



# ECOSYSTEM-BASED MANAGEMENT

INTRO: Ecosystem-based management (EBM) has been defined as being place-based and focused on ecosystem structure, function and key processes (a complete definition can be found at: [www.compassonline.org](http://www.compassonline.org)). Technically, the discussion below doesn't describe "true" ecosystem-based management, but instead applies many of the EBM principles to managing our "water ecosystem." Applying integrated thinking to water will benefit coastal and marine ecosystems.

## Ecosystem-Based Water Use

By Joe Geever

The tensions between economic development and limited fresh water in the south-western U.S. are historical. It's said about the region: "whiskey is for drinking and water is for fighting over."

California government and local "water purveyors" found it odd to recently have Surfrider Foundation joining "the fight." Even some of our members questioned whether the management of fresh water is within our mission. It is!

Managing the water cycle holistically—from supply, to use, to disposal—is interwoven with many of our core campaigns: watershed restoration, coastal- and ocean-habitat protection and pollution prevention. Unfortunately, current water management is a classic example of what the U.S. Commission on Ocean Policy and the Pew Oceans Commission characterized as "fragmented governance."

Narrowly-focused agencies' duties result in treating water like a nuisance. We force water off the land by: paving waterways in the name of flood control; filling coastal wetlands that could cleanse our streams and re-

charge groundwater; and discharging re-usable fresh water from our wastewater facilities directly to the ocean. This wasteful history has led to chronic coastal pollution and dramatic degradation of our coastal ecology. Not surprisingly, this is also driving predictions of a "water supply crisis."

But crisis often spurs innovative solutions and we're left with a "good news/bad news" story.

Bad news: Ironically, water supply managers are considering pumping the water we forced off the land back out of the ocean (using expensive technology) to remove the salt. "Ocean desalination" is not a new idea and recent technological improvements make it seemingly more attractive. But there are serious problems left to resolve. Ocean desalination is extremely energy intensive and therefore a contributor to global climate change—exacerbating future threats to water supply and our coast and ocean. Equally disturbing, many current desalination proposals rely on "open-ocean intakes" that suck in and kill countless marine organisms—at every level of the food chain. Environmentally responsible ocean desalination may be an option someday. But, there are better immediate alternatives.

Good news: Progressive water supply agencies are exploring holistic and integrated water resource management—taking the classic "reduce, re-use, recycle" approach.

Proper landscaping and irrigation conservation dramatically reduces water demand and polluted runoff. Surfrider Foundation's new Ocean Friendly Gardens program promotes beautiful climate-adapted landscapes that conserve fertilizers, pesticides and water. Importantly, simple rainwater

retention designs incorporated into these gardens also capture or cleanse runoff during wet weather.

Chapters are also advocating "wastewater recycling" that can purify and re-use billions of gallons of wastewater that is now directly discharged to the ocean. This win-win solution reduces ocean pollution while creating a safe local water supply.

We also support comprehensive wetlands and watershed restoration. These projects provide habitat for threatened aquatic species, recharge local groundwater supplies, and naturally cleanse our waterways

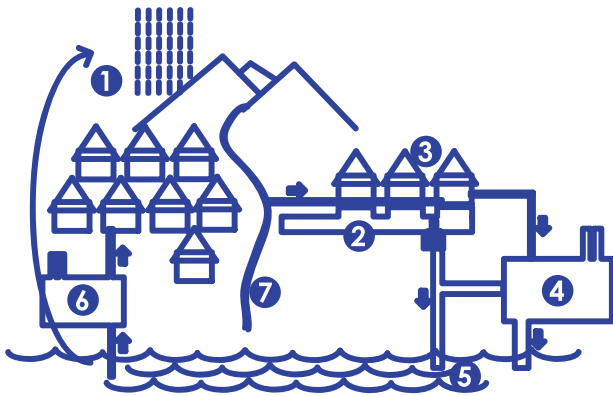
Finally, the principles of "low - impact development" are prompting progressive ideas like reducing impervious surfaces and capturing water before it becomes polluted runoff. The example of "treatment wetlands" in urban park designs can add a "little slice of nature" to otherwise stark big cities.

