

Making Choices, Setting Goals



SUMMARY

Wetland functions will be selected for incorporation in the planned wetland design. Goals for the wetland project will be established.

OBJECTIVES

Students will compare wetland functions and values, and select those to be incorporated in the planned wetland. Students will formulate goals for the project as they model decision-making skills.

MATERIALS

- Copies of *Choices* Student Page
- Overhead transparencies of *Group Choices* (optional)
- Overhead projector (optional)
- Copies of *Wetland Goals* Student Page

MAKING CONNECTIONS

Not all wetland functions are compatible, nor are all goals financially attainable. As with most decisions in our lives, choices must be made. Students have an opportunity to promote their personal interests in the planned wetland, as group goals are set for the wetland design.

BACKGROUND

Read Chapter 1, especially *Wetland Functions and Values* (pages 21-24).

A wetland function is a task performed by a wetland regardless of how society values that task. The structure of a wetland determines which functions it can perform. If the wetland is to function as fish habitat, then it must be deep enough for the species of fish desired. If the wetland is to function as frog habitat, it needs gently sloping sides for young frogs to climb out.

A wetland's value is subjective; it is the worth society places on the attributes of a the wetland and may change over time. For instance, one wetland function is to provide a nursery for many creatures. Society sees this as valuable if the creatures are fish, frogs, and birds—but NOT valuable if biting insects like mosquitoes breed there.

One choice that must be made is whether the planned wetland will be created from a non-wetland area, or an existing wetland will be enhanced, or an area that was previously a wetland will be restored to wetland status.

Created wetlands result from modification of a site where wetlands do not currently exist and where wetlands did not previously exist. Beavers create wetlands by flooding areas that were previously dry. At schoolyard sites, conditions can be created that cause a wetland to exist. This generally means providing water to a planned wetland site and ensuring that sufficient water will remain at the site to provide wetland condi-

tions, as well as any other conditions needed to support the wetland community. This can be accomplished through several means, but generally includes excavation to lower the ground elevation and construction of an earthen dike or berm to impound water. Sometimes a liner of plastic or clay is needed. It is important to understand that just digging a hole does not create a wetland.

Wetland restoration means changing an altered wetland from its present impacted condition back to that of a functioning wetland. Restoration projects can be classified as hydrologic or biological. Hydrologic restoration usually involves removing barriers that block water flow to a site (as in some tidal wetland areas), or plugging tile drains or drainage ditches to restore preexisting water regimes (as in the Prairie Pothole Region of the Midwest and the swamp areas of the Eastern Coastal Plain). Although biological restoration generally means reestablishing wetland plant species along with hydrologic restoration, in some cases restoring the biological portion of a system may be all that is needed. Some marginal agricultural lands, which were at one time wetlands, have been successfully replanted with wetland tree saplings in an effort to increase the acreage of bottomland hardwood forests in the South.

Wetland enhancement generally is a process by which some wetland functions are improved as part of an overall management plan. In the process, other wetland functions may be minimized. Wetlands may be enhanced by creating habitat for rare or endangered species through construction, placement, and maintenance of nesting structures. This may, however, cause a decline in other wetland species through predation or competition. A site dominated by invasive or alien plant species might be replanted with a variety of more desirable native species that support native wildlife. Wetland water levels are often managed (some seasons high, some seasons low) to support a variety of waterfowl in wildlife management areas.

After choosing the type of planned wetland and identifying a potential wetland site, appropriate specific goals for the project should be set. For example, if the site chosen is a low area in the topography with predominantly silt/clay soil and water present only during the spring, then a goal of providing habitat for frogs, turtles, butterflies, and birds would be appropriate, but fish habitat would not be possible.

PROCEDURE

Warm-Up

A function is a job that is performed or a role that is filled. A value is the degree of importance (either positive or negative) that is associated with a function. Discuss the difference between a function and a value. Provide an example (such as the function and value of butterflies or cows), then have students suggest some wetland functions. As students offer suggestions, list them on the board.

Activity

Grades K-4

Using an overhead projector, do the following activity as a class. As an alternative, have students in higher grades interview younger students

about what they want the wetland to accomplish.

Grades 5-12

1. Each student should consider the list provided on the *Choices Student Page*, placing a check under **My Choice** for eight wetland functions that they would like the planned wetland to perform. Add any that do not appear on the list. Do not limit possibilities even if some seem contradictory; this can be sorted out later.
2. Consult other teachers and other students, the administration, those in charge of maintenance, the parent-teacher organization, local garden clubs, etc. Listen to concerns as well as desires. If the school administration says “no open water,” make sure that appears on the list even if it is a negative characteristic.
3. Within small groups, discuss the appropriateness of each function, their importance, and their compatibility. Within each group select up to eight functions desired for the planned wetland. Mark these choices on the *Choices Student Page* under **Group Choice**.
4. Report back to the larger class each group’s goals for the planned wetland. Compare lists by writing them on the board, on an overhead transparency of *Group Choices*, or on large (poster-size) sheets of paper that can be temporarily posted along a wall. Which goals are on most lists? Which are on only one? Why? Which items are too expensive? Consider postponing them until a later date when more funds may be available. Which items are inconsistent with the amount and timing of water available within the planned wetland? These must be eliminated unless an additional supply of water is available.
5. As a class, select a final list of wetland functions that are consistent with the water supply, administrative parameters, and available funds. Mark these in the column **Class Choice** on the *Choices Student Page*.

Wrap-Up

Will you be creating, restoring, or enhancing a wetland? Record the type of planned wetland to be designed on the *Wetland Goals Student Page*.

