

# 2019 Aquatics Ecology Resources

## Aquatics Resources

1. Streamkeepers Field Guide
2. Healthy Water, Healthy People Water Quality Educators Guide—Contact Tina Harding, ND Project WET Coordinator for hard copy: [tinamharding@nd.gov](mailto:tinamharding@nd.gov)
3. Healthy Water, Healthy People Field Monitoring Guide Contact Tina Harding, ND Project WET Coordinator for hard copy: [tinamharding@nd.gov](mailto:tinamharding@nd.gov)
4. Living with a River Handbook:  
[https://deq.nd.gov/publications/WQ/3\\_WM/NPS/CBinder/Riparian/Living%20With%20A%20River%20Handbook%20\(FINAL\).pdf](https://deq.nd.gov/publications/WQ/3_WM/NPS/CBinder/Riparian/Living%20With%20A%20River%20Handbook%20(FINAL).pdf)
5. EPA Volunteer Stream Monitoring Manual: <https://www.epa.gov/sites/production/files/2015-06/documents/stream.pdf>
6. EPA Environmental Education: <https://www.epa.gov/education>
7. USGS Water Science School: <https://water.usgs.gov/edu/waterquality.html>

Here are some additional resources that will relate to North Dakota

- North Dakota State Water Commission: <http://swc.nd.gov>
  - A reference Guide to North Dakota Waters:  
[http://www.swc.nd.gov/pdfs/water\\_reference\\_guide.pdf](http://www.swc.nd.gov/pdfs/water_reference_guide.pdf)
- Prairie Waters Education and Research Center: <http://www.vcsu.edu/prairiewaters/?cm=1>
  - <http://www.waterbugkey.vcsu.edu/>
  - <http://www.ndfreshwaterinverts.vcsu.edu/>
- ND Department of Health:
  - [https://www.ndhealth.gov/WQ/SW/Z1\\_NPS/C\\_Educ\\_Links.htm](https://www.ndhealth.gov/WQ/SW/Z1_NPS/C_Educ_Links.htm)
  - <https://www.epa.gov/students>

## National Envirothon Aquatics Resources:

### Abiotic Factors:

1. USGS Water Science Basics: What is the Water Cycle? :
  - <https://water.usgs.gov/edu/watercycle.html>
2. Basic concepts on Watersheds:
  - <https://archive.epa.gov/water/archive/web/html/index-18.html>
3. How to Read a Topographic Map and Delineate a Watershed
  - [https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs144p2\\_014819.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_014819.pdf)

## **Biotic Factors:**

- Introduction to Watershed Ecology: Watershed Academy Web
  - <https://cfpub.epa.gov/watertrain/pdf/modules/WatershedEcology.pdf>
- NOAA The Endangered Species Act: Marine Species
  - [http://www.nmfs.noaa.gov/pr/pdfs/esa\\_factsheet.pdf](http://www.nmfs.noaa.gov/pr/pdfs/esa_factsheet.pdf)
- Introduction to Freshwater Fish as Biological Indicators Pages 3-12
  - <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1002J1W.PDF?Dockey=P1002J1W.PDF>

## **Aquatic Environments**

1. USGS Ground water
  - <https://pubs.usgs.gov/gip/gw/gwgip.pdf>
2. Types of Wetlands
  - <https://www.epa.gov/wetlands/wetlands-classification-and-types#marshes>
3. Wetland Functions and Values
  - <https://cfpub.epa.gov/watertrain/pdf/modules/WetlandsFunctions.pdf>
4. Benefits of Riparian Zones
  - [https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/?cid=nrcs143\\_014199#values](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/?cid=nrcs143_014199#values)
5. Riparian Zones: Managing Early-Successional Habitats near the Water's Edge
  - [http://www.state.nj.us/dep/fgw/pdf/mgtguide/ch09\\_riparian\\_zones.pdf](http://www.state.nj.us/dep/fgw/pdf/mgtguide/ch09_riparian_zones.pdf)

## **Water Protection and Conservation**

1. ANS Task Force:
  - <https://www.anstaskforce.gov/default.php>
2. Summary of the Federal Clean Water Act: (SDWA)
  - <https://www.epa.gov/dwstandardsregulations>
3. The Quality of Our Nation's Water
  - <https://pubs.usgs.gov/fs/FS-116-99/pdf/fs-116-99.pdf>
4. GIS and Hydrology:
  - [https://en.wikipedia.org/wiki/GIS\\_and\\_hydrology](https://en.wikipedia.org/wiki/GIS_and_hydrology)
5. Water Resources:
  - [https://en.wikipedia.org/wiki/Water\\_resources](https://en.wikipedia.org/wiki/Water_resources)

6. Water Conservation:
  - o [https://en.wikipedia.org/wiki/Water\\_resources](https://en.wikipedia.org/wiki/Water_resources)
7. Polluted Runoff: Nonpoint Source Pollution
  - o [https://en.wikipedia.org/wiki/Nonpoint\\_source\\_pollution](https://en.wikipedia.org/wiki/Nonpoint_source_pollution)

### **Tips for studying for the aquatics test questions:**

- Review the curriculum guidelines posted on the national envirothon website :  
<https://www.envirothon.org/the-competition/curriculum-guidelines>

### **Envirothon Aquatics Committee Members and Contact Information:**

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**ADVISOR TO AQUATICS**

- Review test writing formats and guidelines posted on the national envirothon website:  
<https://www.envirothon.org/the-competition/test-writing>