Recent scientific reports document a "global water crisis" stemming mostly from mismanaged water resources, global climate change and sea level rise. The problems and solutions are no longer unique to the south-west. The lessons learned here can be applied globally.

Others promote "silver bullet" solutions. We advocate for multi-faceted "ecosystem-based management." Others see crisis. We see challenge. Our challenge and mission is to meet our water demands while simultaneously restoring our coast and ocean – one we have to win.

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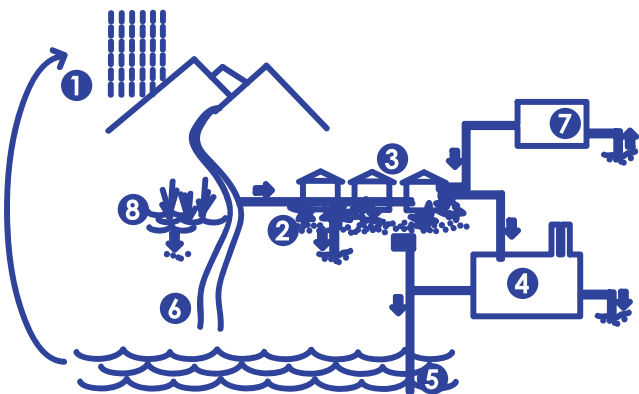
## Cycle of Insanity



### Cycle of Insanity:

1. Water is supplied by rain and by importation of water.
  2. Impervious surfaces, like pavement, prevent natural absorption and rush polluted water into storm drains.
  3. On average households send about 110 gallons of water per person per day to wastewater treatment plants.
  4. Wastewater treatment plants send billions of gallons of partially treated water into the ocean every day.
  5. Storm drains dump urban runoff into our oceans—the number one source of ocean pollution.
  6. Because we waste so much drinking water, we must construct energy-consuming and fish-killing desalination plants to desalt ocean water to meet the demand.
  7. Rivers dry up and die, natural water purification lost.
- Bottom line: We are importing water, wasting it, using it once and dumping it into the ocean.

## Integrated Water Cycle



### Integrated Water Cycle:

1. Water is supplied by rain and local surface and groundwater resources, with less importation of water.
2. Ocean friendly gardens reduce water use and allow natural absorption, reducing runoff and increasing natural groundwater recharge.
3. Houses are designed to conserve water and reuse “gray water.”
4. Wastewater treatment plants reclaim water and use it to recharge the groundwater.
5. Less impervious surfaces and Low-Impact Development methods reduce the amount and toxicity of runoff.
6. Water recycling reduces the impact on natural water sources.
7. Treated water is reused.
8. Wetlands are restored and constructed to naturally cleanse water and recharge the groundwater.



**BOTTOM LINE: WE REDUCE, REUSE AND RECYCLE OUR WATER, WHICH REDUCES URBAN RUNOFF, WASTEWATER EFFLUENT AND OUR IMPACT ON NATURAL WATER SOURCES.**



## MARK'S VICTORY SPOTLIGHT

Hopefully you've seen the shield on the cover displaying our most recent Victory count. I wanted to take an opportunity to highlight some of the great work that our Chapters are doing. Be sure to check the constantly updated list of wins at: [www.surfrider.org/whoweare6g.asp](http://www.surfrider.org/whoweare6g.asp)

The Oregon Central Coast Chapter has worked since 2004 to clean up Nye Creek through a campaign of water testing, political pressure and media savvy. They first pointed out the fact that the ocean in front of the creek was polluted and making

people sick. Through a water-quality monitoring program that went up the watershed, the Chapter was able to bring to light a number of problems with the city's storm water and sewage management systems. Through collaborative work and public pressure the City of Newport has now updated several important regulations and committed to infrastructure improvements, as well as restoration of the creek and installing educational kiosks. This will all lead to clean and healthy water in Nye Creek and the nearby surf. Congrats!

For even more information on the Nye Creek Victory see the Chapter News section of this issue.

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