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The economic impacts of ecological restoration: ideas to guide better NC strategy

Takeaways

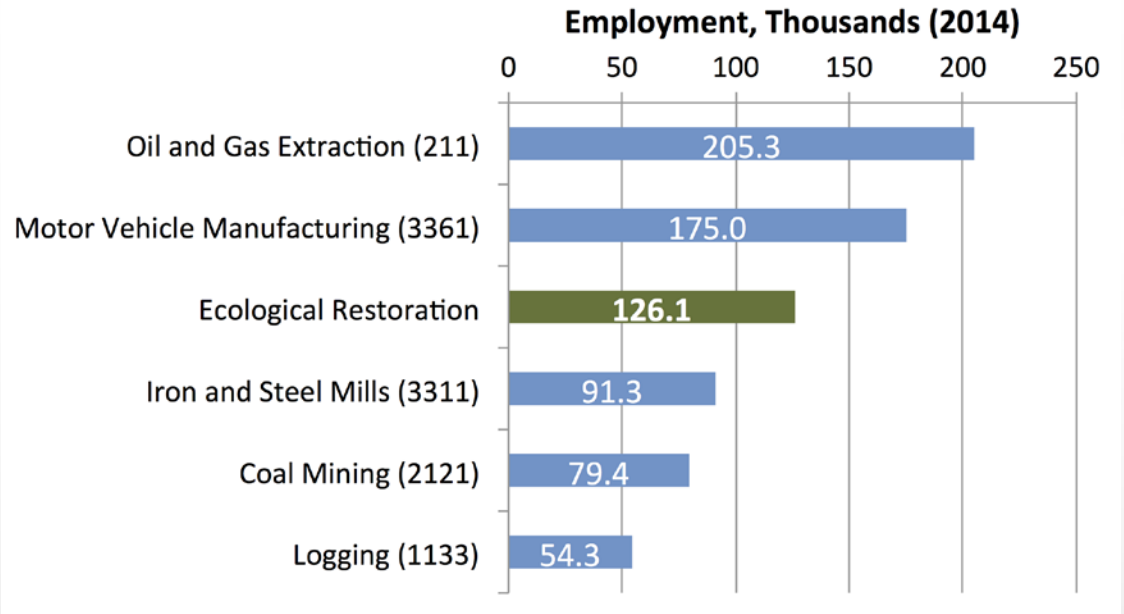
1. Ecological restoration creates a lot of (local) jobs and economic output

2. We should maintain and enhance drivers of restoration

3. Encourage transition of declining resource industry jobs towards restoration

In 2015, ecological restoration had a $24.8 billion national economic impact

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	126,111	$6,272,130,931	$6,293,032,304	$9,479,980,786
Indirect Effect	26,444	$1,615,165,988	$2,556,810,292	$4,615,797,176
Induced Effect	68,843	$3,520,387,488	$6,292,819,878	$10,762,860,487
Total Effect	221,398	$11,407,684,407	$15,142,662,473	$24,858,638,449



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Restoration supports up to 33 jobs per $1 million invested

