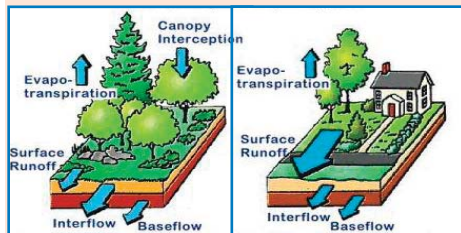


Stormwater Effects on the Bay

According to the USEPA (2003), stormwater runoff is now the leading cause of water quality impairments in estuarine ecosystems. As impervious surfaces increase with new development water has less opportunity to be absorbed and filtered by soil and plants. Instead surface water flows into streams and estuaries. These pollutants have a significant impact on water quality as well as fish and wildlife. The North Carolina National Estuarine Research Reserve stated that "down the drain" oil pollution contributes seven times more oil to the world's oceans than big oil spills (prior to the 2010 BP oil leak). This is an alarming amount that could easily be avoided with better stormwater management.

Low Impact Development (LID) promotes the use of natural systems that effectively remove pollutants from stormwater while allowing it to slowly infiltrate into the ground, which reduces erosion and flooding.



Pre Development Post Development
(oeconline.org)



Clamming is a popular recreational activity on Oregon's Coast.
Photo source: www.katu.com

Clams, Oysters & Water Quality

Clams and oysters are filter feeders that live in estuaries, and therefore are easily effected by contaminants that flow into the bay. Water quality factors such as bacteria, temperature, nutrients and turbidity can greatly affect the growth and survival of these important organisms. Having healthy clam and oyster populations also contribute to good water quality and economic vitality for the area. Implementing

LID practices that reduce stormwater runoff can help support our local clam and oyster populations, as well as other estuarine species.

References

- North Carolina National Estuarine Research Reserve. *Stormwater Runoff From Impervious Surfaces*. Retrieved from: www.NCcoastalreserve.net
- Oregon Department of Environmental Quality. *Oregon's 2004 Water Quality Assessment, Section 305(B) Report*. www.deq.state.or.us/WQ/assessment/rpt0406.htm
- Oregon Environmental Council. *Low Impact Development: Protecting Oregon's waters as we grow*. Retrieved from: oeconline.org/stormwater
- US Environmental Protection Agency (EPA). *Managing Wet Weather with Green Infrastructure*. www.epa.gov/npdes/greeninfrastructure

Additional Resources

The Low Impact Development Center: www.lid-stormwater.net

EPA, Stormwater Best Management Practices: cfpub.gov/npdes/stormwater/menu-of-bmps/index.cfm

OSU Sustainable Development Resource: extension.oregonstate.edu/watershed/low-impact-development-nemo

Oregon DEQ, Stormwater: www.deq.state.or.us/wq/stormwater/stormwater.htm

Oregon Environmental Council, Stormwater: www.oeconline.org/our-work/rivers/stormwater

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Stormwater Solutions for Coastal Communities

Turning Rain Back Into a Resource!



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Charleston, OR 97420
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Website: www.cooswatershed.org

Where does it go?

When it rains on the coast...



What happens when rain falls on a parking lot? You get stormwater runoff. If that same amount of rain were to fall on a vegetated area much of it would infiltrate into the ground. Stormwater runoff from impervious surfaces such as roads, rooftops and parking lots carry pollutants to storm drains, and eventually into our bay. On the southern Oregon Coast many streams are impaired due to nutrients, sediment, and increased temperature associated with stormwater runoff. Incorporating Low Impact Development (LID) practices described in this brochure can help improve water quality in our streams and estuaries. (Oregon DEQ, 305(B) report 2004)

Rain Gardens & Bioswales

These two similar forms of LID incorporate a planted depression that is designed to absorb rainwater from impervious surfaces. Both reduce runoff by allowing stormwater to soak into the soil which filters out pollutants and reduces groundwater reserves. (epa.gov)

For design ideas and plant suggestions check out the Oregon Rain Garden Guide at: seagrant.oregonstate.edu/sgps/onlinepubs/h10001.pdf



Rain Garden



Bioswale

Permeable Pavement

There are a variety of alternative surfaces for walking, driving, or parking that allow precipitation to percolate through. These include porous asphalt, pervious concrete, and paving stones or bricks. As water passes through the surface pollutants are filtered out, temperature is reduced, and water is allowed to more slowly reach streams; reducing flooding. (epa.gov)

Ask local construction and landscaping retailers about pervious pavers.



Paving bricks at Millicoma Middle School, Coos Bay, Oregon.



Permeable pavement. (Photo: UNH Stormwater Center)

Rainwater Harvesting

Using a rain barrel to collect rainwater can greatly reduce runoff and the water can then be used around the house for watering gardens, washing cars, agriculture, and retention for release at a later time. This greatly reduces the demand for treated municipal water. Rain barrels are an easy and inexpensive way for homeowners to harvest rainwater and reduce their impact on the bay. (oec.org)

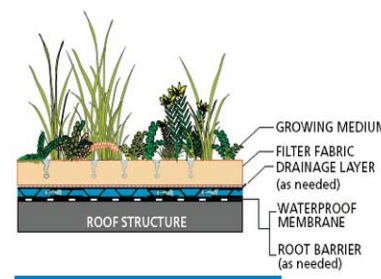
The Oregon Environmental Council stormwater webpage has information and ideas on rainwater harvesting projects. www.oeconline.org/our-work/rivers/stormwater/low-impact-development/do-it-yourself



Rain Barrel

Vegetated Roofs

These green roofs (also known as eco-roofs or living roofs) typically include layers of drainage material and a planting medium on top of a waterproof membrane. Green roofs absorb stormwater and release it back into the atmosphere through evaporation and transpiration. Green roofs also typically last longer than conventional roofs (epa.gov)



Green roof on the Fereday Family home, Coos Bay, Oregon.



Supporting environmental integrity and economic stability within the Coos watershed.

Low Impact Development (LID):

An approach to land development that preserves natural resources and mimics natural systems for managing stormwater runoff while meeting development goals.

-Oregon Environmental Council

Fact:

"By replacing half of the average sized lawn with native gardens and diverting downspouts to rain gardens you can reduce your stormwater runoff by 29%."

-greenvalues.cnt.org/calculator