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Restoring the Oceans – An engine for sustainable economic development, job creation and poverty reduction

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Key Ocean Threats

- Invasive Aquatic Species
- Nutrient over-enrichment/hypoxia
- Overfishing
- Plastic pollution
- Ocean acidification

Ocean threat – Invasive Aquatic Species

- Market/Policy failure – damage >$100 billion/yr; lack of internalizing the cost of 'clean' ballast water in ship design and operation; lack of global legal agreement
- Solution - Global Convention on Ship's Ballast Water & Sediments, adopted 2007, close to coming into force; GEF-UNDP-IMO GloBallast program built capacity 70+ countries
- Result – new global ballast water treatment technology industry valued at over $40 billion, booming R&D, dozens new companies/divisions, 10,000's new jobs

Ocean threat – Nutrient over-enrichment/hypoxia

- Market/Policy Failure – Damage $200-800 billion/yr; Lack of internalizing cost of nutrient damage to marine (and freshwater) ecosystems into price of fertilizer and human & livestock wastewater management practices
- Solution – economic & policy incentives for fertilizer use efficiency, nitrogen recovery from wastewater, enhance nutrient sinks (taxes, cap & trade, BAP, "+" subsidies, FIT, etc.) – see Green Econ in Blue World
- Result – technology and agriculture/wastewater management innovations & new businesses and jobs for nutrient efficiency, recovery, reuse

Ocean threat - Overfishing

- Market/Policy failure – Lack internalizing socioeconomic ($50 billion/yr) & environmental costs of overfishing into (sustainable) fisheries management; 'bad' subsidies overcapitalize fisheries
- Solution(s)
  - Reduce negative fisheries subsidies ($16 billion/yr), redirect to improved fisheries management, sustainable aquaculture, MPAs
  - Scale up ITQs (up to $40 billion/yr), $ to MPA, sustainable aquaculture, improved fisheries management, ensure social equity in ITQ allocation to small scale fishers (SSF)
  - Achieve or exceed the CBD Aichi Target 10% oceans MPA
  - Ensure sound science, EBA, data sharing, precautionary principal in RFMOs & LMEs
  - UN Fish Stocks Agreement, FAO Code of Conduct, Port State Measures Agreement

Small Scale Fisheries & Aquaculture create far more jobs per unit fish

	Small Scale Fisheries	Large Scale Fisheries	Aquaculture
Annual catch/prod'n for human consumption (mt)	30,000,000	30,000,000	51,650,000
Annual catch to meals & oils (mt)	0	25,000,000	0
By-catch (mt)	0	8-20,000,000	0
Number employed	12,000,000	500,000	10,793,000
Jobs/mt fish product	0.400	0.009	0.209

- Small Scale creates 44 times more jobs per mt fish than Large Scale
- Aquaculture creates 23 times more jobs per mt fish than Large Scale

Ocean Threat – Plastic pollution

- Market/Policy Failure – Damage ~$13 billion/yr; Lack of internalizing costs of effective plastic "waste" recovery and re-use
- 300 million mt/year global plastic production,

  10-20 million mt/year entering oceans
- Global plastic recycling rate ~24% (US, China, India, Europe, Japan)
- 8 EU countries ~2% to landfill (50/50 recycling/WTE)
- Solution – Global scaling up of proven mechanisms that deliver high % plastics recovery and re-use (bottle bills, selected bans, incentives for producers to recover & re-use plastics, etc.)

Recycling plastics creates good jobs (US example)

- Recycling & reuse revenue 6.4 times greater than waste management ($236 billion vs. $37 billion)
- Recycling and reuse industry employs over 4 times as many people as the waste management industry (1.1 million vs. 250,000); 200,000 for plastics
- Waste disposal: 0.1 job/1,000 tons; recycled plastics manufacturing 10 jobs/1,000 tons
- Average recycling and reuse wages 10% higher than for waste management
- Study: if US achieve MSW 75% diversion rate by 2030
  - 1.1 million additional jobs
  - 515 million mt avoided CO_2 emissions (72 coal plants)

Ocean threat –
Ocean Acidification (OA)

- Market/Policy Failure – Failure to internalize environmental & economic damage of OA on oceans; ~$1.2 trillion/yr damage BAU by 2100
- Solution – Put a proper price on carbon emissions; remove fossil fuel subsidies; set (SDG!) a minimum allowable ocean pH level that will prevent further degradation from OA.

Moving from fossil fuels to renewables creates substantial net jobs that pay well

- Wind, solar, and biomass generate 2.5 – 9.25 times as many jobs as fossil fuels for every $1 million contribution to GDP.
- Fossil fuels 0.1-0.2 jobs/GWh
- Renewables 0.5 jobs/GWh
- US median wages green energy jobs $46,303, 13% higher than in broader economy
- Globally 6.5 million renewable energy jobs in 2014; solar PV #1
- 94% of new electricity generating capacity installed in US in Q4 2014 was solar and wind
- UK renewables installed capacity tripled 2006-2012 to almost 16,000 MW; 19.4% UK electricity in 2014

Sustainable Blue Economy

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More. Good. Jobs

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