Wetlands: Why should I care? How wetlands are essential to our future

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What are wetlands anyway?

- Broad definition: land areas that are flooded with water, either seasonally or permanently
- Inland wetland types:
  - Marshes, ponds, lakes, fens, rivers, flood plains and swamps
- Coastal wetland types:
  - Mangroves, saltwater marshes, estuaries, lagoons – even coral reefs
- Man-made wetlands include fish ponds, saltpans, rice paddies
- Range in size from less than one hectare to the Pantanal in Brazil, Bolivia, and Paraguay; three times the size of Ireland
Wetlands provide fresh water for us all

- Less than 3% of the world’s water is fresh – the rest is saltwater
  - Most of this is frozen
  - Of the available freshwater, the largest share can be found in aquifers
- At a very basic level, humans require 20-50 litres of water per day
  - Minimum for drinking, cooking and cleaning needs
- Almost two billion people in Asia and 380 million EU residents depend on groundwater for their water supply
- Wetlands help purify and replenish the aquifers humanity depends on
Wetlands purify water and filter waste

- Plants from wetlands can help lessen water pollution
  - Absorb some harmful fertilizers and pesticides
  - Retain some heavy metals and toxins from industry
- Example: Nakivubo Swamp (Kampala, Uganda)
  - Filters sewage and industrial effluents for free
  - Treatment plant would cost $2 million per year
- Interesting fact: one single adult oyster in a tidal flat can filter nearly 200 litres of water per day
  - Removes sediments and chemical contaminants from coastal waters
Wetlands feed humanity

- Rice, grown in wetland paddies, is the staple diet of nearly three billion people
  - 20% of the world’s nutritional intake
- 70% of groundwater extracted is used for irrigation
- Average human consumes 19kg of fish each year
  - Much higher per capita consumption in Asia
- Two-thirds of all commercial fish types depend on coastal wetlands at some point in their lives
  - Breeding and spawning grounds
  - Mangroves and estuaries especially important
Wetlands are bursting with biodiversity

- Home to more than 100,000 known freshwater species alone
  - 257 new species of freshwater fish were discovered in the Amazon between 1999-2009
- Essential for many amphibians and reptiles, as well as for bird breeding and migration
- Individual wetlands often hold ‘endemic species’
  - Forms of life unique to one particular site
  - Lake Baikal in Russia or the Rift Valley lakes of East Africa have many
Wetlands fight climate change

- Peatlands alone cover an estimated 3% of the world’s land area, but they hold 30% of all carbon stored on land
  - Twice the amount stored in all the world’s forests!
- In the face of rising sea levels, coastal wetlands reduce the impact of typhoons and tsunamis
  - Saltmarshes, mangroves act as buffers; their roots bind the shoreline and resist erosion
  - Coastal wetlands increase resilience to the impacts of climate change
- Wet grasslands and peatlands act as natural sponges
  - Absorb rainfall, create wide surface pools, ease flooding in river basins
  - Same storage capacity safeguards against drought
Wetlands provide sustainable products and livelihoods

- 61.8 million people earn their living directly from fishing and aquaculture
  - Including their families, more than 660 million people are dependent on fisheries and fishing for survival

- Sustainably managed wetlands provide:
  - Timber for building
  - Vegetable oil
  - Medicinal plants
  - Stems and leaves for weaving
  - Fodder for animals
A future without wetlands?

- 64% of the world’s wetlands have disappeared since 1900
  - Loss is much higher in some regions, esp. Asia
  - Measured against 1700, wetland loss is an estimated 87% worldwide
- Rapid decline means
  - Access to fresh water is eroding for one to two billion people worldwide
  - Coastal areas are more exposed to storm surges
- Biodiversity has also been affected
  - WWF Living Planet Index: populations of freshwater species declined by 76% between 1970 and 2010
Wetland Extent Index

- Jointly-sponsored indicator of decline in wetlands
- Observed a sampling of more than 1000 wetland sites globally between 1970 and 2008
- Average loss in extent of the sites surveyed over this period: 40%
- Individual sites vary sharply
What drives wetland loss and degradation?

- Wetlands often viewed as wasteland
- Major changes in land use, specifically increases in:
  - Agriculture
  - Grazing animals
  - Other harvesting such as logging
- Water diversion through dams, dikes and canalization
- Infrastructure development, particularly in river valleys and coastal areas
- Air and water pollution and excess nutrients
How can the trend be reversed?