Using information from **Figure 8.2** and the NWI maps, determine the type of wetland to be designed. Record this on the *Wetland Goals Student Page*.

Circle the water sources available and the potential water losses on *Wetland Goals*.

Now record the wetland functions and any special characteristics selected by the class as goals. Keep these goals in mind as the planned wetland is designed. If unsure how to attain each goal, then individuals or small groups should investigate and report back to the class.

Assessment

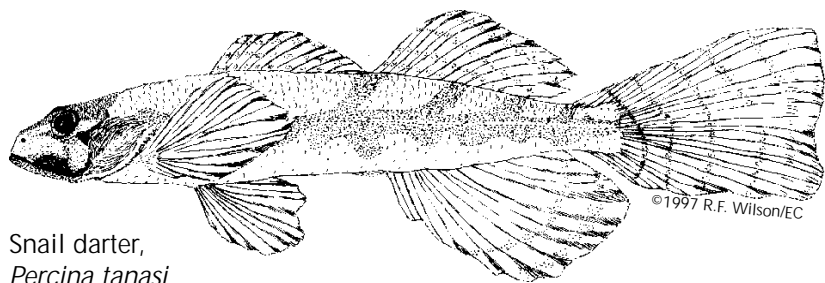
Did each student participate in the decision-making process? Are the wetland goals compatible? Is the wetland project reasonable in view of the muscle power and financial resources available?

EXTENSIONS

Visit a nearby planned wetland, such as a stormwater runoff pond, and identify the functions of that wetland. This can also be accomplished with pictures or videos of wetlands.

RESOURCES

- Mitsch, W.J. and J.G. Gosselink. 1986. *Wetlands*. Van Nostrand Reinhold Co., New York, NY.
- Salvesen, David. 1990. *Wetlands; Mitigating and Regulating Development Impacts*. ULI—the Urban Land Institute, Washington, DC.
- Sather, J.H. and R.D. Smith. 1984. *An Overview of Major Wetland Functions and Values*. U.S. Fish and Wildlife Service, Washington, DC.
- Smith, R.D., A. Ammann, C. Bartoldus, and M.M. Brinson. 1995. *An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands, and Functional Indices*. Technical Report WRP-DE-9. U.S. Army Corps of Engineers, Vicksburg, MS.
- Tiner, R.W., Jr. 1984. *Wetlands of the United States: Current Status and Recent Trends*. U.S. Fish and Wildlife Service, National Wetlands Inventory, Springfield, VA (#PB90-198201).



Snail darter,
Percina tanasi

CHOICES

In the first column, place a check mark next to the functions and values that are important to you as an individual. After discussion, list the group choices. Record class choices when they are made.

	MY CHOICE	GROUP CHOICE	CLASS CHOICE
WETLAND FUNCTIONS:			
Shoreline erosion control	_____	_____	_____
Sediment stabilization	_____	_____	_____
Water quality	_____	_____	_____
Pollution abatement	_____	_____	_____
Physical filter of impurities	_____	_____	_____
Flood water storage	_____	_____	_____
Groundwater recharge	_____	_____	_____
Mammal habitat	_____	_____	_____
Bird habitat	_____	_____	_____
Reptile habitat (turtles)	_____	_____	_____
Amphibian habitat (frogs)	_____	_____	_____
Fish habitat	_____	_____	_____
Butterfly habitat	_____	_____	_____
Aquaculture (fish, crayfish, clams)	_____	_____	_____
Food production (rice, cranberries)	_____	_____	_____
Aesthetics (beauty)	_____	_____	_____
Active recreation (fishing, ice skating)	_____	_____	_____
Passive recreation (relaxation, bird watching)	_____	_____	_____
Open space buffer	_____	_____	_____
Educational activities	_____	_____	_____
Research	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____



GROUP CHOICES

After listing choices for each group, circle or highlight the functions selected by the class.



Wetland Functions:	GROUPS					
	1	2	3	4	5	6
Shoreline erosion control	—	—	—	—	—	—
Sediment stabilization	—	—	—	—	—	—
Water quality	—	—	—	—	—	—
Pollution abatement	—	—	—	—	—	—
Physical filter of impurities	—	—	—	—	—	—
Flood water storage	—	—	—	—	—	—
Groundwater recharge	—	—	—	—	—	—
Mammal habitat	—	—	—	—	—	—
Bird habitat	—	—	—	—	—	—
Reptile habitat	—	—	—	—	—	—
Amphibian habitat	—	—	—	—	—	—
Fish habitat	—	—	—	—	—	—
Butterfly habitat	—	—	—	—	—	—
Aquaculture	—	—	—	—	—	—
Food production	—	—	—	—	—	—
Aesthetics	—	—	—	—	—	—
Active recreation	—	—	—	—	—	—
Passive recreation	—	—	—	—	—	—
Open space buffer	—	—	—	—	—	—
Educational activities	—	—	—	—	—	—
Research	—	—	—	—	—	—
_____	—	—	—	—	—	—
_____	—	—	—	—	—	—
_____	—	—	—	—	—	—
_____	—	—	—	—	—	—
_____	—	—	—	—	—	—
_____	—	—	—	—	—	—
_____	—	—	—	—	—	—
_____	—	—	—	—	—	—

WETLAND GOALS

Circle the choices that are appropriate and fill in the blanks.

Our planned wetland: created, restored, enhanced

The type of planned wetland:

system _____

subsystem _____

class _____

Water sources: precipitation, surface water inflow, groundwater inflow

Water losses: evapotranspiration, surface water outflow, groundwater outflow

Our goals:

