

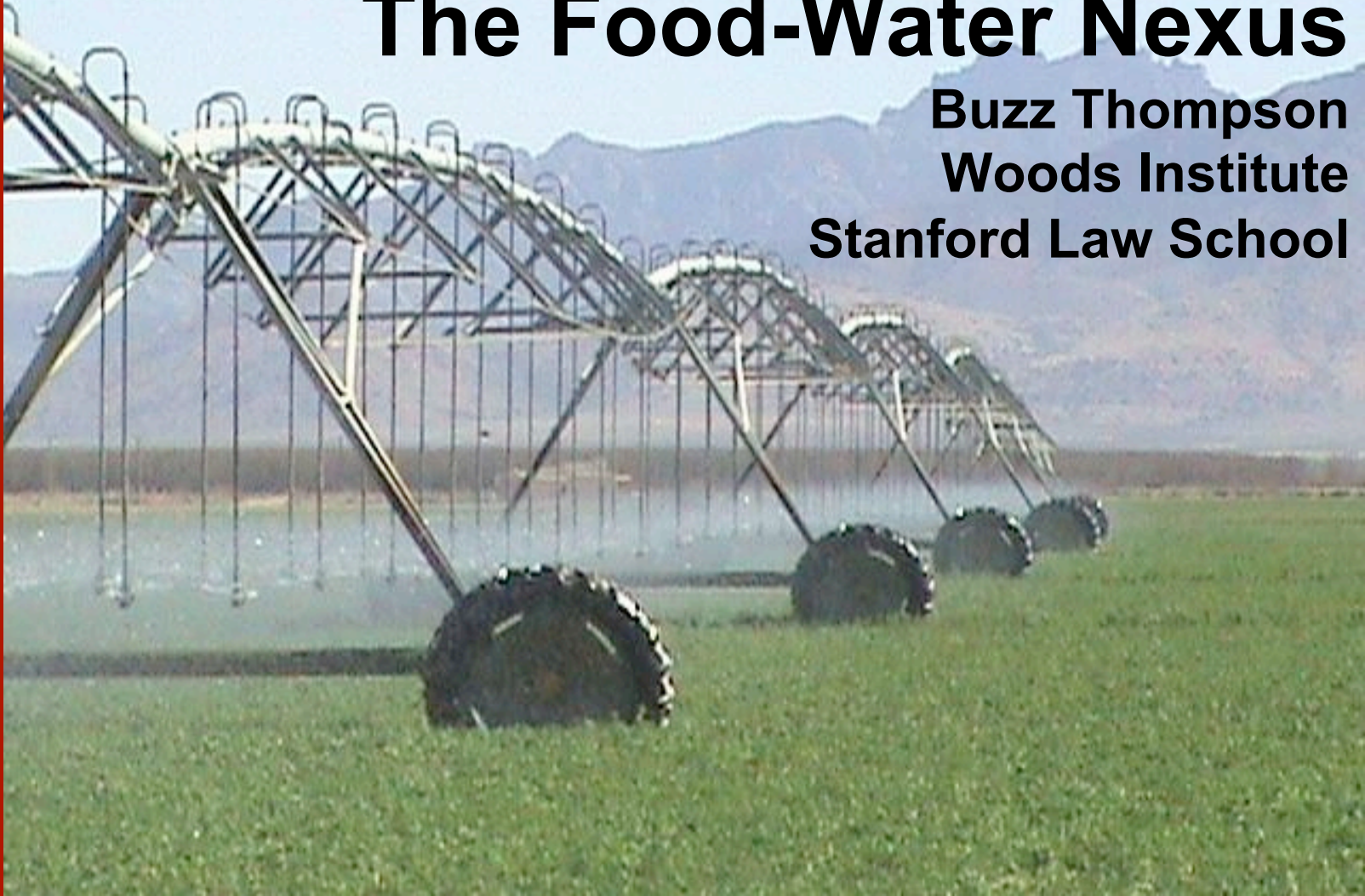


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The Food-Water Nexus

Buzz Thompson
Woods Institute
Stanford Law School





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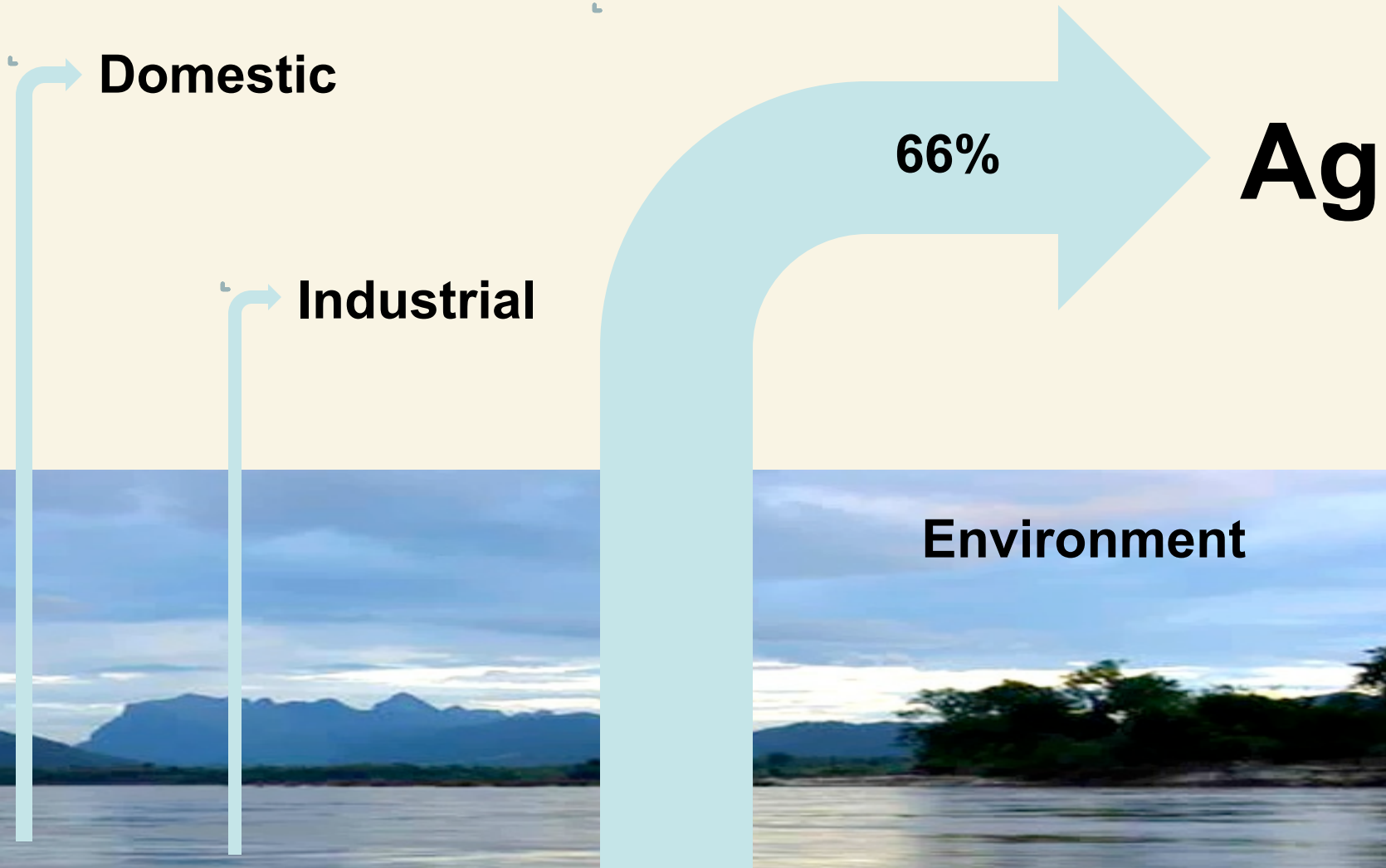
Agriculture Can Directly Impact Supply





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But Its Consumption of Water Presents the Greatest Challenge





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Agriculture Requires Massive Amounts of Water

1000 cups



650 gallons

1200 cups





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Agricultural Consumption & Efficiency





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Agricultural Consumption & Efficiency





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Hydrologic Modification





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Disappearing Rivers, Lakes, and Deltas



1977

1989

2006

North Aral Sea

South Aral Sea

25 mi.