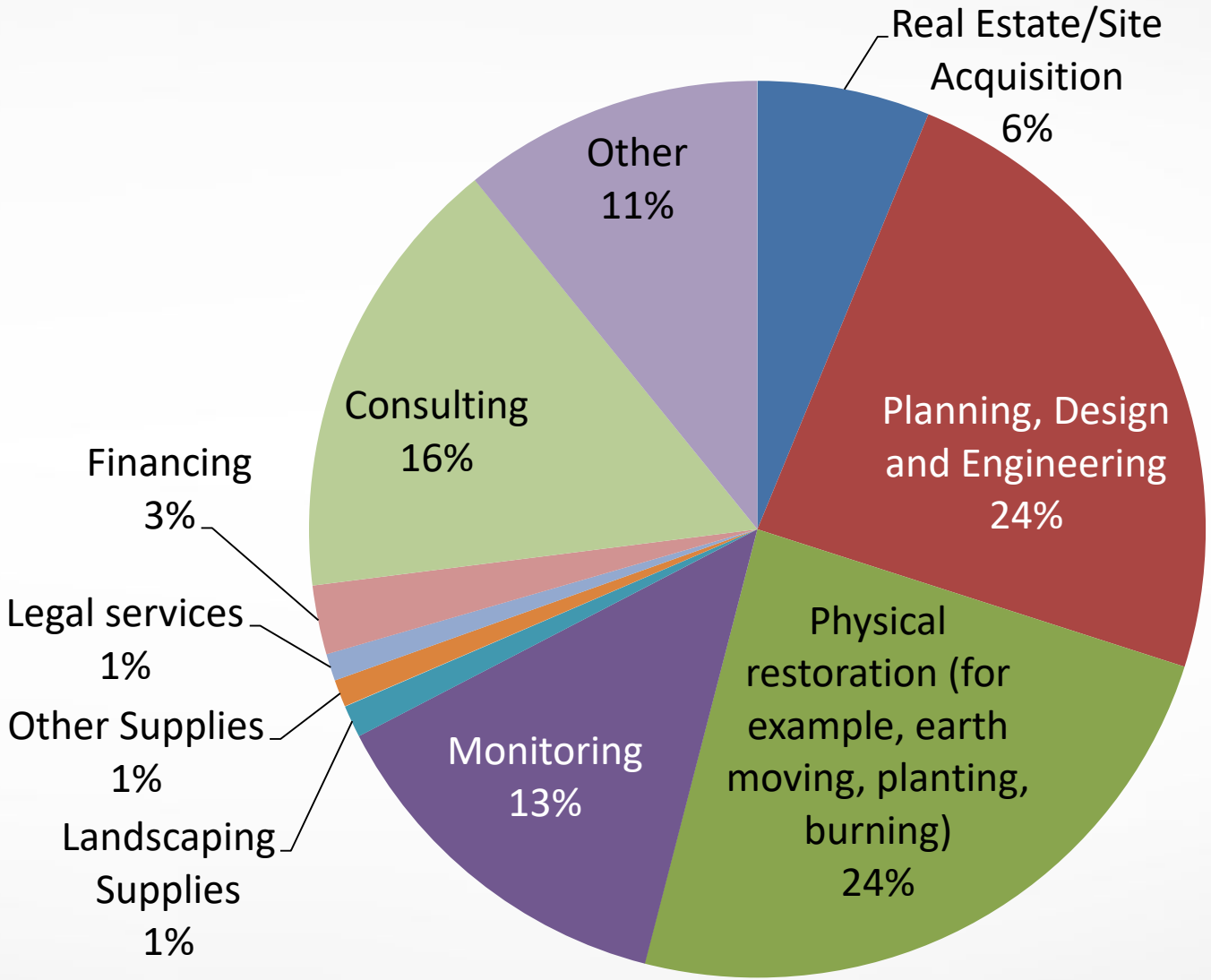
Type of Restoration

Comparison: Oil and gas

5.3 jobs per $1 million invested

County

Distribution of firms by type of restoration work



For each restoration job, the industry supports between 1.5 and 3.8 more jobs

For comparison:

Industry	Employment Multiplier	Source
Oil and Gas	~ 3	PricewaterhouseCoopers 2011
Crop Agriculture	2.33	Garrett-Peltier & Pollin 2009
Livestock	3.34	Garrett-Peltier & Pollin 2009
Outdoor Recreation	1.97	Southwick Associates 2012
Conservation	3.4	Southwick Associates 2013

For each $1 invested, another $1.6 – $2.59 of economic output is created.

