

Once the investigation has been conducted, either the program coordinator or an interested volunteer should compile the information collected and present it to other volunteers in written form or at a program-wide meeting. At a minimum, key information on land uses, water uses, watershed boundaries, and dischargers should be maintained in written form for program use and for volunteers who might join the program at a later date. Maps, photographs, and other information on previous water quality studies in the watershed will be of particular value to the program over time.

### Obtaining Aerial Photographs

Historic and current aerial photographs can be obtained from local, state, and federal governments, as well as private firms. Try planning offices, highway departments, soil and water conservation districts, state departments of transportation, and universities.

Federal sources of aerial photographs include:

- USGS Earth Science Information Center  
507 National Center  
12201 Sunrise Valley Drive  
Reston, VA 22092  
1-800-USA-MAPS
- USDA Consolidated Farm Service Agencies  
Aerial Photography Field Office  
222 West 2300 South  
P.O. Box 30010  
Salt Lake City, UT 84103-0010  
801-524-5856
- Cartographic and Architectural Branch  
National Archives and Records Administration  
8601 Adelphi Road  
College Park, MD 20740-6001  
301-713-7040

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## 3.2 The Visual Assessment

To conduct the visual stream assessment portion of the watershed survey, volunteers regularly walk, drive, and/or canoe along a defined stretch of stream observing water and land conditions, land and water uses, and changes over time. These observations are recorded on maps and on visual assessment data sheets and passed to the volunteer coordinator, who can decide whether additional action is needed. Volunteers might themselves follow up by reporting on problems such as fish kills, sloppy construction practices, or spills they have identified during the visual assessment.

The basic steps to follow are:

### Task 1

#### Determine the area to be assessed

The visual assessment will have most value if the same stream or segment of stream is assessed each time. In this way, you will grow familiar with baseline stream conditions and land and water uses, and will be better able to identify changes over time. You should choose the largest area you feel comfortable assessing and ensure that it has easy, safe, and legal access. The area should have recognizable boundaries that can be marked or identified on road maps or U.S. Geological Survey topographic maps. This will help future volunteers continue the visual assessment in later years and help the program coordinator easily locate any problems that have been identified.

Once you have identified the area to be assessed, define it clearly in words (for example, "Volunteer Creek from Bridge over Highway One to confluence of Happy

Creek at entrance to State Park"). Then, either draw the outline and significant features of the stream and its surroundings on a blank sheet of paper or obtain a more detailed map of the area, such as a plat, road, or neighborhood map. This will serve as the base map you will use to mark stream obstructions, pollution sources, land uses, litter, spills, or other problems identified during your visual assessment.

### **Task 2** Determine when to survey

Because land and water uses can change rapidly and because the natural condition of the stream might change with the seasons, it is best to visually assess the stream or stream segment at least three times a year. In areas with seasonal changes, the best times to survey are:

- Early spring, before trees and shrubs are in full leaf and when water levels are generally high
- Late summer, when trees and shrubs are in full leaf and when water levels are generally low
- Late fall, when trees and shrubs have dropped their leaves but before the onset of freezing weather

In addition, you may wish to spot-check potential problem areas more frequently. These include construction sites, combined sewer overflow discharges, animal feedlots, or bridge/highway crossings. If polluted runoff or failing septic systems are suspected, schedule a survey during or after heavy rainfall. If a stream is diverted for irrigation purposes, surveys during the summer season will identify whether water withdrawals are affecting the stream.

Again, it is important to survey the stream at approximately the same time each season to account for seasonal variations. You might find it productive to drive through the watershed once a year and to

walk the stream (or the stream's problem sites) at other times (see Tasks 4 and 5).

