

# Performance Measures to Evaluate Water Quality Accomplishments Northeast Iowa Watersheds

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To protect northeast Iowa Water resources, it is essential for residents to understand water quality issues and participate in planning solutions for their own watersheds. In northeast Iowa, watershed residents have assumed responsibility for identifying locally- acceptable strategies, targeting their implementation and measuring their success. They have defined and demonstrated performance measures for environmental stewardship that have a reasonable cost and are linked with accountable management decisions.

## COMMUNICATIONS

Information, education and extension contribute to local knowledge:

- Historical perspective
- Assessment of Water Quality
- Research-based data
- Broad public support
- Reportable results
- Regional impact

## LEADERSHIP



Goals adopted by the  
Hewitt Creek Watershed Council

1. Have Hickory-Hewitt removed from the Iowa impaired waters (303d) list.
2. Increase the Fish Index from 37 (fair) to the regional norm 71.
3. Increase the Benthic Macroinvertebrate Index from 52 (fair) to the norm 59.
4. Managers of 40 percent of the corn acres complete cornstalk nitrate nitrogen tests comparing two or more N management practices/rates.
5. Biannual phosphorus testing on 40 percent of watershed acres and reducing acres testing very high.
6. Twenty-five percent of farms complete at least two P index evaluations to determine fields that have a high risk of P loss.
7. Operators of 25 percent of the land complete two or more Soil Conditioning Index comparisons to determine how most efficiently to increase soil organic matter.
8. Twenty percent of farms complete self assessment of farmstead and livestock operation for potential contaminant contribution to surface and ground water.
9. Monitor normal and rainfall event water for N, P, turbidity, fecal coliform bacteria and macroinvertebrate (stream life) quantity and quality. Attain reduction of levels by 40 percent from current baseline levels.

Locally-developed Action Plan for Water Quality Improvement

Residents have measures to evaluate outcomes

Residents have flexibility to adjust their plans

Sustainable improvement based on continuing performance measurements



## SCIENCE & TECHNOLOGY

- Use new and existing soil management technologies measured at the field, farm and watershed scale to confirm environmental and economic performance.
- Performance measures reflect results as opposed to dictating specific practices — flexibility represents a fundamental difference.



- Appropriate incentives
  - Achieve measurable results
  - Are based on sound science
  - Encourage innovation
  - Maintain economic performance
  - Maintain community social fabric

### Hewitt Creek Incentives

- Cornstalk residual N test
- P soil test with science-based interpretation of results
- P Index to determine P loss risk
- Manure rate calibration and manure analysis
- Demonstration of tillage/planting alternatives
- Demonstration using various N or P application rates
- Determination of soil conditioning index
- Utilizing grid sampling and variable rate technology
- Planting cover crops
- Tail grass filters below feedlots
- Waterways and grass buffers
- Manure bartering to low P sites
- Septic system upgrades
- Refine rations or use of phytase

## CHANGED COMMUNITY



Increased Water Quality knowledge

- Watershed residents
- Watershed neighbors

Watershed community develops

- Pride with accomplishments
- Environmental leadership
- Sustainability of actions

Water quality improvement measured by:

- Chemical analysis
- Aquatic life improvements – macroinvertebrates, fish, etc.
- More attractive landscape
- Increased public usage



## SUMMARY

Sustainable environmental management is enhanced when citizens engage in participatory discovery and education. The community focus on improved water quality delivered from a watershed provides a measure to evaluate community and environmental goals. The social contract within the watershed community and with watershed neighbors provides a results-based measure of public investment in environmental protection.