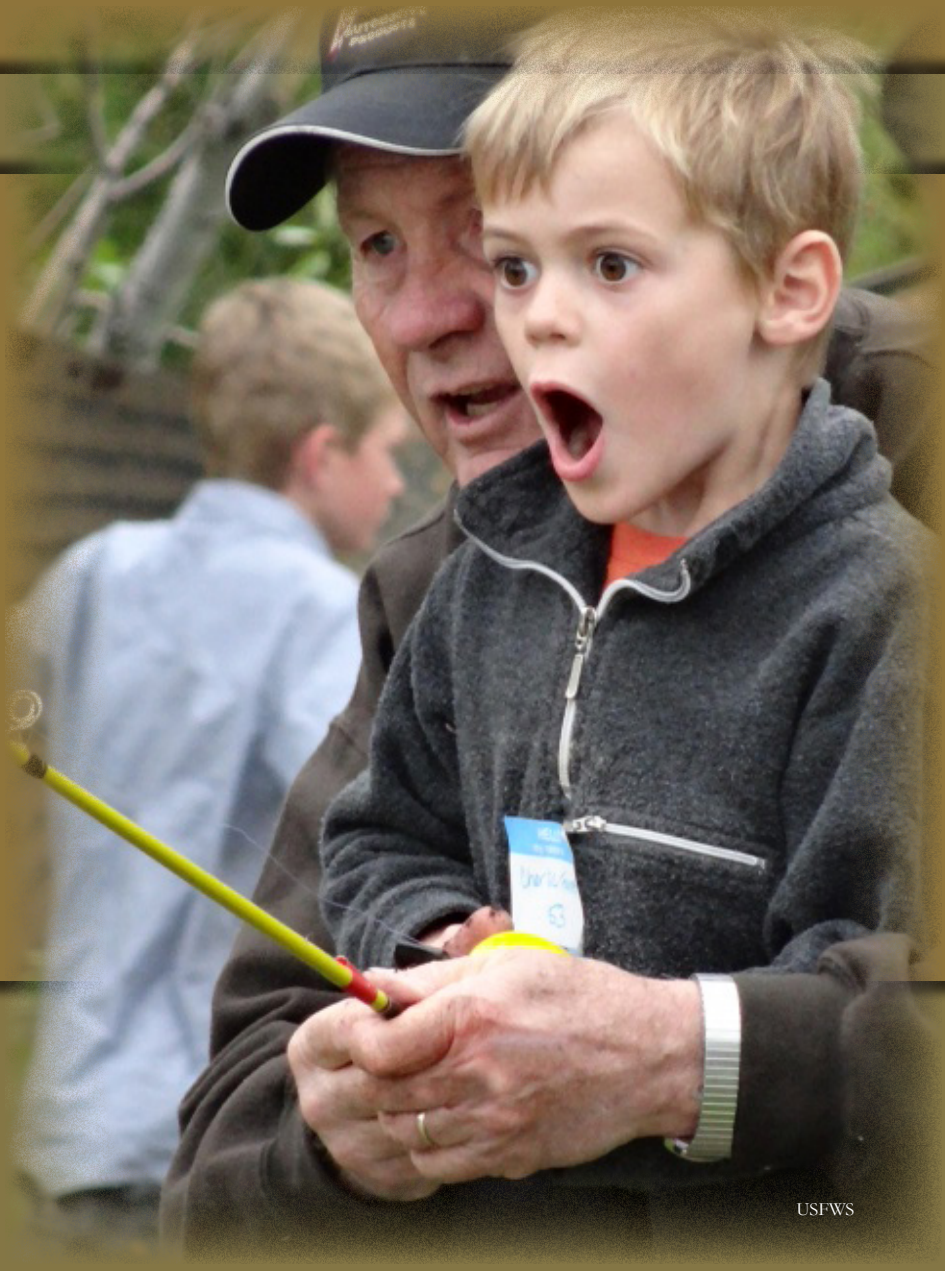
U.S. Fish & Wildlife Service

Fish and Aquatic Conservation National Fish Hatchery

Outdoor Discovery Zones



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Remember your favorite outdoor experiences?

I bet you have a great story you could share about a place you had that you called your very own. It was a place where you could run, jump, play, dig, build, climb, investigate, create and let your imagination just run wild. Can you imagine how your life might have turned out differently, without these special places?