### **Task 3** Gather necessary equipment

In addition to the general and safety equipment listed in Chapter 2, the following equipment should be gathered before beginning the visual assessment:

- Reference map such as road map or USGS topographic map, to locate the stream and the area to be assessed
- Base map to record land uses, land characteristics, stream obstructions, sources of pollution, and landmarks
- Field data sheet
- Additional blank paper, to draw maps or take notes if needed
- Relevant information from background investigation (e.g., location of NPDES outfalls, farms, abandoned mines, etc.)

### **Task 4** Drive (or walk) the watershed

The purpose of driving (or walking) the watershed is to get an overall picture of the land that is drained by your stream or stream segment. It will help you understand what problems to expect in your stream, and it will help you know where to look for those problems.

As with all other monitoring activities, you should undertake your watershed drive or walk with at least one partner. If you are driving, one of you should navigate with a road map and mark up the base map and field sheet with relevant discoveries while the other partner drives. You might want to pull over to make detailed observations, particularly near stream crossings. **Remember never to enter private property without permission** (see Safety Considerations, Chapter 2).

As you drive or walk the watershed, look for the following:

- *The “lay” of the land*—become aware of hills, valleys, and flat terrain. Does any of this area periodically flood?
- *Bridges, dams, and channels*—look for evidence of how the community has dealt with the stream and its flood potential over the years. Are portions of it running through concrete channels? Is it dammed, diverted, culverted, or straightened? Where the road crosses the stream, is there evidence of erosion and pollution beneath bridges? Is streamflow obstructed by debris hung up beneath bridges?
- *Activities in the watershed*—look for land use activities that might affect your stream. In particular, look for construction sites, parking lots, manicured lawns, farming, cattle crossings, mining, industrial and sewage treatment plant discharges, open dumps, and landfills. Look for the outfalls you identified in your background investigation. Also look for forested land, healthy riparian zones, undisturbed wetlands, wildlife, and the presence of recreational users of the stream such as swimmers or people fishing. (Note that heavy recreational use or large flocks of birds might adversely affect the quality of streams, ponds, lakes, and wetlands.)

#### **Task 5** Walk the stream

Where you have safe public access or permission to enter the stream, stop driving or walking the watershed and go down to the stream. Use all of your senses to observe the general water quality condition. Does the stream smell? Is it strewn with debris or covered with an oily sheen or foam? Does it flow quickly or sluggishly? Is it clear or turbid? Are the banks eroded?

Is there any vegetation along the banks? If you see evidence of water quality problems at a particular site, you might want to investigate them in more detail. Drive or walk upstream as far as you can, and try to identify where the water quality problem begins.

Use your field data sheet to record your findings. Always be as specific as possible when noting your location and the water conditions you are observing. Draw new maps or take pictures if that will help you remember what you are observing. Don't be afraid to take too many notes or draw too many pictures. You can always sort through them later.

Take note of the positive conditions and activities you see as well as the negative ones. This, too, will help you characterize the stream and its watershed. Look for such things as people swimming or fishing in the stream; stable, naturally vegetated banks; fish and waterfowl; or other signs that the stream is healthy.

For more information on what to look for in and around the stream, consult Chapter 4 and, in particular, the *Stream Habitat Walk*.

#### **Task 6** Review your maps/field data sheets

The last step of the watershed survey's visual assessment is to review the maps, drawings, photos, and field data sheets you have assembled for your stream or stream segment. What is this information telling you about problem sites, general stream condition, potential for future degradation, and the need for additional action? In most cases you will find that you have put together an interesting picture of your stream. This picture might prompt additional monitoring or community activity, or could urge your program coordinator to bring potential problems to the attention of water quality or public health agencies in your area.

When reviewing your data, be sure maps are legible and properly identified, photos have identifiable references, and field data sheets are filled out completely and accurately. Your program coordinator might ask for your field data sheets, maps, and other material and can probably help interpret the findings of your watershed survey.