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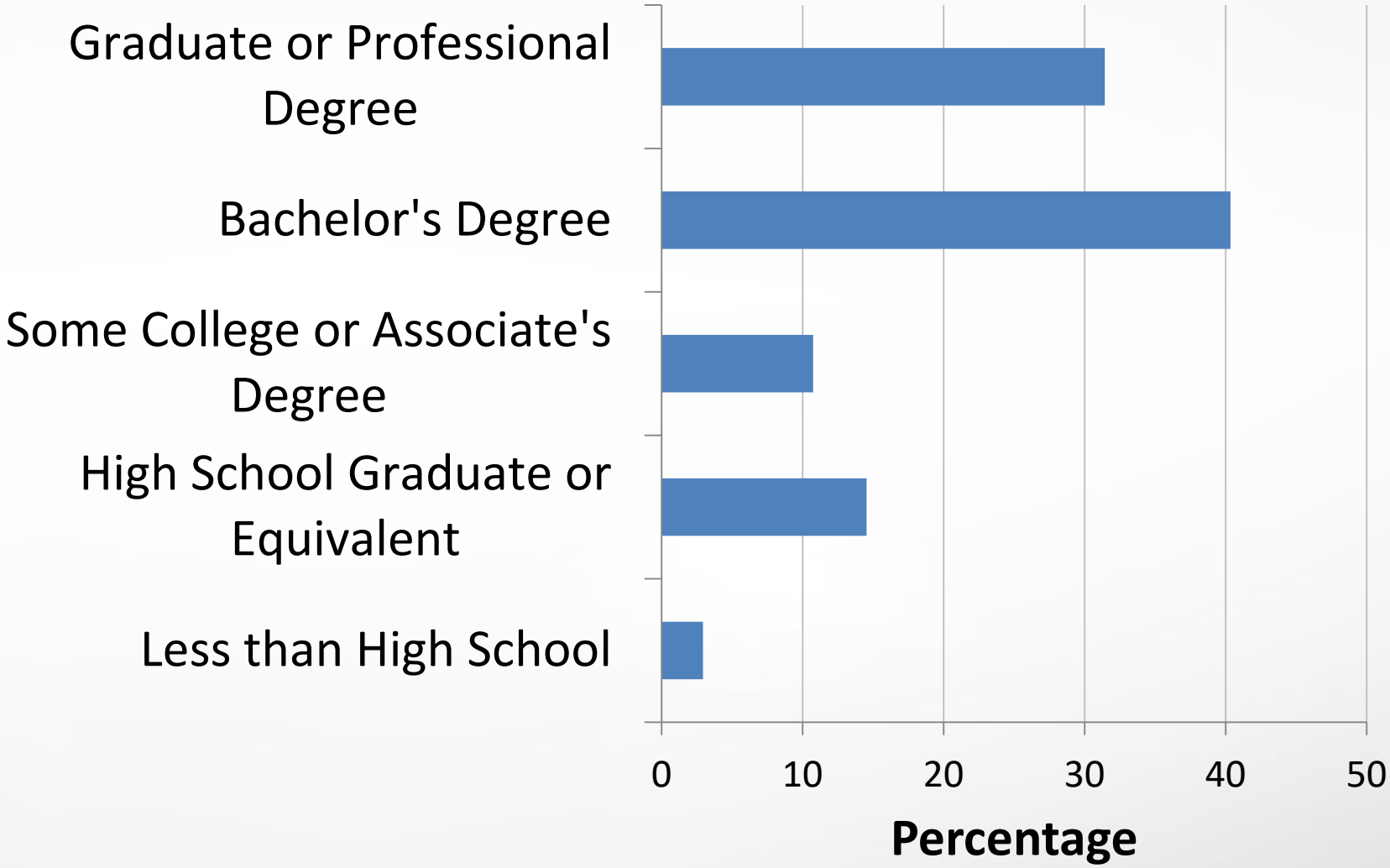
Restoration industry is high-skill, high-wage segment within the broader green economy

- High share of professional and technical (white collar)
- High share of physical restoration and construction work (blue collar)