Unfortunately for many the opportunity to get outdoors and connect with nature is not a possibility. They just don't have the places to go or mentors available.

An increasingly large percentage of today's young are growing up in a world where concrete and asphalt cover more ground than anything else. They won't have the opportunity to experience nature and that sense of wonder we all had at one time or another. According to Gary Nabhan and Stephen Trimble, Geography of Childhood , "Most will never experience lands upon which their food is grown, let alone terrains dominated by species other than our own."

Sadly, we see generations lacking a connection to nature.

National Fish Hatchery Outdoor Discovery Zones can help others experience and reconnect with nature and the great outdoors.

The Volunteer Act of 2006 and Outdoor Classrooms

The National Fish Hatchery System Volunteer Act requires development of educational programs to promote public awareness of the resources of the System and to promote public participation in the conservation of aquatic resources. The Act was signed into law on October 16, 2006.

Section 6 of the Act requires the Secretary of the Interior to develop guidance for hatchery education programs by "providing outdoor classroom opportunities for students on fish hatcheries that combine educational curricula with personal experiences of students, relating to fish, aquatic species, and their habitats, and to the cultural and historical resources of the hatcheries."

This law supports the Service mission of conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people, and seeks to engage citizens in the shared stewardship of our nation's natural resources.

We must help citizens of all ages understand America's fish and wildlife heritage. Outdoor classrooms can provide opportunities for engagement and personal involvement in the outdoors helping to ensure future stewardship of fish and wildlife.

About the Outdoor Discovery Zone Start-Up Guide

This guide will provide you with some basic information, but not every detail, for developing an outdoor learning area on hatchery properties. It will not go into the importance of outdoor learning, which we're all aware of and can find plenty of research about, but on planning and utilizing your own Outdoor Discovery Zone.

What is a National Fish Hatchery Outdoor Discovery Zone?

A National Fish Hatchery is an outdoor classroom just waiting to be shaped. You can look around and see all the potential for learning opportunities across multiple curriculums. Science, math, history, art, and technology, to name a few, can become a part of what your hatchery has to offer visitors and youth groups.

An Outdoor Discovery Zone is a coordinated effort among Fish and Wildlife Service employees, volunteers, students, and community and youth organizations to develop ecologically sound projects on fish hatchery properties that create sustainable outdoor learning areas. These areas will provide opportunities to explore, experience and discover what a hatchery has to offer while providing a valuable link to connect people with nature.

Robert H. Pos/USFWS

"Inks Dam Outdoor Classroom helps provide that spark youth need for quickly grasping concepts of ecology. Whether it is the sights, sounds, or just the physical activity it seems that the youth that visit our outdoor learning area or participate in our Hatchery Outdoor Program (HOP) are more enthusiastic and inquisitive about what we're teaching. Our HOP kids learn how to cast a fishing pole, study the variety of ecosystems on a granite hill, learn about local aquatic species — or they might be sitting quietly in a bird blind waiting for the next bird to show up.

We know we can't reach all the kids but those in our outdoor learning areas engage with nature in a way you can't get to them with lectures or Power Points. Outdoor Classrooms allow us to get the Service's mission across, educate about our Fish and Aquatic Conservation program and encourage the kids to participate in the outdoors more."

Paul Dorman, Project Leader,
Inks Dam National Fish Hatchery, TX

Getting Started:

An Outdoor Discovery Zone provides an area or multiple areas that makes learning literally come alive, not only for students but for others as well. Designated outdoor learning areas and activities

- allow for free discovery and exploration.
- make available numerous cross-curriculum teaching and learning opportunities. Using the resources a hatchery offers to provide youth with unique hands-on experiences through both free exploration and guided activities.
- offer opportunities to further engage or develop a Fishery Friends group and partnerships with community organizations and schools. Everyone can actively work together to improve the hatchery environment and take ownership in the property and projects.
- incorporate a Youth Conservation Corps (YCC) or other youth hiring programs. Projects to work on could be numerous.
- generate interest and excitement in the hatchery and brings more visitors to the facility, while providing an experience the entire family can enjoy, gaining insight to what a hatchery does and why.
- provide a great location for events such as fishing derbies, outdoor resource or conservation days, National Fishing and Boating Week festivities, National Hunting and Fishing Day celebrations, workshops, youth academies, open houses, tours and festivals.