### For More Information on Your Watershed

EPA's *Surf Your Watershed* internet web site is a service designed to help citizens locate, share, and use information on their watershed or community. While you are conducting your watershed survey, you might find its features of value. *Surf* provides:

- Access to a large listing of protection efforts and volunteer opportunities by watershed.
- Information on water resources, drinking water sources, land use, population, wastewater dischargers, and water quality conditions.
- Capabilities to generate maps of your watershed and determine the latitude and longitude of specific sites within it.
- Opportunity to share your watershed information with other on-line groups through links with other pages and databases.

You can reach *Surf Your Watershed* on the web at [www.epa.gov/surf](http://www.epa.gov/surf).

### References and Further Reading

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- Kerr, M. and V. Lee. 1992. *Volunteer Monitoring: Pipe Detectives Manual*, March 1992. Rhode Island Sea Grant, University of Rhode Island, Coastal Resources Center.
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- Yates, S. 1988. *Adopting a Stream: A Northwest Handbook*. Adopt-A-Stream Foundation. University of Washington Press.

# WATERSHED SURVEY VISUAL ASSESSMENT

## GENERAL INFORMATION

Stream name: \_\_\_\_\_

Watershed name: \_\_\_\_\_

County: \_\_\_\_\_ State: \_\_\_\_\_

Approximate size of study area (acres): \_\_\_\_\_

Investigators: \_\_\_\_\_

Site (description): \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

**Weather in past 24 hours:**

Storm (heavy rain)

Rain (steady rain)

Showers (intermittent rain)

Overcast

Clear/Sunny

**Weather now:**

Storm (heavy rain)

Rain (steady rain)

Showers (intermittent rain)

Overcast

Clear/Sunny

## LAND USES IN THE WATERSHED

1. Specific uses identified (check as many as apply)

	Streamside	Within 1/4 mile of Stream	Within Watershed
<b>Residential:</b>			
Single-family housing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Apartment building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lawns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Playground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parking lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Commercial / Industrial / Institutional:</b>			
Commercial development (stores, restaurants)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auto repair/gas station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Factory/Power plant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sewage treatment facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water treatment facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Institution (e.g., school, offices)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landfill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Automobile graveyard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bus or taxi depot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Forest / Parkland:</b>			
Recreational park	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National/State Forest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Woods/Greenway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Agricultural / Rural:</b>			
Grazing land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cropland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Animal feedlot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Isolated farm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Old (abandoned) field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish hatchery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tree farm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**2. Summary of major land uses in the watershed (use approx. percentages)**

Residential \_\_\_\_\_%      Parkland/Forest \_\_\_\_\_%  
 Commercial/Industrial/Institutional \_\_\_\_\_%      Other \_\_\_\_\_%  
 Agricultural/Rural \_\_\_\_\_%

**4. Comments on land uses**

Use this space to explain or expand on land use descriptions you have identified above. For example, you might want to identify particular buildings, specify the location of construction sites, note the condition of streamside picnic areas, note the presence of cows in a stream, or note corrective measures such as swales or settling basins.

**3. Additional activities in the watershed (check as many as apply)**

	Streamside	Within 1/4 mile of Stream	Within Watershed
<b>Construction</b>			
Building construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Logging</b>			
Selective logging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intensive logging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lumber treatment facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mining</b>			
Strip mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pit mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Abandoned mine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quarry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Recreation</b>			
Biking/Off-road vehicle trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horseback riding trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat ramp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jogging paths/hiking trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swimming area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fishing area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picnic area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Golf course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Campground/trailer park	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power boating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## GENERAL STREAM AND WATERSHED CHARACTERISTICS

8. Comments on general stream characteristics (e.g., date and size of fish kill, increased rate of erosion evident, litter most evident after storms)

5. Note the number of hydrologic modifications (structures that alter natural stream flow):

- |               |                    |
|---------------|--------------------|
| None _____    | Waterfalls _____   |
| Dams _____    | Stream fords _____ |
| Bridges _____ | Beaver dams _____  |

