

3. How to Do Field Reconnaissance

Why is there pollution? What effect does it have? What is the quality of water of local streams, lakes, and wetlands? What pollution sources are important in our area? What is being done about it, and by whom? What can WE do about pollution? and when projects are completed, How effective have our efforts been? What else could we do?

Inquiry into such questions enriches learning in any service project. One method to deepen exploration is a field reconnaissance of local waterbodies, explained on the following pages. Reconnaissance simply means going to look around and report back. Water quality monitoring can deepen this type of field study. (See pages 19-21.)

An alternative approach, "Give Water a Hand," offers checklists for students to conduct audits of practices affecting water quality in homes, school, farms, and community. It also helps students learn the skills necessary to research, plan, work with experts, problem-solve, and evaluate their own projects. (See listing inside front cover.)

The resource agencies listed in this booklet also stand ready to assist in-depth inquiry by students.

ACTION STEPS

1. Organize teams

- Identify the area(s) teams will investigate. Ask city, county, or watershed agencies about their priorities.
- Divide questions by area or by type.
- Go over "Instructions," page 26, together.
- Each team needs:
 - Copy of the relevant parts of the checklist,
 - Maps (e.g. storm sewer map, street map, and site map to record observations),
 - Clip board, pens, (also sketch pads, cameras...).
- Explain safety procedures for field study.
- Get permission prior to go on private (and some public) property.

2. Practice questions

- You may choose to answer just a few. Ask, "How you can answer these questions? Do you need experts or background information? What you will do with the data collected in the field?"
- Ask, "How will you know you have done a good job?" As a group, go over items "A" and "B" from the "Reconnaissance Rubric," pages 32-33 to discuss how best to record field observations, including what should be included. If possible, look at professional reports of this kind.
- Discuss how you will prioritize issues. Youth may find it easier to rank priorities after they have completed the rest of their worksheets. What input have you received from agencies that may guide prioritizing?

3. Record observations

Accuracy is essential. Include lots of details. (See "Reconnaissance Rubric," items "A" and "B.")

4. Analyze your findings

- Share between teams. How did it go? What did you find?
- If youth did not do so in the field, rank priorities on worksheets. Share teams' rankings. Discuss why they ranked items as they did. (See "Reconnaissance Rubric," item "C.")
- What recommendations can you make to watershed agencies? Did you discover projects you want to do? How will you follow up? What resources will you need?

5. Prepare your report

Add maps, drawings, photos, graphs, etc. to make your report clear and interesting. Review "Reconnaissance Rubric," items "D" and "E." How well does the draft report meet these quality standards? Submit a copy to the watershed agency, and ask for feedback.



Water Quality Reconnaissance Checklists

INSTRUCTIONS

An important way citizens can help ensure the quality of streams, lakes, and wetlands is to go out and look around, recording and reporting observations. Cities, counties, and natural resource agencies across the state seek this type of information.

Safety First

- Teams stay together.
- Cross streets only with crossing guard and/or proper supervision.
- Stay out of street.
- Stay away from deep water.

How to Record Quality Observations

How will you know you have done a good job with field observations? Review the "Reconnaissance Rubric," pages 32-33, items "A" and "B." It shows the range of quality from "expert" to "novice." What does it say goes into a quality job? How will you make your observations detailed, consistent, and accurate?

How will you report your data? Who will you report to? What are they interested to know?

How to Rank Priorities

Complete all your field observations before checking a priority box for each question.

Review the "Reconnaissance Rubric," item "C." How will you make sure your rankings are well-reasoned and well-supported?

Guidelines for ranking:

- A. If a practice will **ADD TO PHOSPHORUS LOADING**, rank it **HIGH**. Phosphorus loading is a key threat to water quality in area lakes and wetlands. Phosphorus is often the limiting factor in a waterbody determining the amount of algae growth. (Other key factors, such as sunlight, we can not control.)
- B. If you can **SEE A POLLUTANT GOING DIRECTLY** into the waterbody, rank it **HIGH**. Pollutants (soil, leaves, grass clippings, chemicals, oil...) that go directly into the waterbody – including storm drains – **where** there are no buffers between the pollution source and the waterbody significantly impact water quality.
- C. If a **RELIABLE SOURCE** tells you a practice is an important problem, rank it **HIGH**. Experts may disagree, but if a person with significant, relevant training or experience identifies a problem, the question merits further research at least.

Rank as **LOW PRIORITIES** things that are being taken care of or will not impact water quality. For example, see item #5, opposite page, "Are gutters free of sand, salt, dirt, or trash?" Rank as a **LOW** priority if gutters are clean, or as a **MEDIUM** priority if they are dirty but you learn that a street sweeping is scheduled in a week.

Storm Sewers

Call the city public works department to ask for a map of the storm sewer system. Using the map and a regular city street map, walk the area to answer the following.



1) Do storm sewers empty into buffer ponds or wetlands that allow pollutants to settle out before water flows into lakes?

What we found.

? Need more info. What we need more info. about ..

✓ Priority: low med. high

2) Does rainwater flow from parking lots into grass areas or other buffers before flowing into gutters and storm drains?

What we found.

? Need more info. What we need more info. about ..

✓ Priority: low med. high

3) Are grass clippings and other plant waste materials swept up from paved areas and composted/ bagged so they do not wash into storm drains?

What we found.

? Need more info. What we need more info. about ..

✓ Priority: low med. high

4) What proportion of pet wastes are picked up and disposed of immediately?

What we found.

? Need more info. What we need more info. about ..

✓ Priority: low med. high

5) Are gutters free of sand, salt, dirt, or trash? How often are streets swept?

What we found.

? Need more info. What we need more info. about ..

✓ Priority: low med. high

Storm Sewers (continued...)

6) Is runoff to storm sewers free of chemicals (e.g. pesticides, fertilizers, oil, paint, waste dumps)? Do property owners test their soil to see what fertilizers are really needed?
What we found.
.....

? Need more info. What we need more info. about
✓ Priority: low med. high

7) Is soil from construction sites kept from washing into storm sewers? Are building sites following erosion prevention ordinances?
What we found.
.....

? Need more info. What we need more info. about
✓ Priority: low med. high

8) Your question... What do you want to know? How can you find answers? Who could help answer such a question?
What we found.
.....

? Need more info. What we need more info. about
✓ Priority: low med. high

9) Your question... What do you want to know? How can you find answers? Who could help answer such a question?
What we found.
.....

? Need more info. What we need more info. about
✓ Priority: low med. high

Lakes



Kelly Nicole Jensen

- 10) Do storm sewers flow into the lake? yes no
 (If they do, see "STORM SEWERS" checklist.)
 What we found.

 ? Need more info. What we need more info. about ..

 ✓ Priority: low med. high

- 11) What proportion of homeowners leave a buffer strip
 of long grass, shrubs (e.g. willows, dogwood), or trees at lake's edge? (The ideal is 20-30 feet of buffer,
 but anything is better than nothing.)
 What we found.

 ? Need more info. What we need more info. about
 ✓ Priority: low med. high

- 12) What proportion of homeowners allow aquatic vegetation (e.g. cat tails, lilies, rushes) to grow in the
 water at lake's edge?
 What we found.

 ? Need more info. What we need more info. about
 ✓ Priority: low med. high

- 13) Are foot/bicycle trails well-maintained to prevent erosion and runoff, especially on hills? Do
 pedestrians and bicyclists stay on approved trails?
 What we found.

 ? Need more info. What we need more info. about
 ✓ Priority: low med. high

- 14) Is there a lake homeowners association working to protect water quality? What projects are they
 working on?
 What we found.

 ? Need more info. What we need more info. about
 ✓ Priority: low med. high

- 15) Is the lake's edge free of trash? If not, what is the source? (e.g. illegal dumping, windblown, tossed
 from cars, spillage around dumpsters, parties)
 What we found.

 ? Need more info. What we need more info. about
 ✓ Priority: low med. high

Wetlands

- 16) Do storm sewers flow into the wetland? yes no (If they do, see questions on “STORM SEWERS” checklist.)
What we found.
.....
 ? Need more info. What we need more info. about
✓ Priority: low med. high
- 17) Is the area surrounding the wetland free of sources of soil erosion? If there is erosion, what causes it?
What we found.
.....
 ? Need more info. What we need more info. about
✓ Priority: low med. high
- 18) What is the diversity of plant species?
What we found.
.....
 ? Need more info. What we need more info. about
✓ Priority: low med. high
- 19) Do trees or shrubs provide a shading over story? Shade cools water, allowing a wider variety of animals, large and small, to survive there.
What we found.
.....
.....
 ? Need more info. What we need more info. about
✓ Priority: low med. high
- 20) Is the wetland free of exotic plant species (e.g. loose strife)? What species are present?
What we found.
.....
.....
 ? Need more info. What we need more info. about

Streams



21) Do storm sewers flow into the stream in this section?

yes no (If "yes," see questions on "STORM SEWERS" checklist.)

