

## MEETING #3: SOLVE THE CASE: Guides, Pathfinders, Rangers

### Preparing for Meeting #3:

- Get a topographic map of the area around your watershed if you can. You can order one from: <http://www.fedpubs.com/mpchrt/maps/sontindx.htm> Or a hiker, naturalist or map store may have one, or contact your conservation authority. If you cannot get a topographic map, a road map will do (see below).
- Prepare a game or two (see below)
- **Guiders** - This plan might not take an entire meeting, so have something else to do, too!

**Solve the Case :** In this part of the investigation, the CSI investigators will *solve the case*. This will entail identifying the extent of the watershed is that drains to their waterbody. Then you'll think about the watershed, and, just like finding clues to the scene of a crime, you will identify what might be missing in the watershed. Maybe the watershed needs trees, nesting boxes, or plantings. Or maybe neighbours surrounding the water body could be reminded about the connection between what they do on their lawns, driveway and street and water quality.



### There are 4 steps to Solve the Case:

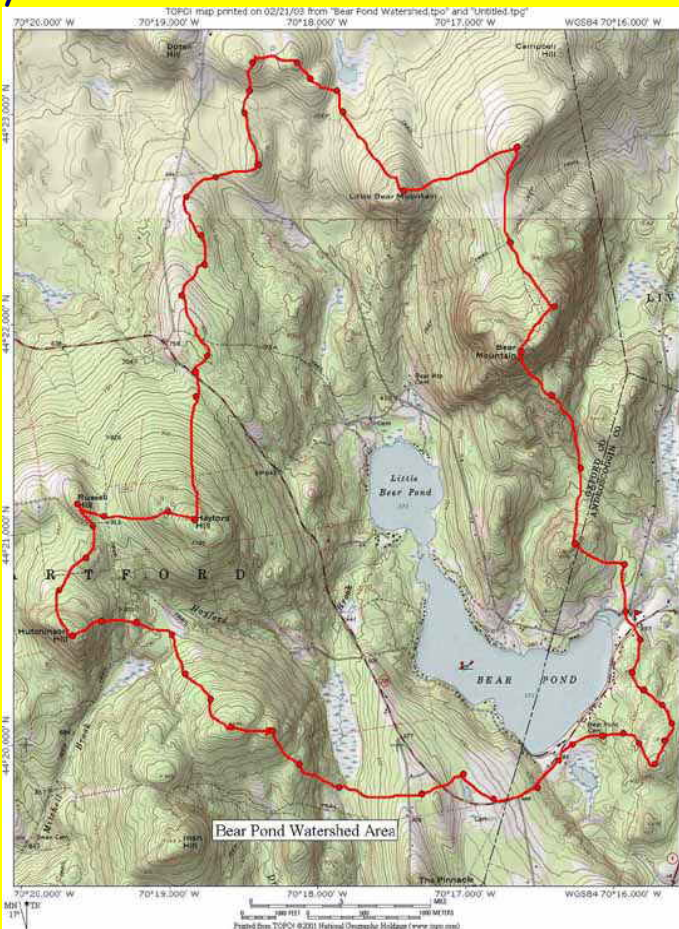
- Step 1 – Identify your watershed
- Step 2 – Think like an investigator
- Step 3 – Find a solution to solve the case
- Step 4 – Investigator's Sidekick
- Then: Step 5 – Play!

Identify what might be done to improve the watershed and pick a project (or a few alternatives in case one does not work out) that you might complete in the spring.

### Step 1 – Identify your watershed

- Try to get a topographic map of the area around your water body (one that shows elevation of the land). [You can order these for your local region at <http://www.fedpubs.com/mpchrt/maps/sontindx.htm>. There is a cost, so perhaps you can find someone who has one already!]
- Make some copies for girls to share in small enough groups that they will be able to see it clearly. Have the girls find the high parts on the map, like the top of hills where they might go sledding. Some of the land around your waterbody will slope to your water body – find the slope and the high points around your water body. They girls may need your help depending on the age group.
- The watershed boundaries are where the high points connect. All the water from the high points to your water body forms the watershed.

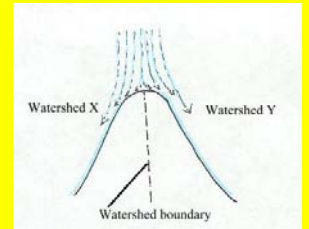
See how two girls, Ranger Rachelle and Pathfinder Polly drew the boundaries of their Bear Pond Watershed. They are going to walk you through how to do it for your watershed!



Hi Girls! Polly here! We started by looking at the numbers on the light lines that are all over the map. These are contour lines and show the elevation of the ground.



Then we figured out that when we moved away from the pond, the numbers on the lines were going up. We moved across the lines uphill to their highest points (except directly downstream of the waterbody).



Hey! Rachelle here! We noticed that sometimes the highest point above the pond was a peak, shown as a closed circle. Other times, the highest point was a ridge, shown as an elongated U- shape. In any case, on the other side of these highest points, a new watershed began. So we connected the highest points around the pond with a line - drawing the boundaries of their watershed! You can do it, too!