- Make policies that consider wetlands carefully
  - Understanding of ecosystem services that wetlands provide
  - Integrate into land use planning
- Use all remaining wetland sites wisely
  - Meet human needs while sustaining biodiversity and other wetland services
- Restore wetlands that have been degraded
- Develop financing sources for wetlands conservation
- Educate others about the benefits of wetlands
The Ramsar Convention

- Intergovernmental treaty on wetlands
  - Provides the framework for the conservation and wise use
  - 168 Parties (member countries)
  - First modern global environmental agreement
  - Named after Ramsar in Iran, where the Convention was adopted

- Members commit to:
  - Wise use of all their wetlands
  - Designate suitable wetlands for the list of Wetlands of International Importance (the “Ramsar List”)
  - Cooperate on transboundary wetland systems and shared species
Ramsar Sites

- 2,186 designated Wetlands of International Importance
  - Status as of 1st October 2014
- Cover 208,449,277 hectares
  - Area slightly larger than Mexico
- Official list is available online
  - [www.ramsar.org/sites-countries/the-ramsar-sites](http://www.ramsar.org/sites-countries/the-ramsar-sites)
  - Downloadable as pdf or …
  - Zoom in on world map to find a Ramsar Site near you
  - Click on individual sites for information and link to Ramsar Sites Information Service (RSIS)
What can I do as an individual?

- Experience wetlands for yourself
  - Ramsar Sites list [www.ramsar.org/sites-countries/the-ramsar-sites](http://www.ramsar.org/sites-countries/the-ramsar-sites)
  - See if there's a designated Wetland of International Importance in your area
  - Talk with the managers and see if they can use help

- Educate others
  - Host an event
  - Help others understand wetland benefits

- Organize a wetlands clean-up
  - Together in a group, clean-up can be achieved in a few hours
  - Take pictures before and after to highlight the difference
What can I do as an individual?

- Take everyday decisions with the environment in mind
  - Buy sustainably raised or caught seafood, organic produce and meat
  - Take shorter showers
  - Recycle household trash, make sure batteries do not end up in landfills
  - Select native plants and use organic fertilizer in your own garden

- Join with others to make a difference
  - Consult the Ramsar website for partners and link up with their efforts

- Get involved in World Wetlands Day
World Wetlands Day 2015

- Celebrated every 2 February to mark the adoption of the Ramsar Convention
- Ways to get involved:
  - Visit a wetland site near you
  - Enter the photo contest (open to contestants aged 15-24)
    - take a photo in a wetland location between 2 February and 2 March 2015 and upload it to www.worldwetlandsday.org
  - Make a pledge to take action for wetlands
  - Educate others about the importance of wetlands
Thank you
For your attention!
Information sources

For global freshwater resources:
World Business Council for Sustainable Development: Water Fact and Trends, 2009 (p. 3)
http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=137

For human basic daily water requirement:
World Health Organization: Domestic Water Quantity, Service Level and Health (p.3)
http://www.who.int/water_sanitation_health/diseases/WSH03.02.pdf

For dependence on groundwater in Asia:
IGES White Paper, Chapter 7: Groundwater and climate change: no longer the hidden resource (p. 160)

For dependence on groundwater in EU and EU population:

For Nakivubo swamp:

For oyster water filtering capabilities:
http://www.cbf.org/about-the-bay/more-than-just-the-bay/creatures-of-the-chesapeake/eastern-oyster

For rice as proportion of worldwide dietary intake:
Food and Agriculture Organization of the UN: Rice and human nutrition fact sheet

For worldwide share of fresh water going to irrigation:

For worldwide per capita consumption of fish:
Food and Agriculture Organization of the UN: Fish Trade and Human Nutrition (p. 2)
http://www.fao.org/cofi/29401-083ff934c3ccfd8576005d8d0c19b04d6.pdf

For share of commercial fish species dependent on wetlands:
US Environmental Protection Agency: Wetland Functions and Values (p. 11)

For number of freshwater species:
Millennium Ecosystem Assessment: Ecosystems and Human Well-Being: Wetlands and Water (p. 24)

For discovery of new freshwater fish species:

For peatlands and carbon sequestration:
TEEB: The Economics of Ecosystems and Biodiversity for Water and Wetlands (p. 11)

For fishing industry direct employment:
Food and Agriculture Organization of the UN: State of World Fisheries and Aquaculture 2012 (p. 41)
http://www.fao.org/docrep/016/i2727e/i2727e.pdf

For number of fishing industry dependents:
Food and Agriculture Organization of the UN: Fish Trade and Human Nutrition
http://www.fao.org/cofi/29401-083ff934c3ccfd8576005d8d0c19b04d6.pdf (p. 2)

For the historical loss of wetlands:
How much wetland has the world lost? Long-term and recent trends in global wetland area
N. Davidson, Marine and Freshwater Research, 2014, 65 (pp.934 &940)
http://dx.doi.org/10.1071/MF14173

For loss in freshwater species populations:
Worldwide Fund for Nature: Living Planet Report 2014 (p.22)
http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/

For the Wetlands Extent Index:
CBD: GB04 Technical Report: Progress Towards the Aichi Biodiversity Targets (p.59)