What we found.....

? Need more info. What we need more info. about.....
 ✓ Priority: low med. high

22) Are stream banks stable and free of erosion? Does the stream undercut the banks? Does anything block flow? Do side ditches or storm sewers cut ravines in the banks?

What we found.....

? Need more info. What we need more info. about.....
 ✓ Priority: low med. high

23) Do trees or shrubs hold the banks firmly in place? Shade plants cool water, allowing a wider variety of animals, large and small, to survive there.

What we found.....

? Need more info. What we need more info. about.....
 ✓ Priority: low med. high

24) Is the bank free of trash? If not, what is the source? (e.g. illegal dumping, wind-blown, tossed from cars, spillage around dumpsters, parties)?

What we found.....

? Need more info. What we need more info. about.....
 ✓ Priority: low med. high

25) Your question... What do you want to know? How can you find answers? Who could help answer such a question?

What we found.....

? Need more info. What we need more info. about.....
 ✓ Priority: low med. high

Water Quality Reconnaissance Rubric

	Expert	Proficient	Emerging	Novice
A. Observations Are Detailed and Consistent	4. Describes many observed practices with many specific and relevant details.	3. Describes a few observations with a few details for each. Descriptions relate generally to each question.	2. Describes a couple of observations. Provides few details. Some descriptions are incomplete or confusing.	1. Describes one or no observations. Gives no details, or details are not relevant.
B. Record of Observations Is Accurate	4. Describes all observations precisely and with no errors. May use evidence from multiple sources to corroborate observations.	3. Describes observations with a high degree of precision and with no errors.	2. Describes observations with few or no errors. Some descriptions may be vague.	1. Descriptions contain obvious errors, or are incomprehensibly vague.
C. Ranking of Priorities Is Well-Reasoned and Well-Supported	4. Reasons for rankings are thorough, relevant and logical. Accurately cites experts and/or concrete evidence for each conclusion. Evidence is clearly relevant and supports conclusions.	3. Explains reasons for rankings. Accurately cites experts or evidence for conclusions. Relevance of some evidence is not immediately clear.	2. Reasons for rankings are unclear or inconsistent. Though accurate, some evidence is not relevant or does not support reasons for rankings.	1. Gives no rankings, gives no reasons for rankings, or evidence obviously contradicts rankings.

Water Quality Reconnaissance Rubric (continued)

	Expert	Proficient	Emerging	Novice
D. Report Is Well-Organized	<p>4. Sections appear in logical and effective order. Each section makes a clear, logical transition into the next. The report includes a brief summary. Thoroughly explains findings and recommendations. Report includes complete citations of evidence and experts. Materials are neat and attractively formatted. Maps, pictures, and diagrams directly enhance related text. Text is grammatical and free of misspellings or typos.</p>	<p>3. Sections appear in an understandable order. The report includes a summary and citations of evidence and/or experts. Materials are orderly. Maps, pictures, and diagrams may be effective on their own, but are not mentioned in text. Text is grammatical and free of misspellings or typos.</p>	<p>2. Text is understandable, yet lacks a clear and effective order. Lacks summary or citations of evidence. Maps, pictures, and diagrams have nothing to do with accompanying text. Text may contain some grammatical, spelling, or typing errors.</p>	<p>1. Text is not broken into sections. Text is ungrammatical, with misspellings and typos. Elements are missing. Materials are messy. There may be no accompanying graphics.</p>
E. Presentation Is Clear and Effective	<p>4. The main findings and recommendations are clearly stated. The presentation follows a logical order. Attractive audiovisuals provide detail and/or explain specific points. Answers to questions are respectful, thorough, and to the point. Speakers are consistently loud and easy to understand. Clothes and grooming are appropriate to the audience.</p>	<p>3. The presentation states recommendations and important findings. It has a clear beginning and ending. Audiovisuals enhance the presentation. Answers to questions are respectful and complete. Speakers are understandable most of the time. Clothes and grooming are appropriate.</p>	<p>2. The presentation makes a point, but may wander some, or be incomplete and therefore not clear or correct. Audiovisuals may not relate to the rest of the presentation or are not explained. Answers to questions are polite but confusing or incomplete. Speakers sometimes mumble. Clothing and grooming are appropriate.</p>	<p>1. The presentation wanders with no apparent purpose. Audiovisuals are poorly made, or there are none. Does not answer questions or is not respectful of questioners. Speakers are hard to understand. Clothing and grooming are inappropriate to the audience.</p>