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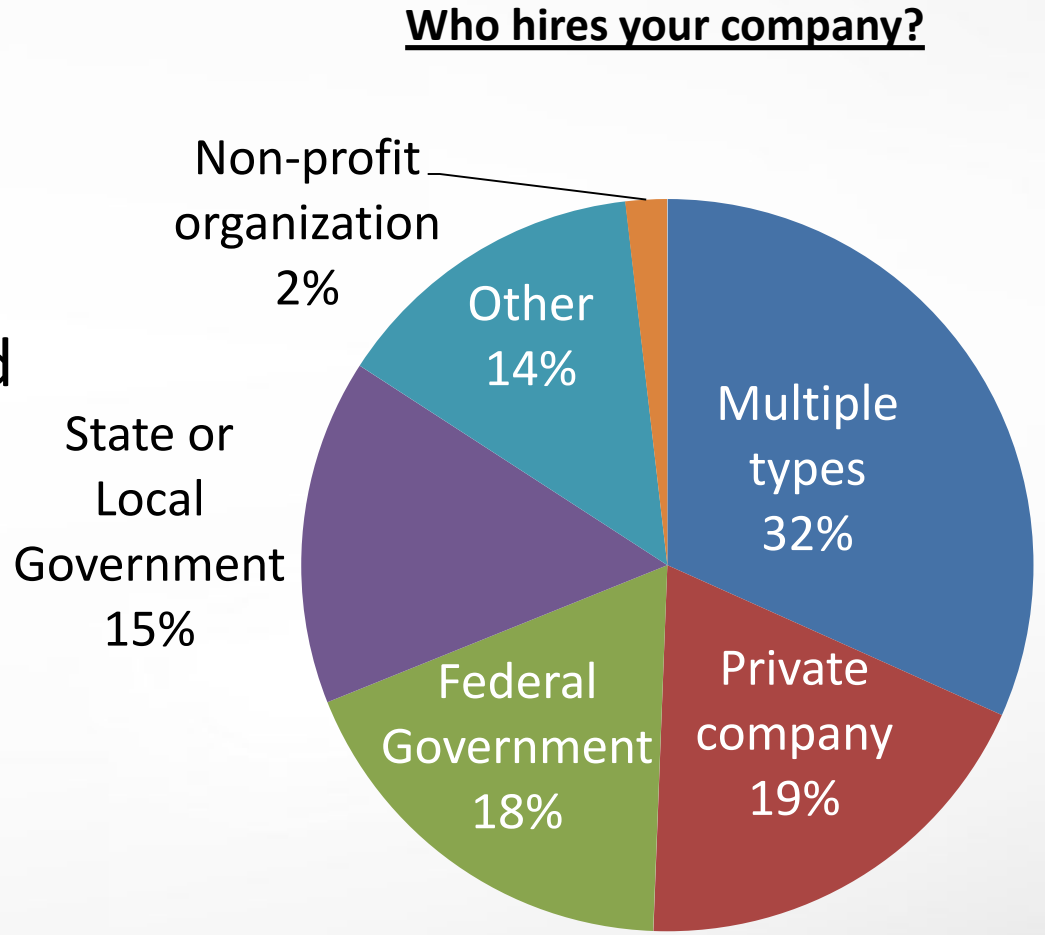
Demand Drivers of the Restoration Industry

1. **Regulatory drivers** that mandate or incentivize investment in restoration
   - e.g. Clean Water Act, Endangered Species Act
2. **Public procurement** of restoration through programs that contract directly with restoration providers.
3. **Regional initiatives** enabled by legislation and partnerships at different government levels
4. **Internal public agency policies** requiring restoration for regular agency activities.
5. **Private investments** by NGOs/foundations, corporations, etc. to increase sustainability or meet social responsibility goals.



We should do things to facilitate restoration

- Lower barriers/road blocks to restoration
  - Streamline permitting (i.e. expedited building permits)
- Green economy benefits from:
  - Strong, local public champions
  - Early public examples (e.g. green roofs on city hall)
  - Educational programs, focused on workforce training and regulators (i.e. energy efficiency training for building inspectors)
- **<u>Long term oyster improvements will require innovative non-point source pollution management</u>**