Evaluating area and resources

The first place to start is with the project leader or manager. Present and discuss all your ideas and get the management's input and approval before doing anything else. Once they are on board, survey and map the hatchery site and surrounding area and its potential use. Use a map of the area to make notes and guide you as you begin your site inspection. As you walk the site, inventory existing resources and wildlife components, make note of ideas and potential projects. Consider parking lots, sidewalks and underground utilities, water access and drainage problems along with consideration for neighboring properties if any. Also look for possible safety issues such as steep embankments and unsafe trees or overhanging tree limbs. Think about access for people with special needs. Evaluate all of your good and not so good features.

Some guidelines as you begin development of your Outdoor Discovery Zone

1. A portion of the outdoor area will allow for free exploration and imaginative play.
2. Is ecologically sound; functions with little or no management.
3. Uses native plants.
4. Focuses on local watershed, fish and wildlife habitat, and conservation issues.
5. Ties into FWS mission.
6. Can be student, volunteer and/or Fishery Friends driven.
7. Consider offering education components that tie into national education standards.
8. Possibly connects with the local school curriculum.
9. Involves a diverse team consisting of students, volunteers, administration, and maintenance, for planning and project implementation.

Youth Fisheries Academy (YFA) program started in 2010 by Washington Fish and Wildlife Office and the Western Washington Fishery Resource office. The YFA was created to inspire the next generation of conservation advocates and professionals. Through hands-on activities, participants are provided with realistic biological field and lab work experiences to instill confidence in the scientific process and to demonstrate what conservation science is, how it is practiced, and why it is relevant. The YFA curriculum included both full group activities as well as thematic learning modules which the participants rotate through in small groups.

Brag a little

One of the biggest mistakes you can make is to keep your project a secret. The more others and your community hear about the great work you are doing and the plans you have, the easier it is to build partnerships, acquire donations, get volunteers involved, etc. Reach out to the press. Establish a good working relationship with journalists and keep the media informed. And don't forget social media. Relationship building is the most effective way to increase editorial coverage and get the exposure you need. Go on, brag a little!

Genoa National Fish Hatchery, WI, received funding to construct a handicapped accessible fishing pier as part of their outdoor education area. A local company was approached with a concise plan including how the company would receive recognition for their donation; website, press announcement, etc. Genoa received not only funding for the project but also has a very good and on-going partnership with the company.

But, we have no money

Cost will vary; some areas may need only minimal or no funding. It depends on your plans and how elaborate you want to get with your area(s). Be creative and resourceful and see what you can easily develop that could be of no cost and think about the power of 'reuse and recycle" That old tree stump could become a wonderful seat with a little leveling. Numbered fence posts could correlate with a printed page of self-guided activites. A discarded section of privacy fence, with a few holes added, would work well for a wildlife viewing blind.

People understand the importance of connecting others to the great outdoors. We're reading and hearing more about the positive effects nature can have on our physical, mental and spiritual health. Because of this realization and need, more people, companies and organizations are interested in becoming involved with and providing funding for programs and projects that will help reconnect others with nature.

You're going to need some help

We know you don't have the time to do it all when it comes to development of your area, so engage others. Besides your Fishery Friends group, there are many community and civic organizations that enjoy and want to take on projects to better their communities. Also, work with your local school system or a particular classroom and find an educator who wants to get their students involved in conservation and environmental education projects. This is a great time to begin developing partnerships with other federal or state agency staff. The more others hear of what you are doing, the greater the interest of your field station and what it is about.

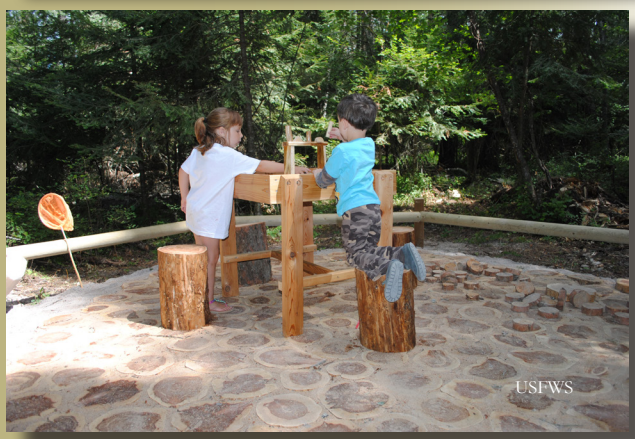
Developing a planning committee with specific positions and responsibilities may also be beneficial to your project. Later, sub-committees can be formed if needed for projects or activities. Start with your pool of volunteers and see who is willing to donate time. Engage those with diverse backgrounds and skills or needed tools and machinery. Getting others involved helps spread the workload and helps ensure the project continues year to year.