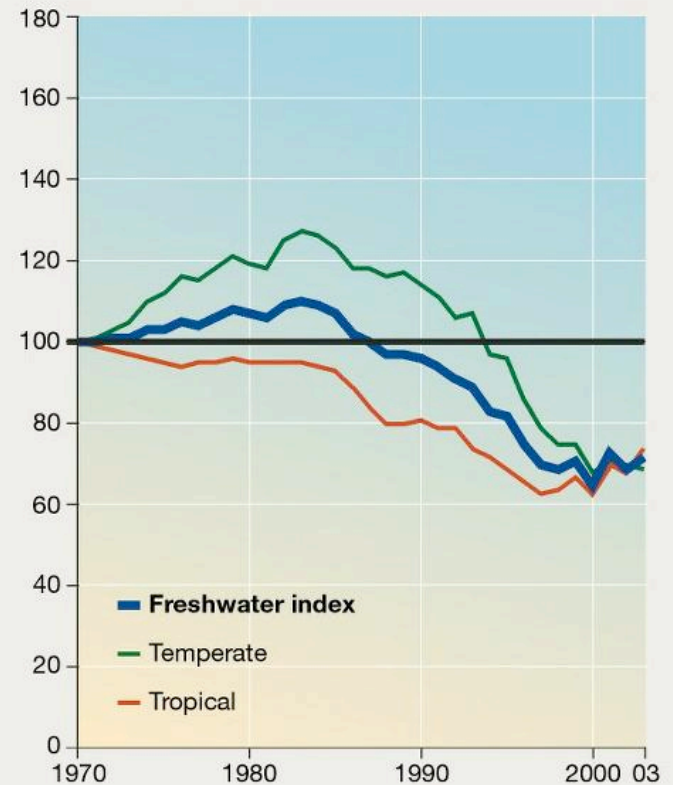


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Loss of Freshwater Fish



Living planet: index 100 in 1970



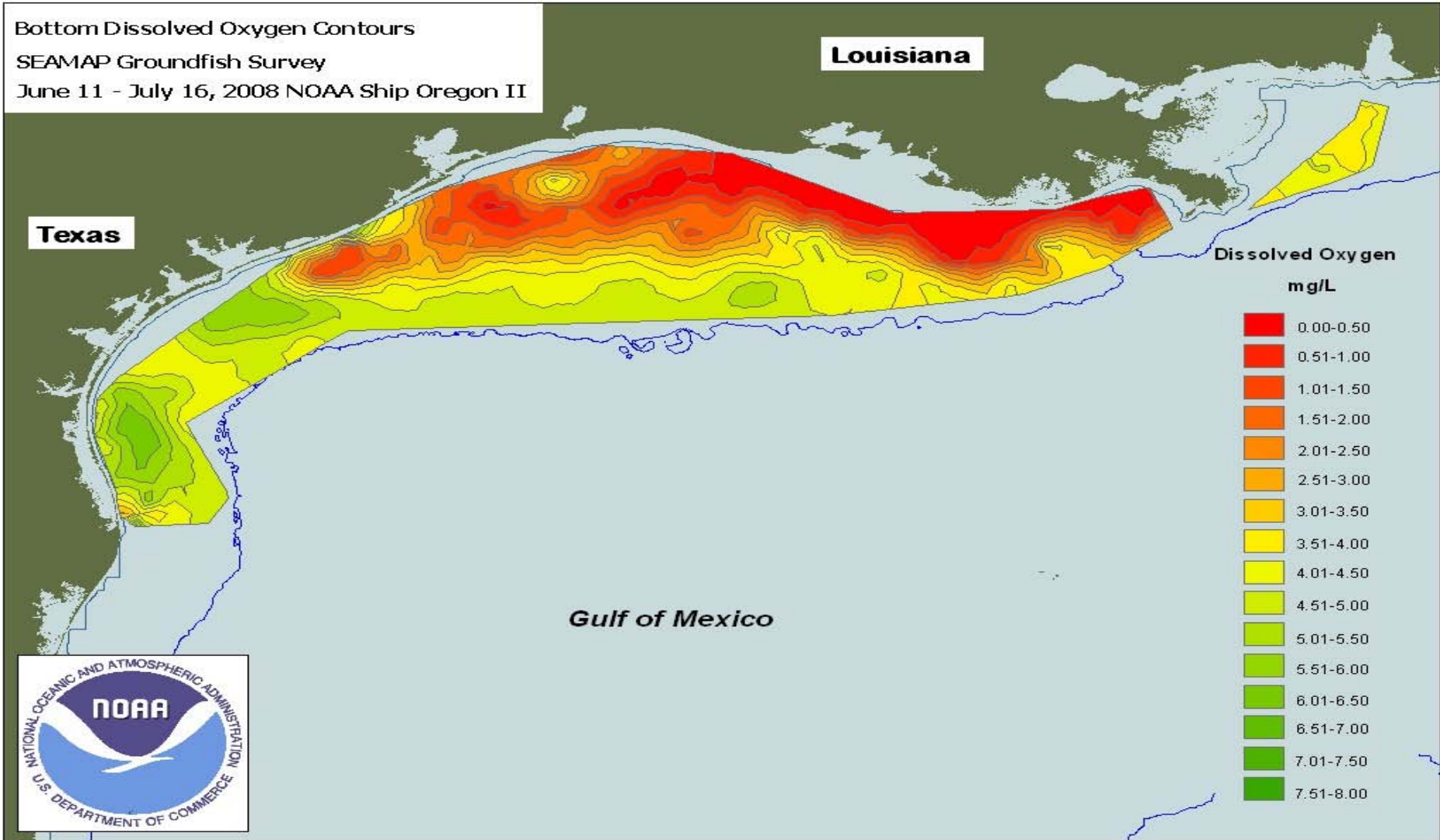
Source: Living planet report, WWF, 2007.