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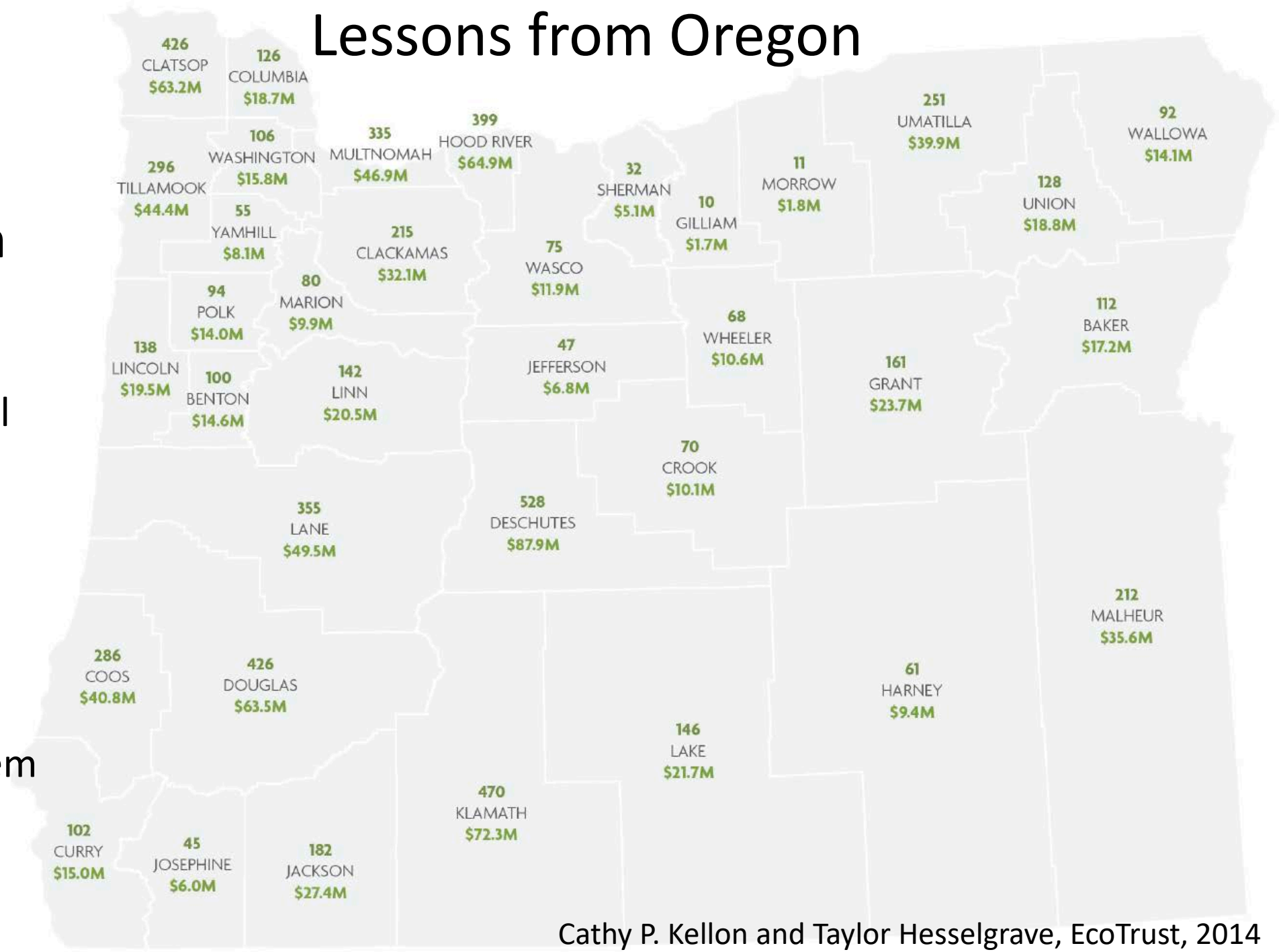
Lessons from Oregon

1. Transitioning forestry employment into restoration
   - Labor intensive, equipment intensive, technical
2. State investments in research infrastructure
   - U-Oregon Ecosystem Workforce Group



Cathy P. Kellon and Taylor Hesselgrave, EcoTrust, 2014

Thank you!

Todd BenDor

Questions/concerns/spam/hate mail:

bendor@unc.edu

- U-Oregon Ecosystem Workforce Program: http://ewp.uoregon.edu/
- Oregon restoration paper: http://sapiens.revues.org/1599
- BenDor, Todd K., T. William Lester, Avery Livengood, Adam Davis, Logan Yonavjak. Estimating the Size and Impact of the Ecological Restoration Economy. *PLoS ONE* 10(6): e0128339.
- BenDor, Todd K., Avery Livengood, T. William Lester, Adam Davis, and Logan Yonavjak. 2015. Defining and Evaluating the Ecological Restoration Economy. *Restoration Ecology* 23(3):209-219.