Good sources of community support:

- Friends groups
- State, federal and local agencies
- Resource management agencies
- Conservation and environmental groups
- Schools, colleges and universities
- Private foundations
- Businesses
- Parent-teacher organizations
- Local civic organizations
- Master Naturalists

What your area might look like

No two areas will look the same. Your Outdoor Discovery Zone or outdoor classroom area, will vary depending on each particular facility and its unique available resources. There is no right or wrong design or look, or way to use the area. You'll want to ensure that whatever you decide to develop can be used by various age groups and at least a portion of the area is accessible for the physically challenged.



Below are some ideas to help you start your planning. You can modify to fit your own needs or develop your own ideas.

- Construct a gazebo or covered learning structure for an actual outdoor classroom.
- Incorporate a wetland or some type of water feature for hands-on aquatic lessons.
- Consider checking with local educators for ideas that would work well with the school curriculum and for educational research and classroom curriculum extension activities.
- Make at least a portion of your walkway or trail accessible for physically challenged.
- If you have ponds maybe a portion of your elevated walkway can go along the water.
- Stamp and number wildlife tracks in a portion of a newly poured concrete walkway for use in a basic tracking activity.
- Develop nature and interpretative trails, which can be mowed, mulched or graveled.
- If area allows, develop trails in a variety of habitats, such as a wetland trail, tall-grass trail, stream trail, etc., and include color-coded maps for each.
- Include study stations along the trail and include tree stumps for sitting areas.
  - Possible study stations could include:

Aquatic study areas	Geology station
Weather station	Archeological station
Pollinator/Butterfly garden	
Sundial	Wildflower plots
Wildlife tracking	Art area
Erosion study area	Viewing blinds
Brush piles	Bird baths and feeder

- Develop a mini-arboretum, labelling local plants.
- Build an amphitheater.
- Provide artificial nesting boxes for wood ducks, owls, bats, etc.
- Offer a free-play exploration area, including natural materials to build and play with, such as logs, acorns, pinecones, rocks, sticks and leaves.
- Develop an archery range.
- Set up an orienteering course.
- Provide picnic tables.
- Incorporate plenty of interpretive signage: tree, fish, and wildlife identification, ecological and economic information, and the story of the local hatchery.

It's ready, now what?

Educational opportunities

An Outdoor Discovery Zone provides the perfect setting to inspire teachable moments. These opportunities vary from better informing a tour group of what the hatchery does to having lessons ready to use as needed. There are unlimited ways your outdoor area can be incorporated into learning opportunities.

- Create 'canned' lessons. These are lessons or activities that anyone can use. They provide a lesson plan or explain an activity in a very user friendly way and provide all the visitor or educator might need to conduct the lesson or activity. These can be organized using labeled, inexpensive backpacks or crates with a materials check list included. You may need a system for checking these out and back in.

- Provide educators and groups the ability to schedule use of your Discovery Zone — for extension activities which meet national and state standards, science club outings or educator professional development opportunities. Just remember, anytime a school visit is being planned, work with the teacher in advance so everyone involved clearly understands what the expectations are before the bus pulls up to the door.

- Community groups such as Scouts and Rotary might want to use the area for habitat improvement projects. This is a great way for you to get a project done with minimal expense.

- You don't need to recreate the wheel. Interested in finding a lesson on a particular topic? Search the web. There are many excellent curriculums available. If you want to ensure you're following state or national standards or want information on Common Core, you can find this information on the web also.

- Native Fish in the Classroom or Fish in Schools programs. These programs provide volunteers and biologists opportunities to work with students so they better understand water quality, fish habitat, native, endangered and invasive species and other fisheries related topics. Check with your Fish and Aquatic Conservation regional education coordinator, regional office or local field station for more information.

