A Varied Palette: Design and Function of Natural Water Features

Ecological practice often leads to the inclusion of water in contemporary landscapes. Understanding the basis of natural water feature systems is paramount to successful integration. Using case studies and theoretical discussions from an aesthetic and an engineering perspective, we will illustrate the basis of good design that includes water.

Hallie Boyce, RLA, ASLA, Design Partner, OLIN
Shelia A. Brady, FASLA, Principal, Oehme van Sweden
Bernie Alonzo, PLA, ASLA, LEED AP BD+C, Gustafson Guthrie Nichol
Nadine Nemec, Affilliate ASLA, Principal, CMS Collaborative (Moderator)

OBJECTIVES

Learn the basis of a natural water feature system and the components of how it is implemented

Understand the challenges of sustainable technologies and constraints of site, client and culture

Study current examples of natural water features and discuss what the future may hold
Hallie Boyce, RLA, ASLA, Design Partner, OLIN
Hallie led OLIN's winning entry for the 11th Street Bridge Park in Washington, D.C., a proposal which reinvents aged infrastructure as the city's first elevated destination park. The project will provide a new venue for recreation and environmental education, and will promote the rejuvenation of the Anacostia River. Hallie's expertise in cultural landscapes includes the design of the new U.S. Embassy in London and a vision plan for Franklin Park in Washington, D.C.

Sheila A. Brady, FASLA, Principal, Oehme van Sweden
Sheila Brady's extensive body of built work embraces every scale from small urban gardens to corporate campuses and botanic gardens. The Martin Luther King, Jr. Memorial and the World War II Memorial in Washington, D.C. are some of her notable civic projects. She is known for her thoughtfully designed residential gardens of all scales and as a lecturer on integrating art and ecology into site design. Ms. Brady holds a Master's Degree in landscape architecture from Harvard University's Graduate School of Design.

Bernie Alonzo, PLA, ASLA, LEED AP BD+C, Gustafson Guthrie Nichol
Bernie Alonzo's practice encompasses all aspects of sustainable project planning and design. Bernie's focus on design, detailing, and construction is informed by the project concepts to find the big opportunities to create unique and inspiring places. Recently, Bernie completed a two year appointment on the Seattle Design Commission, where his design criticism helped shape the quality of the built environment of his hometown.

Nadine Nemec, Affiliate ASLA, Principal, CMS Collaborative, (Moderator)
Nadine Nemec began her career at CMS Collaborative over 30 years ago. She learned her craft as a drafter on vellum and advanced on to principal in charge for significant projects such as the US Embassy in London, New York Botanical Garden and The Gates Foundation Campus. She explores innovative, aesthetic and technical solutions with clients that balance environmental concerns with cultural and budgetary issues. A passionate world traveler, she continues to be an enthusiastic observer of the symbolic and artistic importance of water.
INTRODUCTION
Nadine Nemec, CMS Collaborative, Moderator

1. Basis of natural water feature system system
   A. System is non-chemical and relies on a balanced eco-system
   B. Strategies for harvesting and re-using water
   C. Allocation of site area for dedicated regenerative zone and open water
   D. Components of the ecological circle of producers, consumers and decomposers with regards to the main objective of producing clear, clean water

2. Panel introduction
   A. The following points will be covered by each landscape architect using specific water feature case studies:
      1. Initial design inspiration
      2. Contextual story
      3. Design process through ideas and challenges, presented in specific examples
CASE STUDY 1: New US London Embassy
Hallie Boyce, OLIN

1. Context of initial design inspiration and story
   A. The pond design for the new US Embassy in London references the natural history of the site which was formerly wetlands adjacent to the Thames River, and reflects the local cultural tradition of water elements as integral components in the design of public parks throughout London.

   B. The pond is the key element of the Embassy Garden - the area to the north of the Chancery which is publicly accessible. Its plant palette, inspired by the wetland ecosystems of the United States, particularly the Chesapeake Bay watershed which surrounds our Nation's Capitol, highlights the ongoing horticultural exchange of plantings between our two countries.

   C. Plantings at the edge of the pond also demonstrate to the public the ability of plants to cleanse stormwater prior to it flowing into the pond—thereby ensuring water quality.

2. Ideas and challenges revealed through design process
   A. The pond is a key element in the site’s sustainable systems providing for stormwater capture and reuse.

   B. Rainwater which falls onto the campus site is directed to the pond via two bioswales as well as additional piping, where it is stored for reuse for irrigation and toilet flushing in the building.

   C. A water rill, which is located along the edge of the promenade, provides a visual connection to the pond below and the river Thames beyond. The water in the rill is treated to a potable level and is a closed loop system allowing visitors to touch the water and delight in its reflections.

   D. The two waterfalls which consist of both rill water and pond water, provide a calming sound which mediate the noise of Nine Elms Lane and provide the aeration needed to ensure the health of this pond ecosystem.

   E. An overall challenge for this project was to create a landscape that functions efficiently and is easily maintained by the client, the State Department. Like all governmental agencies, this client was very concerned about the project’s life cycle costs and their future operations of this natural pond system.
CASE STUDY 2: New York Botanical Gardens
Sheila Brady, Oehme van Sweden

1. Context of initial design inspiration and story
   A. Extensive site investigations of the site’s hydrology, geology, soils and
      topography coupled with the client's desire to reduce stormwater
      runoff to the Bronx River inspired the concept of capturing and
      recirculating water within a central water feature on the site
   B. Initial inspiration came from a Martin Puryear sculpture exhibit at the
      National Gallery of Art

2. Ideas and challenges revealed through design process
   A. Close coordination between OvS, the client, the civil and structural
      engineers, and the fountain designers was key to integrating all of the
      structural, drainage and recirculation elements within in a very tight
      footprint, nestled between the critical root zones of significant trees
   B. Designed swales with perforated pipes along each side of the water
      feature to ensure that nitrogen-laden stormwater was treated and
      filtered before being released to the Bronx River
   C. Designed below-grade cisterns to store water for filtration and
      recirculation in the system
CASE STUDY 3: The Bill & Melinda Gates Foundation Campus
Bernie Alonzo, GGN

1. Context of initial design inspiration and story
   A. The water features are conceptually derived and a direct reference to the site’s predevelopment ecological history as a bog created a place of great restorative and unique habitat value
   B. The campus interpretation of the bog wetland brings back ecological function where, for the recent past, there was an increasingly polluted and degraded site
   C. The use of water features at the Gates Foundation was potentially controversial – the Foundation’s core mission brings a clear focus on resource availability and distribution – from this perspective the comfort and amenity had to be balanced with responsible stewardship
   D. Through close collaboration across the entire consultant team, the project is able to source all water for the water features from harvested rainwater

2. Ideas and challenges revealed through design process
   A. The primary challenge was to create a healthy habitat for submerged wetland plants without creating an unmanageable maintenance problem
   B. Solutions:
      1. Research and select appropriate plant materials
      2. Minimal soil usage
      3. Develop simple planting and plant replacement details
      4. Client education
      5. Plant management

3. Further opportunities
   A. Pre and post occupancy evaluations—wildlife census
   B. More sophisticated utilization of the fill of the pool to provide more filtration and more complete biological cycles
Q + A / DISCUSSION

SOURCES
http://www.cms-collaborative.com/green_design.html
http://london.usembassy.gov/new_embassy.html
http://www.ovsla.com/portfolio-items/the-native-plant-garden/