6. Note the approximate length of stream that is affected by the following:

- |                                  |                           |
|----------------------------------|---------------------------|
| Stream diversion _____           | _____ feet or _____ miles |
| Stream straightening _____       | _____ feet or _____ miles |
| Concrete streambank/bottom _____ | _____ feet or _____ miles |

7. Check the categories that best describe the general appearance of the stream:

- Litter:**
- No litter visible
  - Small litter occasionally (e.g., cans, paper)
  - Small litter common
  - Large litter occasionally (e.g., tires, carts)
  - Large litter common

- Erosion:**
- No streambank erosion or areas of erosion very rare; no artificial stabilization
  - Occasional areas of streambank erosion
  - Areas of streambank erosion common
  - Artificial streambank stabilization (e.g., rip rap) present

- Special Problems (note in detail in comment section below):**
- Spills of chemicals, oil, etc.
  - Fish kills
  - Wildlife, waterfowl kills
  - Flooding
  - Periods of no flow

## PIPE AND DRAINAGE DITCH INVENTORY

In this section, provide information on pipes and drainage ditches found on the banks or in the stream. These pipes/ditches can be abandoned or active. Note this basic information for each pipe or drainage ditch you observe. Attach additional pages to this form.

- 9. This information applies to a:**  
 Pipe     Drainage ditch     Other \_\_\_\_\_
- 10. Location of pipe/ditch:**  
 In stream     In streambank     Near stream

Describe location:

- 11. Pipe/Ditch # (for mapping/location purposes)** \_\_\_\_\_

- 12. Identify type of pipe (check one)**
- Industrial outfall
  - Sewage treatment plant outfall
  - Storm drain
  - Combined sewer overflow
  - Agricultural field drainage
  - Paddock or feedlot drainage
  - Settlement basin/pond drainage
  - Parking lot drainage
  - Unknown
  - Other \_\_\_\_\_

- 13. Approximate Diameter of Pipe:** \_\_\_\_\_ inches or \_\_\_\_\_ feet

- 14. Describe the discharge flow:**
- Rate of Flow:     None     Intermittent     Trickle  
 Steady     Heavy
- Appearance:     Clear     Foamy     Turbid  
 Oily sheen     Colored \_\_\_\_\_
- Odor:     None     Rotten eggs/sewage     Chemical  
 Chlorine     Other \_\_\_\_\_

- 15. Describe the streambank/stream below pipe or drainage ditch:**
- No problem evident
  - Sewage litter (e.g., toilet paper)
  - Litter (e.g., styrofoam, cans)
  - Eroded
  - Lots of algae
  - Other \_\_\_\_\_

- 16. Comments on pipes and drainage ditches**  
 Use this space to explain or expand on information provided on pipes and discharges you have identified above. For example, you may want to identify particular facilities, or discuss in more detail the condition of the stream below the discharge.

# Waterway health check

Make notes on each category on a separate sheet

## Site information

### Name of wetland/waterway:

If unnamed, what is the closest town, suburb or road.

### Location:

Provide sufficient details so that you or someone else using your directions can return to exactly the same spot to repeat your rating.

### Date:

### Weather:

### Has it rained in the last 24 hours?

(If yes, was it heavy rain?):

### Area being rated:

Create a simple site map using a road directory or local plan. Mark in features that might affect your waterway. Mark in where you made your rating.

Provide enough detail so that when you repeat your rating you're examining the same area. For example, you might look at an area 50 metres on either side of the waterway, stretching up and down the waterway as far as you can see.

## CATEGORY 2 litter

Make notes on the type of litter floating on or in the water or on the surrounding land. (Include natural litter such as leaves sticks and animal faeces.)

If litter seems to collect in one particular area, take a photo of that area each time you monitor your waterway so you can compare litter buildup.

