

Galena River Watershed Management Plan

Habitat & Macroinvertebrate Assessment



Habitat Assessment

- Complement water chemistry and macroinvertebrate data to characterize watershed health.
- Provide information about streams ability to support fish & macroinvertebrates.
- Considered instream and riparian characteristics in sampling reach (15x stream width).

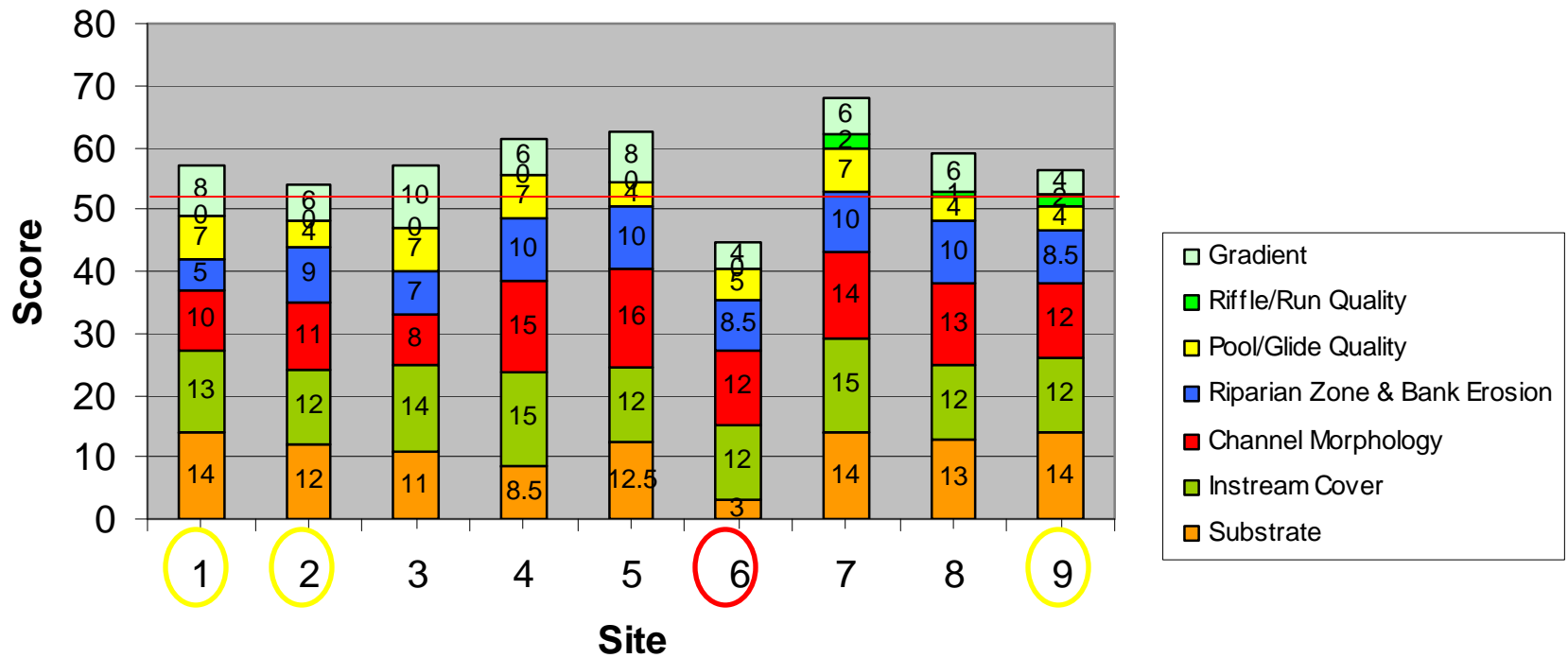


Qualitative Habitat Evaluation Index

- Substrate (20pts)
- Instream Cover (20pts)
- Channel Morphology (20pts)
- Riparian Zone & Bank Erosion (10pts)
- Pool/Glide Quality (12pts)
- Riffle/Run Quality (8pts)
- Gradient (10pts)

QHEI Scores

Qualitative Habitat Evaluation Index



Stream Buffer Analysis

- Using a 100-foot buffer, approximately 7.5 of streams may have an inadequate buffer.
- Approximately 165 acres of developed land exist within the 100-foot buffer.
- Approximately 6,138 acres of agricultural land exist within the 100-foot buffer.