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Nitrogen Loading & Ocean Dead Zones

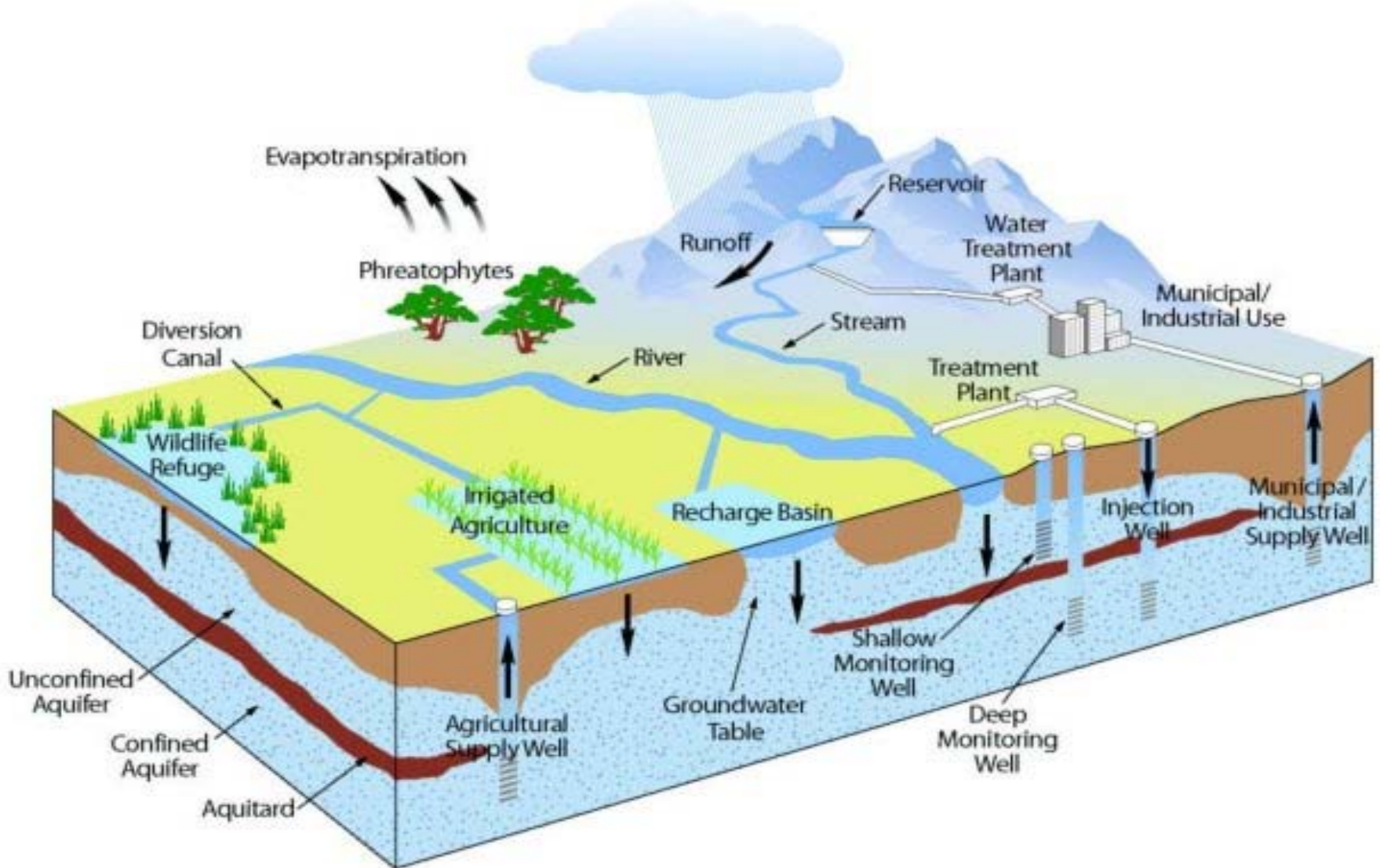
Bottom Dissolved Oxygen Contours
SEAMAP Groundfish Survey
June 11 - July 16, 2008 NOAA Ship Oregon II