### Rating Category 2

0. Lots of human litter such as car bodies, tyres, plastics and cans, oily films and/or excessive algae growth.
- 1.
2. A lot of human litter, cans, plastics or algae.
- 3.
- 4.
5. Some human litter such as garden rubbish and plastics
- 6.
- 7.
8. One or two pieces of human litter, and local vegetation such as leaves floating in the water
- 9.
10. No human use at all, preserved in its natural state

YOUR RATING



What kind of litter is found in your waterway, and how much is there?

## CATEGORY 3 pipes and drains

Look for pipes, drains or trenches leading into your waterway. Examine what's coming out of them (by smell and sight: don't touch or taste), record how many there are and make notes on what you think they're there for.

Without touching the discharge from the pipes, figure out a method of calculating what the volume of any discharge is.

### Rating Category 3

0. A number of pipes from industry and/or sewage treatment and/or urban stormwater.
- 1.
2. Some pipes or trenches
- 3.
- 4.
5. No pipes from industry, but some urban stormwater drainage
- 6.
- 7.
8. No pipes or drains
- 9.
- 10.

YOUR RATING



What are the pipes and drains bringing to your waterway?

## CATEGORY 1 land use

Walk around the area surrounding your waterway. Record land uses that you see or land uses you're aware of in the local area.

Create a list of places where water comes from that flows into your waterway.

### Rating Category 1

0. Lots of industry nearby, most of land cleared, soil bare, environment disturbed
- 1.
2. Some industry, some land cleared
- 3.
- 4.
5. Some commercial, recreational and residential land use
- 6.
- 7.
- 8.
- 9.
10. No human use at all, in its natural state

YOUR RATING



What's the land being used for around your waterway?

## CATEGORY 4 extra structures / modifications

In addition to pipes and drains, record the presence of other artificial structures such as weirs, concrete banks, piers or any artificial modification of the water flow.

Describe what effect you think these structures have had on the waterway.



Stormwater filters such as shown here are designed to catch litter that might accumulate in other areas.

### Rating Category 4

0. A number of artificial structures, large modification of natural flow
- 1.
2. Some artificial structures or some flow modification
- 3.
- 4.
5. No concrete structures or minimal modification of water flow
- 6.
- 7.
8. No extra structures or artificial modifications
- 9.
- 10.

YOUR RATING

### CATEGORY 5

## smell

Sit by the waterway and record any smells. Take a sample of water and record its smell (don't taste it). A strong natural smell in wetlands and estuaries should be recorded as 6 or more.

**Take a sample of water in a glass jar and ask other people how they would judge the smell. Is it the water that smells or something else at the waterway?**

YOUR RATING

#### Rating Category 5

0. Very strong, unnatural chemical smell
- 1.
2. Strong unnatural smell
- 3.
- 4.
5. Stronger decaying smell or slight unnatural smell
- 6.
- 7.
8. Very slight smell, perhaps natural decay
- 9.
10. No smell / natural smell



The water is clear but doesn't smell very nice!

### CATEGORY 6

## water clarity

Collect a water sample in a clear container. Hold it up to the light. Record how clear the sample is.

**If your water sample is murky, allow it to stand for a couple of days. Do particles settle out of it, causing it to become clearer?**

YOUR RATING

#### Rating Category 6

0. Milky brown or green colour with particles and scum. You can hardly see through it!
- 1.
2. Cloudiness and/or greenish colour, with some particles or film
- 3.
- 4.
5. Some colour and particles
- 6.
- 7.
8. A little colour
- 9.
10. Colourless and clear as tap water



It's looking good!

### CATEGORY 7

## vegetation

Look at the banks and the land extending from the waterway. Note if the vegetation is natural or introduced, and if the soil is eroded or stable.

**Using flora books or consulting local experts, learn the names of your local plants. Create a list of species growing around your waterway.**



There's vegetation around but the banks themselves are eroded and appear unstable.

YOUR RATING

#### Rating Category 7

0. Lots of introduced plants, much clearing, bare ground, pasture, extensive erosion
- 1.
2. Mixed plants, much clearing, large eroded areas
- 3.
- 4.
5. Mixed native and introduced plants. Some clearing. Small corridor of vegetation. Some minor erosion.
- 6.
- 7.
8. Mainly native plants. Natural vegetation extends up to 30m from water, no erosion
- 9.
- 10.

### CATEGORY 8

## invertebrate animals

(insects, crustaceans, molluscs and so on)

Sit by your waterway and look for invertebrate animal activity. Run a scoop net through the water and see if you can catch insects or other invertebrates.

**Scrape up the first centimetre of sediment with a tin. Put it into an ice cream container and wash it with lots of water. Draw any animals you find.**

YOUR RATING

#### Rating Category 8

0. No invertebrate animal life visible at all
- 1.
2. Only one or two types of animal life visible (probably snails leeches or worms)
- 3.
- 4.
5. Fewer than five types of animals found
- 6.
- 7.
8. At least seven types of animals found
- 9.
10. Many types of animals found including insect larvae and nymphs



Run a scoop net through the water and see what you catch.

### CATEGORY 9

## vertebrate animal life

(birds, reptiles, fish, amphibians and mammals)

Sit by you waterway and look for vertebrate animal activity. Note both the variety and number of birds. Look for fish, listen for frogs and record any animal tracks

**Using bird books, learn the names of birds around your waterway and compile a list. Keep a chart of what birds are around at what times of year.**

YOUR RATING

#### Rating Category 9

0. No vertebrate animal life visible at all
- 1.
- 2.
3. One type of animal life (birds)
- 4.
- 5.
6. Two types of animals found
- 7.
- 8.
- 9.
10. Many types of vertebrate animals found



What birds are using the waterway near you?

**total score**

# Using your Score

Okay, now you have a series of numbers (and a total) that serves as an indicator of the health of your local waterway. What do you do with that number?

Your health rating is a good starting point for further work but you should keep in mind that a single score is only a rough indication of the waterway's health. If you're really concerned about looking after this important environment there are two things you should be considering. First, learn how you can make your health rating more valid (that is, improve the quality of your judgement). Second, take steps to improve the health of your waterway (in other words, change things so your total score increases).

## Improve your rating

Here are four simple ways to improve the way you do your rating. See if you can come up with additional ways of your own.

- 1. Involving the judgements of a number of people.** Your scores are based on your own judgement. By involving more people you'll produce a more accurate result. See if you can get a group of friends to run their own health check on your waterway. Offer to do the same on theirs. Does your individual score change if a number of people make the same test and you average everyone's scores?
- 2. Make multiple ratings.** It's not enough to simply do a single rating on your local waterway or wetland. To really appreciate the health of these areas you need to make the rating several times in different places and at different times. By making many ratings you begin to tune into the changing nature of your waterway. You also become more skilled at the process of rating.
- 3. Learn about the different categories.** Discover new ways of making a better judgement. For example, you could find out how to do a more objective clarity test, learn more about the invertebrates in your area, learn a little chemistry and add your own categories on water pH or conductivity, or investigate land uses in your local area to better assess the impact on your local waterway.

- 4. Contact your local Waterwatch Facilitator.** He or she should be able to help you find out about other assessment techniques and put you in contact with people who can help you.

## Improve your score

Rating your local waterway is all about tuning in to these vital environments. However, making an assessment of their health is only the start of the process. Now that you have some measure of their health, how are you going to improve their situation?

Clearly there are some actions you can take that will quickly make a difference. If litter is a problem, why not organise a few like-minded friends to get in there and clean things up? It'll improve the health score and provide some peace of mind.

Other areas of health are less easily addressed but you can still make a difference over time if you're really motivated. Of course, the more people working to make a difference the better, so why not try to enlist the aid of your class?

Or why not join a local waterwatch group? By joining a local conservation group you'll be surrounded by people who care for the environment, who know what some of the problems are and who have some idea of how those problems might be fixed. If you'd like to find out how Waterwatch might be able to help you, contact your State or Territory Waterwatch contact (see Waterwatch Facilitators).

