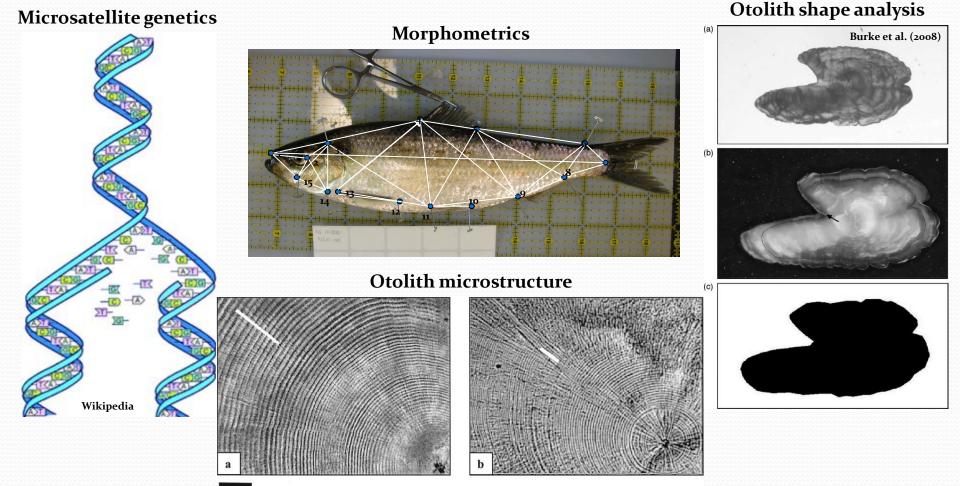


UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration NATIONAL MARINE FISHERIES SERVICE Northeast Fisheries Science Center 166 Water Street Woods Hole, MA 02543-1026



Alewife Stock Structure in Maine

Multidisciplinary approach to stock identification



20µ

Brophy and Danilowicz (2002)

Alewife Stock Structure in Maine

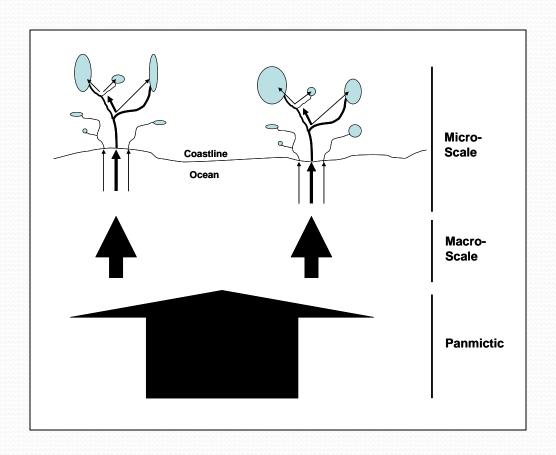
Quantify and define anadromous alewife stock structure across coastal Maine systems

- 1. Test for and inventory stock structure across river systems ("macro-scale") and across spawning lakes within subset river systems ("micro-scale")
- 2. Develop classification models to assign alewife of unknown origin to their natal river system or lake
- 3. Preliminary assessment of distribution of Maine alewife stocks in Gulf of Maine by applying the classification models to marine samples
- 4. Recommendations for implementing stock composition analysis as a part of monitoring and assessment processes

The fundamental population unit is the river system or the lakes within the river system



Alewife populations maintain a metapopulation structure at the scale of large river systems ("macro-scale")



Study Sites (20 River Systems Sampled)

Genotypes

Phenotypes

Scbasticook Lake

Webber Pond 着

Sheepsedarikiver

Dresden Bog Medomak Riv Damariscotta Lake

Androscoggin River 👔 🧳 Nequasse New Meadows River

Presumpscot River

Saco River Richmond Island

50 mi

Souadabscook Stream 🥊

Orland River a Patten Pond a

Walker Pond

Sennebec Pond Seven Tree Pond North Pond St George River

Nequasset Lake
s River

Phippsburg

More Image USDA Farm Service Agency Data SIO, NOAA, U.S. Navy, NGA, GEBCO Image © 2010 Maine GeoLibrary Image © 2010 DigitalGlobe Pocomoonshine Lake

Meddybemps Lake

Little River

Less

Rocky Lake

Hadley Lake 🗧 🥇 Gardner Lake

Crist Mill Brook Narraguagus River

Long Pond 2 2 Somes Pond 2 Seal Cove Pond

> Stocking Activity System Productivity

> > ©2009Google