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Groundwater Depletion





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Subsidence





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Groundwater-Dependent Ecosystems





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Sea Level Rise





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Solutions: Water Conservation





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“Ag to Urban Water” Transfers



Major Dam & Reservoir
Canal (with direction
of water flow)
Metropolitan Water District





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Water Recycling & Reuse





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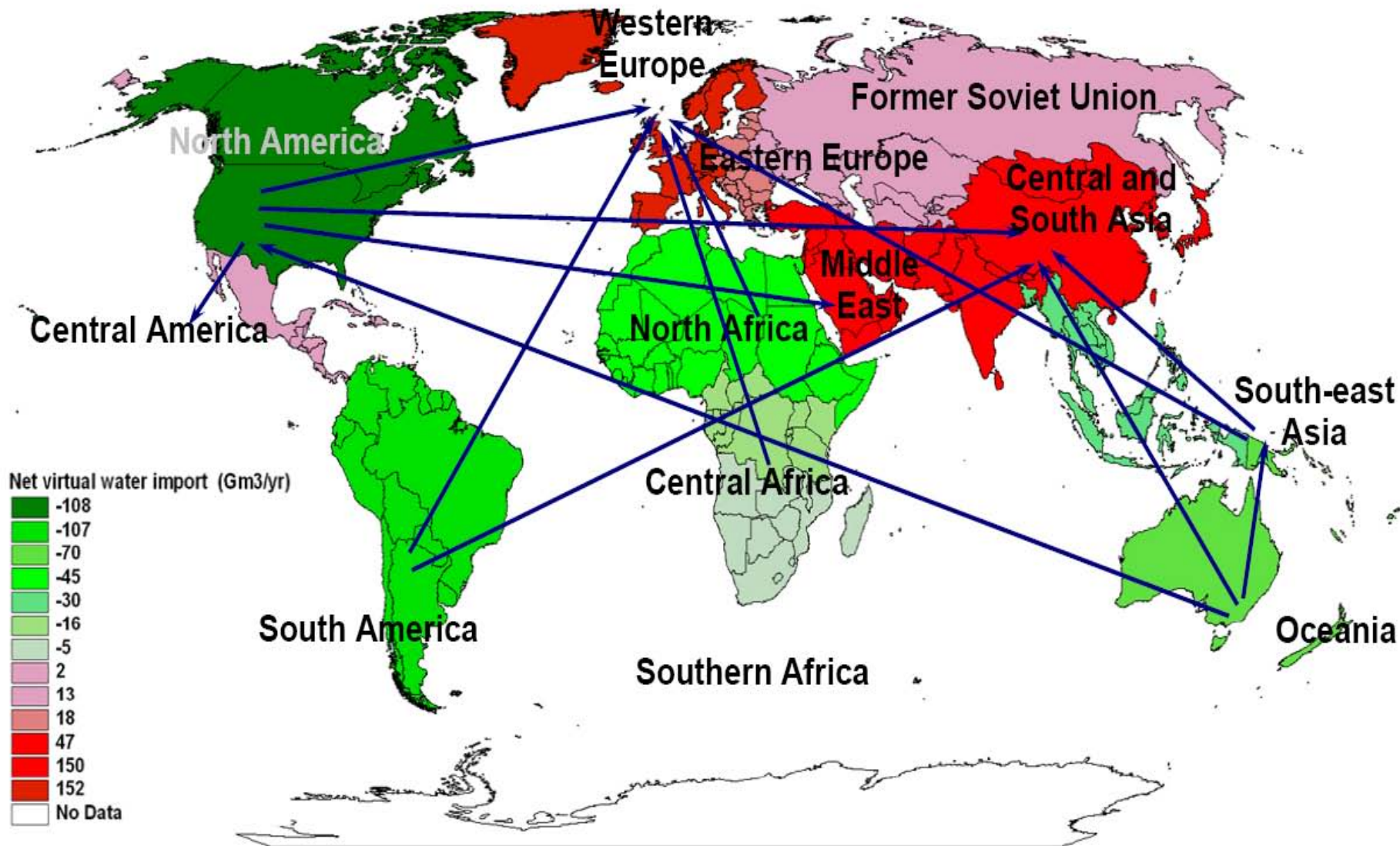
Import Crops from Water-Rich Regions