## Improving all the scores

Imagine if everyone began monitoring their local waterways, and tried to improve them. We'd really become an environmentally friendly community and our waterways and wetlands might start taking on a healthy glow. They'd become places we enjoyed visiting and learning about. Unfortunately, our waterways are in need of a bit of help but programs such as Waterwatch are beginning to make a difference.

One project run each year by Waterwatch is a national 'Snapshot' of the condition of



Enlist your friends or your class, or join (or create) a local Waterwatch group. Not only will you get more work done, you'll help spread the word on the importance of looking after our waterways.

the country's waterways. It's one way to really tune into your local environment while placing your local scene in a national focus. Contact your State or Territory Waterwatch Facilitator to find out how you can become involved in Snapshot.

**The task of caring for our waterways is an important one in which everyone has a stake. So next time someone asks you how your local waterways is, will you be able to tell them?**

## Waterwatch State and Territory Facilitators

If you would like to find out how Waterwatch is operating in your State or Territory, contact the relevant number or check out the Waterwatch website (<http://www.waterwatch.org.au>)

### National

Phone (02) 6274 2312  
Fax (02) 6274 2268

### Tasmania

Phone (03) 6336 5254  
Fax (03) 6336 5311

### South Australia

Phone (08) 8204 9117  
Fax (08) 8204 2107

### Queensland

Phone (07) 3896 9737  
Fax (07) 3896 9625

### Western Australia

Phone (08) 9278 0646  
Fax (08) 9278 0639

### Victoria

Phone (03) 9412 4663  
Fax (03) 9412 4039

### Australian Capital Territory

Phone (02) 6207 2246  
Fax (02) 6207 6084

### New South Wales

Phone (02) 9228 6571  
Fax (02) 9228 6464

### Northern Territory

Phone (08) 8999 4456  
Fax (08) 8999 4445



## Izaak Walton League of America Save Our Streams – Stream Walk Survey

Name of Stream: \_\_\_\_\_ County: \_\_\_\_\_ State: \_\_\_\_\_ Date: \_\_\_\_\_

### Why take a stream walk?

- to learn more about the health of your local stream,
- to map potential sources of pollution, and;
- to determine needs for more water quality monitoring, clean-up, and enhancement.

### Have Fun, Be Prepared, and Be Safe.

- Before you leave, make sure someone knows where you are going and about what time you should return. Do not go alone.
- Take with you: this survey sheet, a notebook, map, and pencils. And if you have these, take them too: a GPS unit, camera, binoculars, thermometer, tape measure, and waterproof boots.
- Most importantly take a First Aid Kit and cell phone for emergencies! Your First Aid Kit should include: adhesive and cloth bandages, surgical tape, tweezers, pain reliever, anti-histamine, antiseptic spray or ointment, hydrogen peroxide, cotton balls, and an instant ice pack.

**General Stream Information.** (You can answer a lot of these questions by looking at maps and talking to local and state conservation staff prior to taking your stream walk.)

- How long is the stream? \_\_\_\_\_ miles
- Where does it begin? \_\_\_\_\_ Where does it end? \_\_\_\_\_
- Do other streams flow into this stream? **YES/NO** Which ones? \_\_\_\_\_
- Does this stream flow into other streams? **YES/NO** Which ones? \_\_\_\_\_
- What type of land uses does the stream flow through in its watershed? (check all that apply)
  - Rural, such as farmland, forested land or open grasslands  Other \_\_\_\_\_
  - Urban, such as cities and towns
  - Suburban, such as housing developments and some open land

### Stream Walk Survey Sheet

(Fill this out as your walk along the stream. You may want to use several copies for long walks to represent various areas along the stream, or where an unusual condition appears.)

