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SESSION
9 ENSURING LOCAL SUSTAINABILITY

CREATIVE IDEAS FOR ACCELERATING HABITAT RESTORATION IN THE WESTERN USA, AND ASSURING LONG-TERM SUSTAINABILITY

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Abstract—This presentation is about creative ways to accelerate the process of habitat restoration. It is based on US laws and activities in the western USA. This presentation is organized into four components: 1) the legal process used to establish compensation for lost or injured natural resources and their habitats, 2) the tool used to accelerate the process via a form of habitat equivalency analysis; 3) an example of how it is used, and how the concept of restoration banking allows the development of large habitat restoration sites; and 4) a brief discussion of how to sustain long-term stewardship of restored habitats.

The Legal Process Used

During the late 20th Century, the USA enacted several laws dealing with pollution issues, compensation for damages to natural resources, and loss of critical habitats from non-pollution forms of human development in American waters. Three of these laws are:

--The Endangered Species Act of 1973 (ESA);
--The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA); and
--The Oil Pollution act of 1990 (OPA 90).

Important associated items:

--These laws helped with improving ecosystem conditions
--However, extensive time needed to develop legal action in courts
--Meanwhile, injuries continued and habitats diminished
--A streamline approach was developed via a negotiation tool
--Translated natural resource injuries into ecosystem service losses
--Impacts quantified through a stated-preference economics model
--It employed species preferences for all habitats impacted and evaluated temporal changes in habitat values
--this is our Habitat Equivalency Analysis (HEA)
--the analysis also dealt with across-habitat valuations

HEA is now also used in ESA consultations on development of land or watered areas that may have a negative impact on populations of threatened or endangered species. HEA use has resulted in more-rapid/consistent assessment of potential debit from projects and identifying credits needed to compensate for losses.

Information on Habitat Equivalence Analysis

CERCLA perspective—

--Since the 1990s, elements of NOAA have devised an approach to value injuries to natural resources via HEA
--Based on reductions in ecosystem services from chemical contamination to various habitats
--Analysis has the flexibility to provide across-habitat evaluations of both habitat loss (injury) and habitat gain
--To date, this process has resulted in negotiated settlements with over 60 parties ranging from small businesses to large industries, as well as state and Federal agencies
--The result - over 100 hectares of marine and freshwater habitats for fishes and birds.

ESA perspective–

--HEA can evaluate ecosystem function gain from restoring habitats
--compares habitats in an area before and after restoration occurs.

Four components used: 1) valuation of all habitats on the site before and after restoration; 2) estimated time needed for each restored habitat to achieve full ecosystem function value; 3) the duration that restored habitats will continue to fully function; and 4) a discounting factor.

For More Information On The Web

1. http://www.darrp.noaa.gov/northwest/cbay/admin.html
The website for the NOAA Damage Assessment and Restoration Program in the Pacific NW). Go to the support documents for Commencement Bay settlements and you will see a list of appendices. You will find several that relate to how we defined injuries, quantified injuries as discounted (ecological) service-acre-years, and how we established DSAY values for several restoration sites in relation to the Hylelbos Waterway settlement proposal.

2. http://www.nwr.noaa.gov/
(The website for NOAA/NMFS's Northwest Region). Go to biological opinions; select 2008; go to the opinion for Wildlands on the Snohomish River dated 10-June-08. The attached PDF includes a write-up of what I presented to you on how we established values for estuarine habitats, based on their significance to the delta frycomponent of juvenile Chinook Salmon, and how we established the DSAY value for the Blue Heron Restoration Bank site.

Example: the Proposed Blue Heron Restoration Site

The forthcoming Blue Heron Restoration Site is located in the estuary of the Snohomish River, a relatively large river system in the Pacific NW of the USA. In relatively recent times, significant alterations have occurred to this river, and they have substantially diminished the variety and amounts of estuarine and riverine habitats, especially the estuary's marsh/forest transition zone, where only 5% of the historic amounts occur today. This absence and/or reduced functionality of current estuarine habitats was identified as the primary bottleneck to re-establishing healthy levels of Chinook salmon in the Snohomish River. The primary outmigrant juvenile Chinook, (called delta fry) is dependent upon estuarine habitat for survival.

Juvenile Chinook salmon just prior to smoltification and heading to sea,

The creation of the Blue Heron site came about through the concept of Restoration (conservation) Banking. It is a process for "developing" large regions of restored or enhanced habitat, with credits that can be bought and sold, based on metrics established through the use of across-habitat HEAs. Private parties invest funds with a restoration bank developer, and receive a return on their investment when the bank sells credits with costs that are based on a combination of purchase price of the bank's property, design, construction and permitting expenses for site restoration, and profit.

Pre-Restoration

Current Conditions for Blue Heron

240 ac marginal farmland,
54 ac unvegetated areas,
20 ac are fallow upland/marsh disconnected from estuarine waters,
17 ac of dike
Additionally, considerable amounts of invasive non-native vegetation present

Post Restoration

Planned Blue Heron Habitat

Five dike breaches, and the development of:

220 ac low and high initertidal marshes
70 ac intertidal mudflats
27 ac riparian forest
20 ac shallow subtidal channels through site
6 ac low intertidal channels

Sustaining Restored Habitats

Habitat restoration within the context of US environmental laws states that restoration sites must be maintained in their highest functional ecosystem value for "perpetuity". As stated earlier, we chose 300 years. It is understood in consent decrees that if restoration is involved, a monitoring period is assigned to assure that appropriate measures are taken to achieve the site's planned functional capabilities. The concept of adaptable management assures opportunities to adjust and fine tune habitat performance. What happens next? It is our legal requirement that we assure a high function restoration site through the remainder of its existence. A way to do this is through long-term stewardship contracts.

We have recently awarded a contract to a non-governmental organization to maintain over 20 restoration sites in one watershed. To assure continued stewardship through 300 years, an endowment was funded to cover all costs: periodic evaluations and maintanence, as well as costs to manage the endowment so that the corpus remains complete and contingencies are also covered. It is interesting to note that the difference in costs for creating a 50 year endowment and one for 300 years was only 5%.