Land Cover Data: NOAA CCAP 2006.

Habitat General Observations & Opportunities

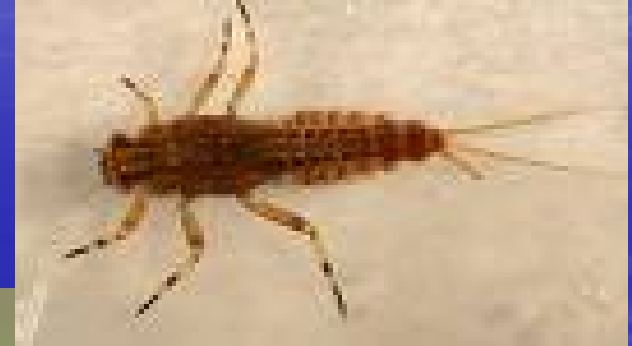
- Substrate- silt cover and embeddedness
- Riparian- width and quality
- Bank Erosion



Habitat Problem Statement



Macroinvertebrates

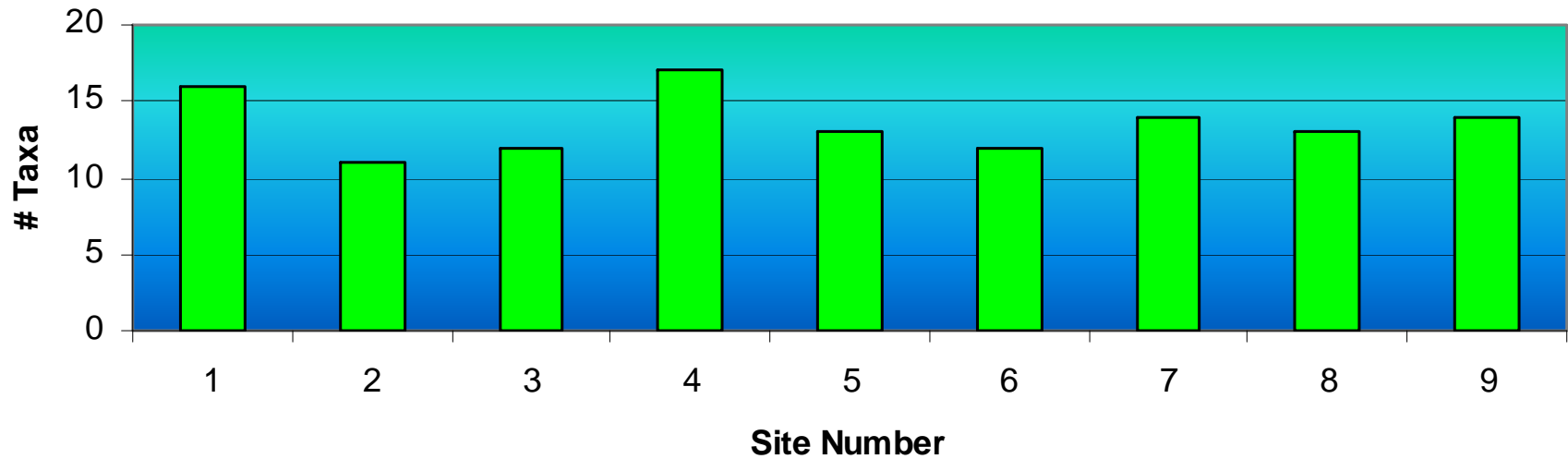


Macroinvertebrates

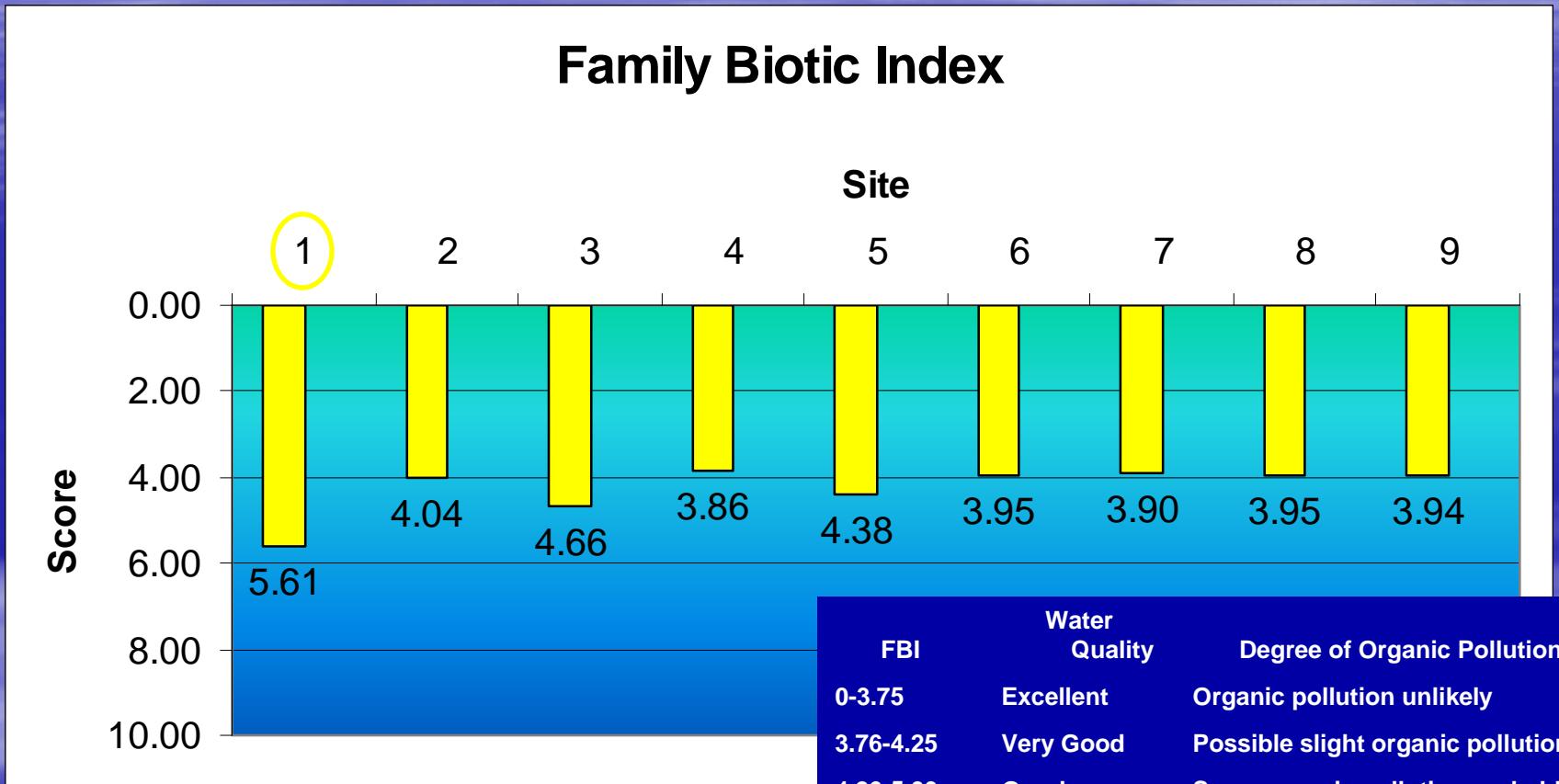
- Complement water chemistry and habitat.
- Critical part of food web.
- Continuous indicators of water and habitat quality.
- Taxa display differences in pollution tolerance.



Taxa Richness

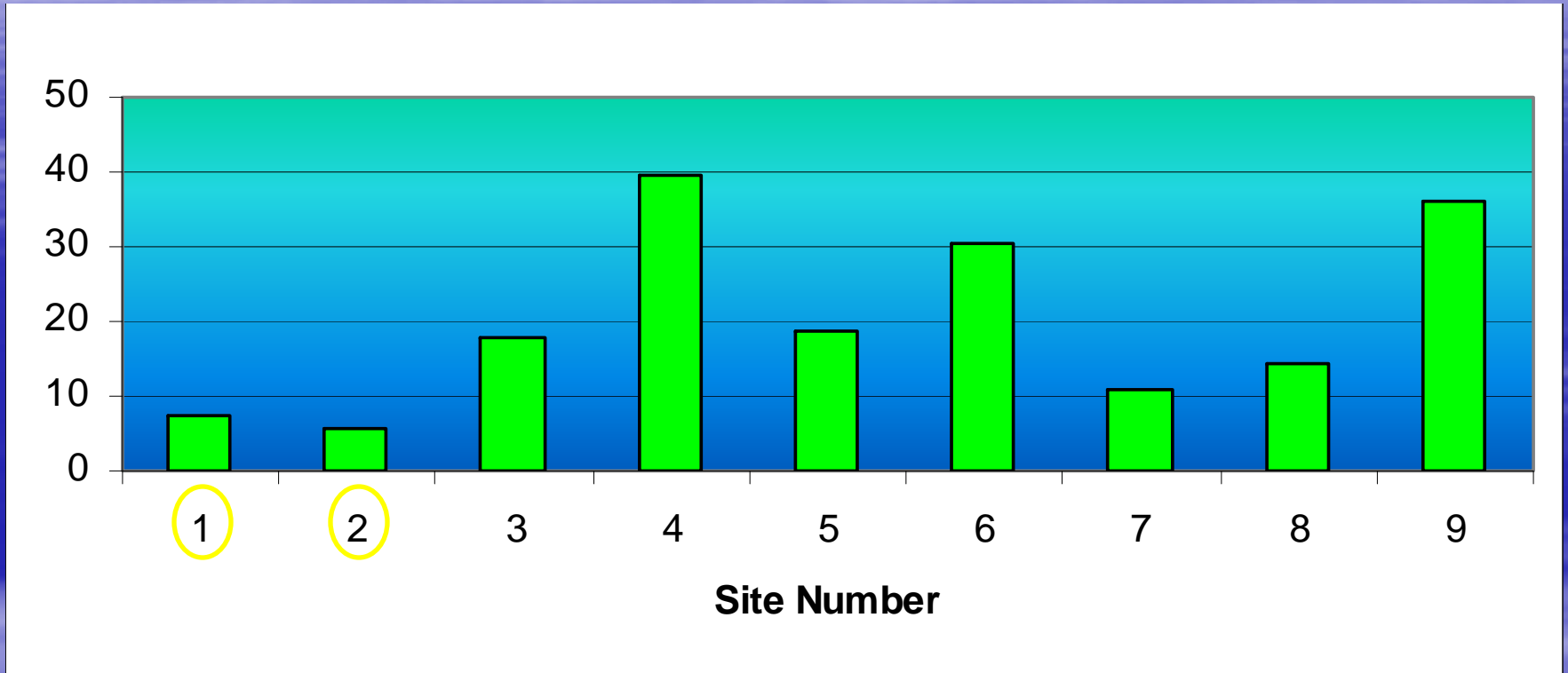


Hilsenhoff Family Level Biotic Index

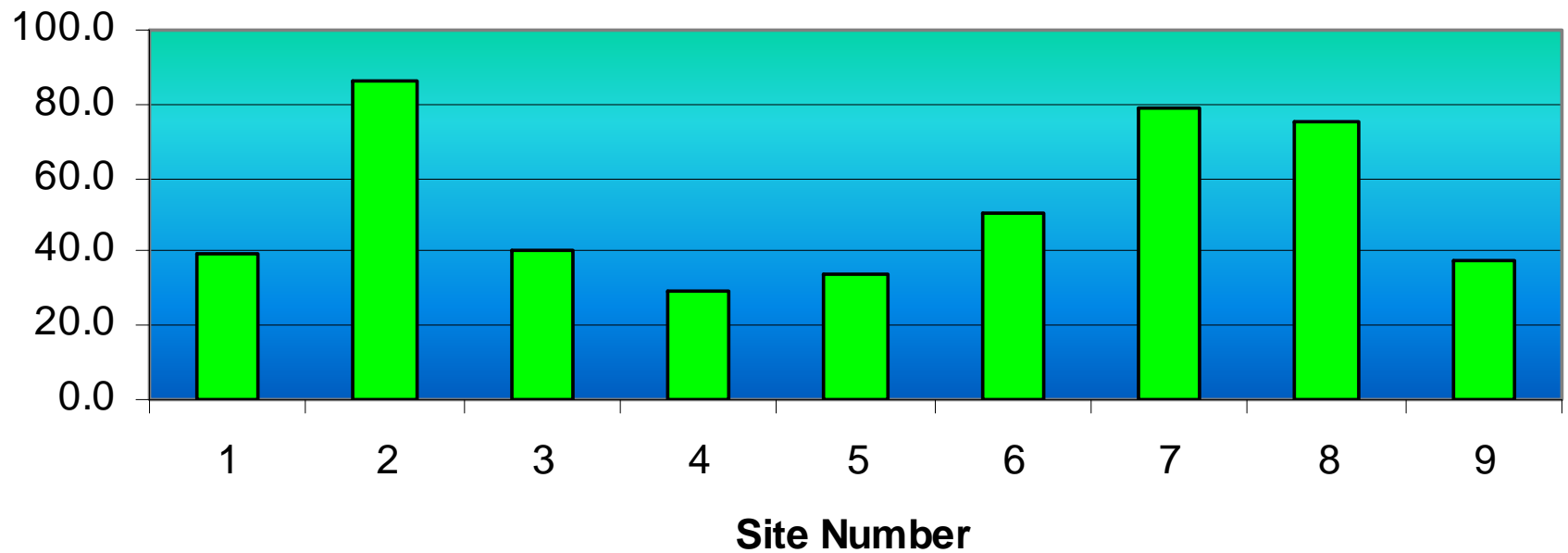


FBI	Water Quality	Degree of Organic Pollution
0-3.75	Excellent	Organic pollution unlikely
3.76-4.25	Very Good	Possible slight organic pollution
4.26-5.00	Good	Some organic pollution probable
5.01-5.75	Fair	Fairly substantial organic pollution
5.76-6.50	Fairly Poor	Substantial pollution likely
6.51-7.25	Poor	Very substantial pollution likely
7.26-10.00	Very Poor	Severe organic pollution likely

Percent EPT



Percent Dominant Taxa



Rapid Bioassessment Analysis

Site	1	2	3	4	5	6	7	8	9
Taxa Richness	16	11	12	17	13	12	14	13	14
FBI	5.61	4.04	4.66	3.86	4.38	3.95	3.90	3.95	3.94
Scrapers/Filter Collectors	0.1	1.4	3.0	1.8	0.5	0.0	3.0	2.4	2.0
EPT/Chironomid	0.2	4.0	8.0	2.1	0.6	5.3	3.6	3.1	8.3
% Dominant	39.6	86.2	40.0	29.3	33.8	50.5	78.6	75.0	37.3
EPT Index	3	3	3	6	5	3	5	6	7
Community Loss Index	0.7	1.1	0.7	0.0	0.6	0.5	0.5	0.7	0.7
% Shredders	5.7	1.4	0.0	8.6	5.0	24.8	4.8	10.2	18.6

Rapid Bioassessment Scores

Site	1	2	3	4	5	6	7	8	9
Taxa Richness	6	3	3	6	3	3	6	3	6
FBI	6	6	3	6	6	6	6	6	6
Scrapers/Filter Collectors	0	6	6	6	3	0	6	6	6
EPT/Chironomid	0	6	6	6	3	3	6	6	6
% Dominant	3	0	3	6	3	0	0	0	3
EPT Index	0	0	0	6	3	0	3	6	6
Community Loss Index	3	3	3	6	3	3	3	3	3
% Shredders	6	0	0	6	6	6	6	6	6
Total	24	24	24	48	30	21	36	36	42
% of Reference	50	50	50	100	63	44	75	75	88
Impairment Category	M	M	M	N	M	M	M	M	N

% Comp. to Reference Score	Biological Condition	Attribute
>79%	Non-Impaired	Balanced trophic structure. Optimum community structure for stream size and habitat.
29-72%	Moderately Impaired	Fewer species due to loss of most intolerant forms. Reduction in EPT index.
<21%	Severely Impaired	Few species present. Only tolerant species present.

Macroinvertebrate General Observations & Opportunities

- Sites 4 and 9 are non-impaired.
- Sites 1, 2, 3, 5, and 6 indicate moderately impaired biological condition.
- Sites 7 and 8 have intermediate values between non-impaired and moderately impaired biological condition.
- Site 7 has the highest QHEI score (68) of all sites.

Macroinvertebrate Problem Statement