- Develop self-guided activities if staff time is limited.
  - Habitat calendar – Participants document on a calendar page the fish and wildlife they view in particular areas. This could be a simple form or calendar page kids or guests can complete and compare with other viewings. Information can be compiled and displayed.
  - Scavenger hunts – Visitors are given a list of items to search for; items are checked off the list as found.
  - Tracking lessons – If you are pouring a new section of a concrete walkway, press track impressions into the concrete before it dries and number each. Students could be given a page where they match numbers to a corresponding track or for a more difficult activity, they write in the name of the animal that made the track. Accuracy can be checked at another location.
  - Make a tracking pit where tracks can be made in sand or with play-dough.
  - Orienteering – Develop a course that can be followed with a basic compass; make the end result a specific part of the hatchery.
  - Encourage journaling or bird or butterfly count activities.
  - Provide guides that encourage rock, tree and wildlife identification.
  - Fishing events and activities, such as: a casting practice area, a match game for name that fish species, fishing derbys, National Fishing and Boating Week events, ABC's of Fishing coloring book and more.

- Other activities for education and building awareness:
  - Fish Ecology Fun Day – students rotate to various learning stations
  - Festivals
  - Concerts
  - Open houses
  - Nature walks, plant identification
  - Summer or Winter Solstice strolls
  - Spring or Fall Equinox walks
  - Clinics: fishing, archery, etc.
  - Fishy Fridays – fishing clinics, various educational activities
  - Host Becoming an Outdoors – Woman or Women in the Outdoors clinics
  - Partner with local Big Brothers, Big Sisters (or other youth groups) for fishing clinics, activities

Education curriculum and links

There are numerous Web sites available, too many to list, for aquatic, conservation and environmental education. Many lessons can be modified to fit your resources and needs. A web search will help you find what you might be looking for to assist you with lessons or activities. And don't forget, work with your local school and educators. A few good sites are included below.

Schoolyard Habitat Project Guide
http://www.fws.gov/cno/pdf/HabitatGuideColor.pdf
A planning guide for schoolyard habitat/outdoor classroom planning.

Nature Explore
http://www.natureexplore.org/design/
Outdoor classroom design services.

Leavenworth National Fish Hatchery
http://www.fws.gov/leavenworth/boxes.html
Discovery Boxes. Ideas you might want to use.

Jr. Duck Stamp Program
http://www.fws.gov/juniorduck/curriculum.html
The Junior Duck Stamp Educational Curriculum

US Fish & Wildlife Service
http://www.fws.gov/letsgooutside/
Let's Go Outside!

Acorn Naturalist
http://www.acornnaturalists.com/store/index.aspx
Various curricula and supplies which can be ordered.

ALEARN
http://www.bit.ly/1yz3rvj
Numerous lessons plans and appropriate grade level for each. Lessons include The Water Cycle, Aquaculture Bracelet, Aquatic Bingo and much more.

Cornell Lab of Ornithology
http://www.birds.cornell.edu/page.aspx?pid=1673
Curriculum Resources, Citizen Science

Trout in the Classroom
http://www.troutintheclassroom.org/
Learn about raising fish in a classroom aquarium with students.

National Science Teachers Association
http://www.nsta.org/
Articles, resources, science standards

Natural Resources Conservation Services
http://1.usa.gov/1D4MAZs
Soil science education and other materials for educators K-12

Project Learning Tree
http://bit.ly/1D4MHEo
The environmental education program of the American Forest Foundation

Project WILD
http://www.projectwild.org/
Aquatic curriculum and activity guide and more – workshop attendance might be required to obtain some materials.

Aquatic Wild, Water Quality Education for Teachers
http://www.projectwild.org/projectwildwebsite/aquatic/
Project Wild format but with an emphasis on aquatic wildlife and aquatic ecology.

Take Me Fishing
http://bit.ly/1yz3J5G
Tackle box for educators with lesson plans, resources and more.

The Pollinators
http://1.usa.gov/1yyYinf
http://1.usa.gov/1D4LoFA
Great resources and information available.

USDA Forest Service
http://1.usa.gov/1D4Ncym
A collection of curricula and activities.

National Phenology Network
http://bit.ly/1yz3eZs
Phenology is an excellent lens for teaching about the natural world.

Nature Play and Learning Places Guide
http://bit.ly/1yz3dof
These guidelines are a resource for planning, designing, and managing natural play and learning areas.

Last but not least

Don't forget to document your project. Take lots of before, during and after photos along the way because you never know when they will be needed. Also, make notes of what worked and didn't. This information can be shared with others as they begin their own hatchery Outdoor Discovery Zone.

Most importantly, have fun. Enthusiasm is contagious!