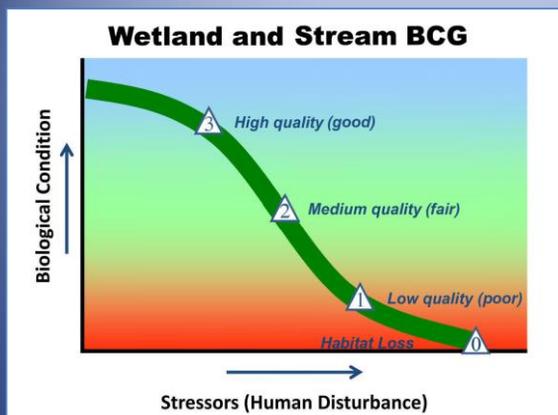


# (Ongoing) Development of Biological Indicators and Testing a BCG Model Framework in the MBNEP Study Area

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Report ecosystem  
status and trends

Identify restoration  
and conservation  
priorities

Track the  
effectiveness of  
ecosystem  
management

Wetland BCG describes the relative proportion of acreage having good, fair, and poor biological conditions within an assessment area, accounting for wetlands lost or gained.

Stream BCG describes the relative proportion of stream feet having good, fair, and poor biological conditions within an assessment area.

## Stream Bioassessment

### Macroinvertebrates:

- Good indicators of localized conditions
- Abundant in most streams, including 1<sup>st</sup> and 2<sup>nd</sup> order streams
- Assemblages comprise a broad range of trophic levels and pollution tolerances



### Fishes:

- Good indicators of long-term (several years) effects and broad habitat conditions
- Assemblages generally include a range of species representing a variety of trophic levels

Concurrent evaluation of habitat quality is an integral part of stream bioassessment:

- Adjacent land use
- Stream origin and type
- Stream width, depth, flow, substrate
- Riparian vegetation features
- Water quality

### Mississippi DEQ Benthic Index of Stream Quality

#### Biological metrics:

- % EPT (no Caenidae)
- % Caenidae
- No. Tanytarsini taxa
- % Filterers
- Beck's Biotic Index
- Hilsenhoff Biotic Index

A BISQ score is an aggregation of the metric scores, with totals ranging from 0 (worst) to 100 (best).

### Florida DEP Stream Condition Index

#### Biological metrics:

- No. total taxa
- No. Ephemeroptera taxa
- No. Tricoptera taxa
- No. clinger taxa
- % Filterers
- % tolerant taxa

Summed points from each metric determines an overall score of biological health:

- 64-100 = "exceptional"
- 40-63 = "healthy"
- 0-39 = "impaired"

## *A stream index of biotic integrity does not exist for the MBNEP study area!*

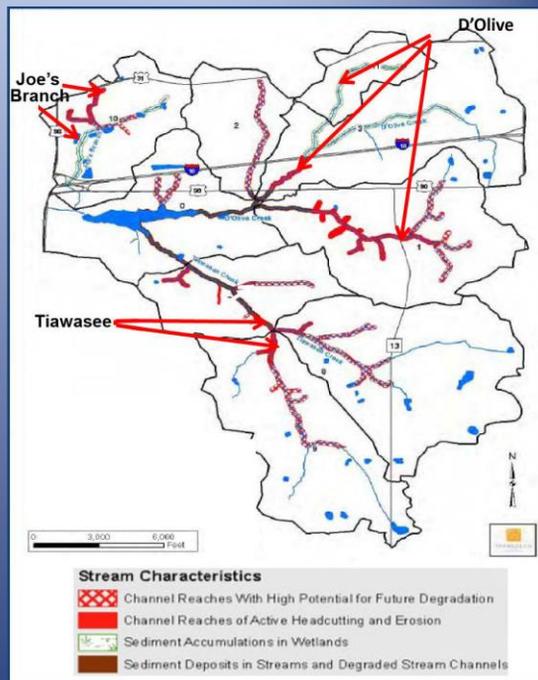
Steps required:

- Collect physical, chemical, and landscape data to develop stream site classes; identify reference and degraded sites.
- Develop numeric criteria to describe the expected biological attributes of a minimally impaired aquatic community and for impaired conditions; show an empirical and predictable change in value along a disturbance gradient.
- Calibrate and test biotic indices and associated metrics.
- Combine metrics into an index.

## D'Olive Watershed Restoration

D'Olive restoration presents an opportunity to test biotic indicators and the BCG.

Priority actions are intended to stabilize sources of runoff and sedimentation that continue to impact the system.



## D'Olive Watershed Studies

Primary stressors are sedimentation and hydrologic alteration

### DATA GAPS

- D'Olive wetlands are primarily forested bottomland hardwood; some seepage-slope pine/hardwood wetlands. No detailed data were collected.
- Stream biota were not assessed.
- Limited water quality data

Pre-restoration data for wetland and stream conditions are needed to compare with reference sites and post-restoration conditions.