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Virtual Water





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Virtual Water in Representative Countries

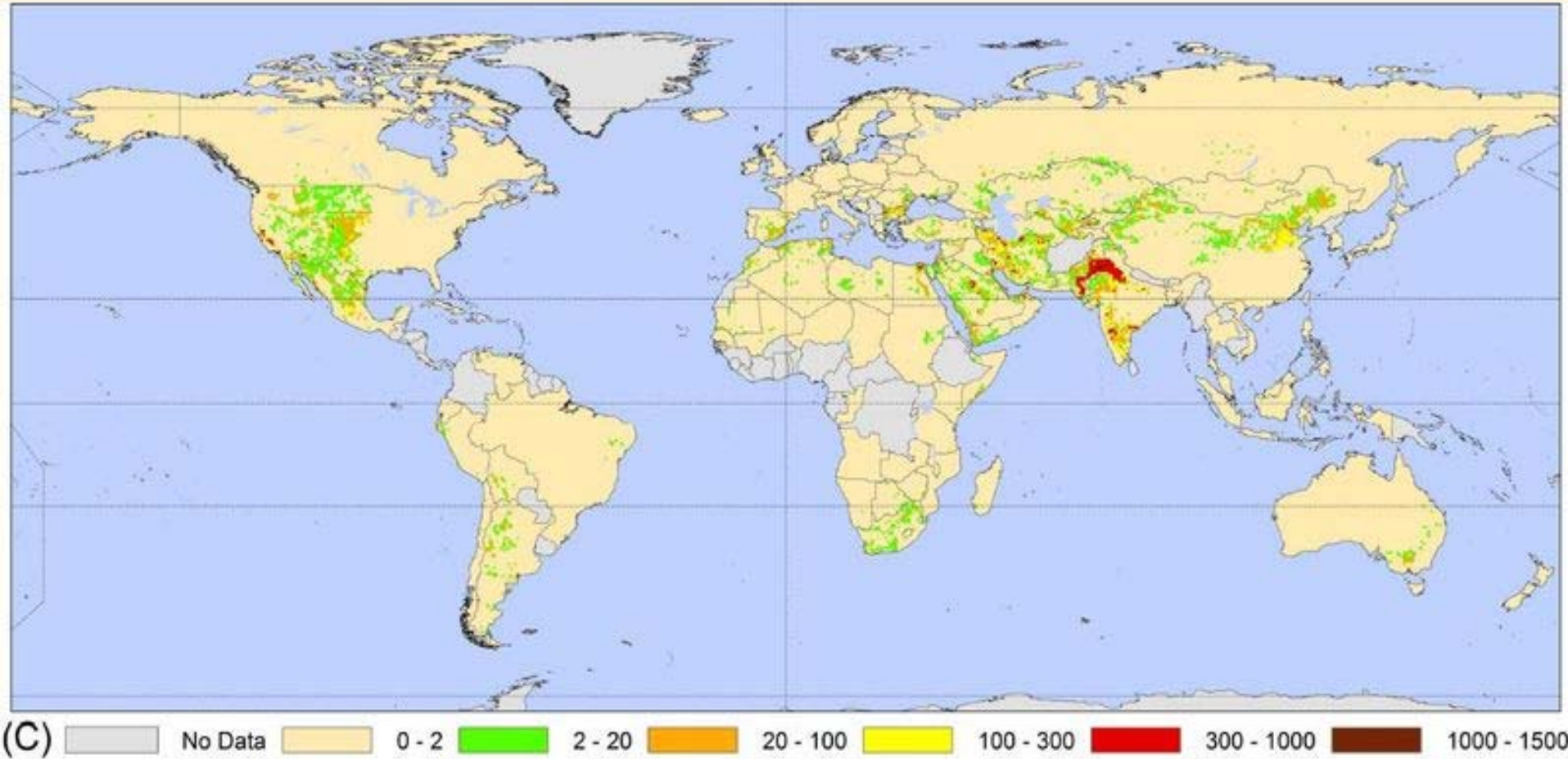


Country	National Ag Consumption (Gm ³ /yr)	“Virtual Water” (Gm ³ /yr)	Total (Gm ³ /yr)
China	711	29	740
Germany	36	32	68
Jordan	21	78	109
South Africa	27	7	34
United States	334	- 64	270



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Do We Need to Worry about “Leakage”?





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Questions?