Good Luck ! Polly and Rachelle

If you can't get a topographic map, you might work from a road map of the area around your water body, but you'll need to take a look at the site, to confirm how the land lies and what drains to your water body. The road map will show any major creeks that drain to your water body, but may not show small tributaries. Does the watershed extend over kilometers or just meters? What land uses does it include? You might try to trace the area on your road map before the meeting. Your Conservation Authority or Ministry of Natural Resources office can help you with this, too, if you can tell them where the water body is.

- You'll also want to think about where the watershed drains to, which will be a larger watershed. Is it to a creek or river? Where does that drain to? Does it eventually drain to the Great Lakes or to Hudson Bay? If you don't know, you can get this information from the Government of Canada interactive webpage "Know Your Watershed" <http://map.ns.ec.gc.ca/kyw/> or refer to the map you ordered from Canadian Wildlife Federation (Meeting #1)
- Think about how everything from the watershed affects the water quality in their waterbody. And everything from the waterbody eventually affects the bigger waterbodies, even the oceans!

### Step 2 – Think like an investigator

- Next, you'll want to think like a CSI investigator. What is your watershed like? Is it developed into cities or subdivisions? Is it farmed? Are there factories? Are there parking lots? Are there forests? Wetlands? Highways? Is it largely natural with leaf litter on the ground to slow down and soak up rainfall? Or is it largely roads and parking lots that rain races off of? What kind of animals have you seen there?
- Does it include your school? Town Hall? Any stores you shop at?
- Are any of the **MAIN SUSPECTS** harming your watershed? **Check the Main Suspects page.**
- You might want to show some pictures of the watershed to help everyone think about it.



### Step 3 – Find a solution to solve the case

Investigators have to think of solutions. So now come up with a solution to improve the watershed. Maybe one of your ideas will meet the criteria of the Environmental Service Project Financial Assistance **Go here for the Environmental Service Project for Units, Application for Financial Assistance** <https://secure.e-registernow.com/cgi-bin/mkpayment.cgi?MID=1213&state=step2direct&event=500000045622727>

- Do you think the watershed would be most improved if you did a **planting project**? If so, what kind? A shoreline planting? Trees? Native flowers and shrubs?
- Or would your watershed be most improved by informing residents that what runs off of their lawns and driveways runs straight into a waterbody? You might tackle a "**Yellow Fish Road**" project to do this. All the supplies and directions are sent to you for free and it's a great Guiding event. <http://www.yellowfishroad.org>
- Or perhaps you could do the most good by **building bird boxes or nesting boxes**? <http://www.hww.ca/hww2.asp?id=196> Your local Stewardship Council can usually help with this project, too! See Contacts List.
- Perhaps there is a lot of trash around your watershed that would be beneficial to **clean up**? See if the municipality will provide trash bags, gloves, and pick up of your collected trash.

- Maybe it would be of most use to host a day where you **celebrate your water body** and get **media coverage** of the event. Show people where your watershed is and have a festival?
- Perhaps you could help **get the word out** to conserve the land near your waterbody?
- Maybe animals would benefit from your **creating a small habitat area** of piled logs and brush or stones? <http://www.hww.ca/hww2.asp?id=198>
- There are other suggestions for great restoration projects and good directions for completing them through Canada's Hinterland Who's Who: <http://www.hww.ca/hww.asp?id=43&pid=3>

#### **Step 4 – Investigator's Sidekick**

- All good investigators have a sidekick. You might need one, too! Think about contacting one of the following to help plan or execute the project. (INSERT LINK TO CONTACTS)
- Stewardship Council (Does a lot of on-the-ground projects to restore the environment)
- Conservation Authority (Stewardship staff might have some ideas or some projects already underway)
- Field Naturalists (perhaps have gotten some ideas from Meeting #1) (They may take on projects or know what needs doing)
- Ducks Unlimited (They make wetlands and build and install nesting boxes)
- Trout Unlimited Canada (They run Yellow Fish Road, the storm sewer painting project that is so effective at reminding people where their stormwater goes – straight to the water!)

#### **Step 5 – You're Done (for today)! Have More Fun!**

- You've solved the case and you'll close the case in the sSpring with your restoration project! Tonight have fun with any of the games from the 2<sup>nd</sup> meeting list OR:
- Play the Hydropoly Game! <http://www.shadowhabitat.org/education/PDF/Hydropoly-ALL.pdf>

Pathfinders/Rangers could build a watershed that shows the interactions of groundwater and surface water with "Build Your Own Watershed" (you'll need to prepare your supplies before the meeting!) [www.epa.gov/safewater/kids/activity\\_grades\\_9-12\\_buildyourownwatershed.html](http://www.epa.gov/safewater/kids/activity_grades_9-12_buildyourownwatershed.html) .

OR they could play more with topographic maps:

<http://www.epa.gov/region01/students/pdfs/wetaccp5.pdf>

#### **Note for more fun:**

Now that your CSI Watershed Investigators know so much about watersheds, they might have fun playing this on-line watershed game! Maybe you can send the link home with them so they can check it out at school or wherever they have web access:

<http://www.bellmuseum.org/distancelearning/watershed/watershed2.html> (You might want to tell parents/girls that there is no need to download Apple QuickTime7 or to view the panoramas – just have fun answering the questions.)