GPS Coordinates/or Description of Start Location (cross street names, landmarks, etc.): \_\_\_\_\_

GPS Coordinates/or Description of End Location: \_\_\_\_\_

Avg stream width: \_\_\_\_\_ ft. Avg. stream depth: \_\_\_\_\_ ft.

Water level/flow rate is: \_\_\_\_\_ High \_\_\_\_\_ Normal \_\_\_\_\_ Low \_\_\_\_\_ Negligible

Weather conditions (last 72 hours): \_\_\_\_\_

What is the stream bed made of? (Check all that apply. Give an estimated % for each description marked.)

- |   |   |
|---|---|
| <input type="checkbox"/> Bedrock (large area of rock covering streambed, cannot be removed) | <input type="checkbox"/> Gravel (grape-size)                      |
| <input type="checkbox"/> Boulders (watermelon-size and larger)                              | <input type="checkbox"/> Sand (smaller than grape-size)           |
| <input type="checkbox"/> Cobbles (orange-size)  | <input type="checkbox"/> Silt (smaller than sand and feels silky) |

What color is the water?  Clear  Tea-colored  Milky  Muddy  Black  Grey  Other \_\_\_\_\_

Does the water appear oily on the surface? **YES/NO** Describe: \_\_\_\_\_

Is there foam on the surface of the water? **YES/NO** Describe: \_\_\_\_\_

Do you see trash in or around the stream? **YES/NO**

Describe the types of trash and how much you see. \_\_\_\_\_ If collecting trash along your trip, record how many large garbage bags you collect. \_\_\_\_\_ (Can some, or all of it, be recycled? If so, you can recycle at your municipal waste facility.)

Do you smell any unusual smells such as oil, sewage, or rotten eggs? **YES/NO**

Describe the smells. \_\_\_\_\_ (Do not go into any stream with unusual smells. Instead, record a description of the smells and the location, and contact your local environmental government agency).

Are there any discharge pipes in the stream? **YES/NO** If yes, how many? \_\_\_\_\_

What types of pipes are they?  Unknown  Runoff (field or stormwater) describe: \_\_\_\_\_

Sewage Treatment \_\_\_\_\_  Industrial: type of industry \_\_\_\_\_

What do you see on the banks of the stream?  Concrete  Soil  Rock  Vegetation/roots

Is there erosion along the banks? **YES/NO** Describe:  Severe  Moderate  Slight;  One side  Both sides

If there is vegetation growing on the streambanks, what types do you see?

Trees (woody plants 6' or taller)  Shrubs (woody plants shorter than 6')  Grasses and Vines

Is the land along the stream:

Paved  Lawn  Trees  Other \_\_\_\_\_

Circle the land uses you see while walking along the stream:

Roads	Houses	Apartments	Schools
Shopping Malls	Crop Fields	Golf Courses	Pastures
Parks	Mining	Sewer Manholes	Landfill
Forest	Discharge Pipes	Construction Sites	Cut Trees

Are there any land uses not listed above? **YES/NO**

Indicate location (draw a stream map) and describe each land use. \_\_\_\_\_

Do you see any animal tracks? **YES/NO**

Draw pictures of the animal tracks.

Do you see any animal houses, such as beaver dams or bird nests? **YES/NO**

Describe: \_\_\_\_\_

Do you see fish? **YES/NO**

What size? \_\_\_\_\_ inches How many?  Scattered Individuals  Scattered Schools (groups)

What kind? (check box if you can identify the fish you see)

Unsure  Trout (pollution sensitive)  Bass (somewhat pollution sensitive)

Catfish (pollution tolerant)  Carp (pollution tolerant)  Other \_\_\_\_\_

What other observations can you make about your stream? Describe them: \_\_\_\_\_

**For more information about stream monitoring and stream enhancement projects go to [www.iwla.org/sos](http://www.iwla.org/sos).**

*Founded in 1922, the Izaak Walton League of America protects America's outdoors through community-based conservation, education, and the promotion of outdoor recreation. The League has more than 36,000 members and supporters nationwide*