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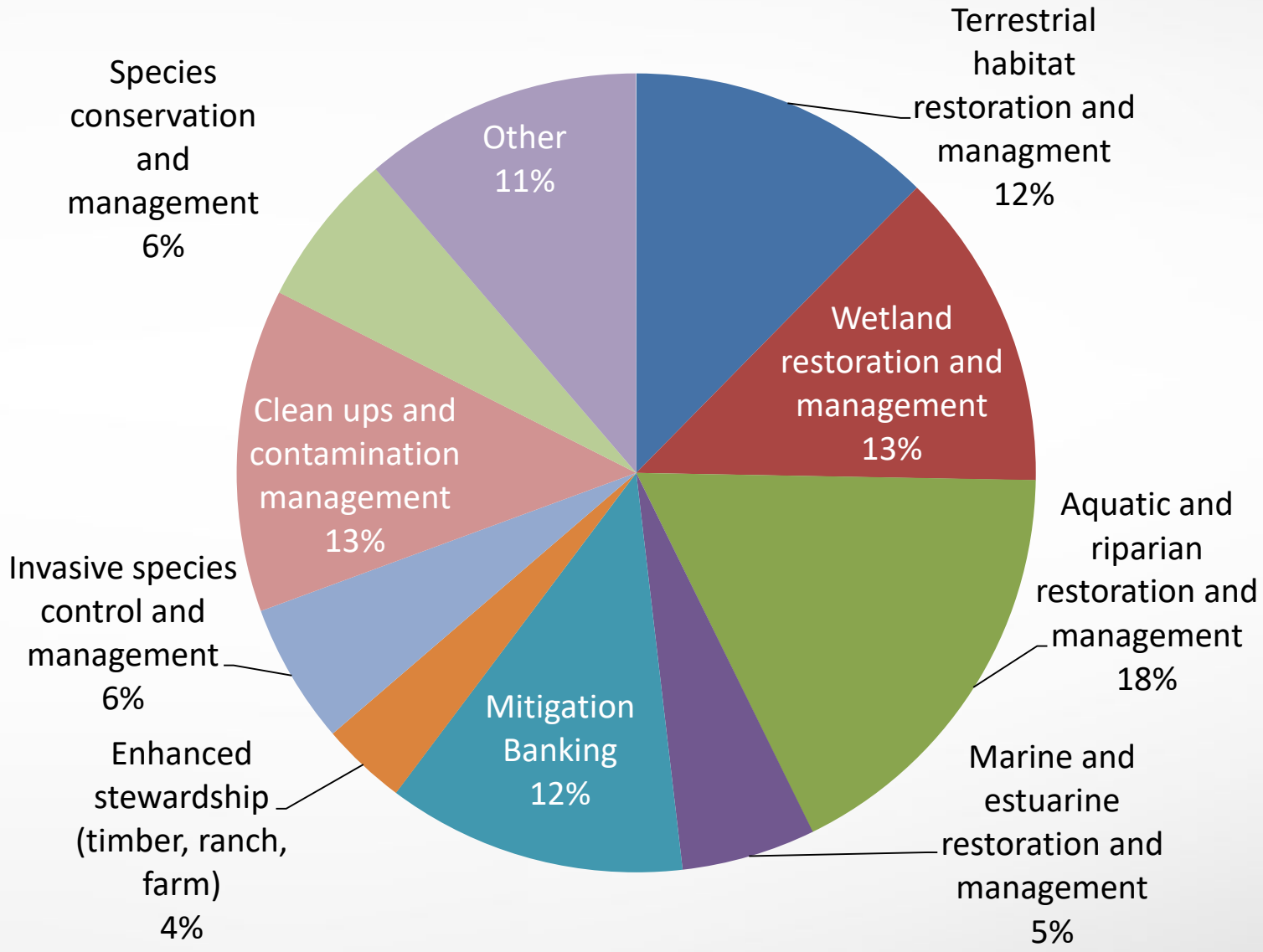
NCCF wetland restoration projects in Hyde County

- Product of public funding ($400,000 invested)
  - NC Clean Water Management Trust Fund
  - Albemarle-Pamlico National Estuary Partnership
- 1,350 acres of wetland restoration on former farm
  - Income paid to workers: $140,000 (local)
  - Value added to economy (gross regional product): $210,000 (local)
  - Impact on economic output: $600,000 (mostly local)
  - Job multiplier: ~10.5 jobs/$1 million invested

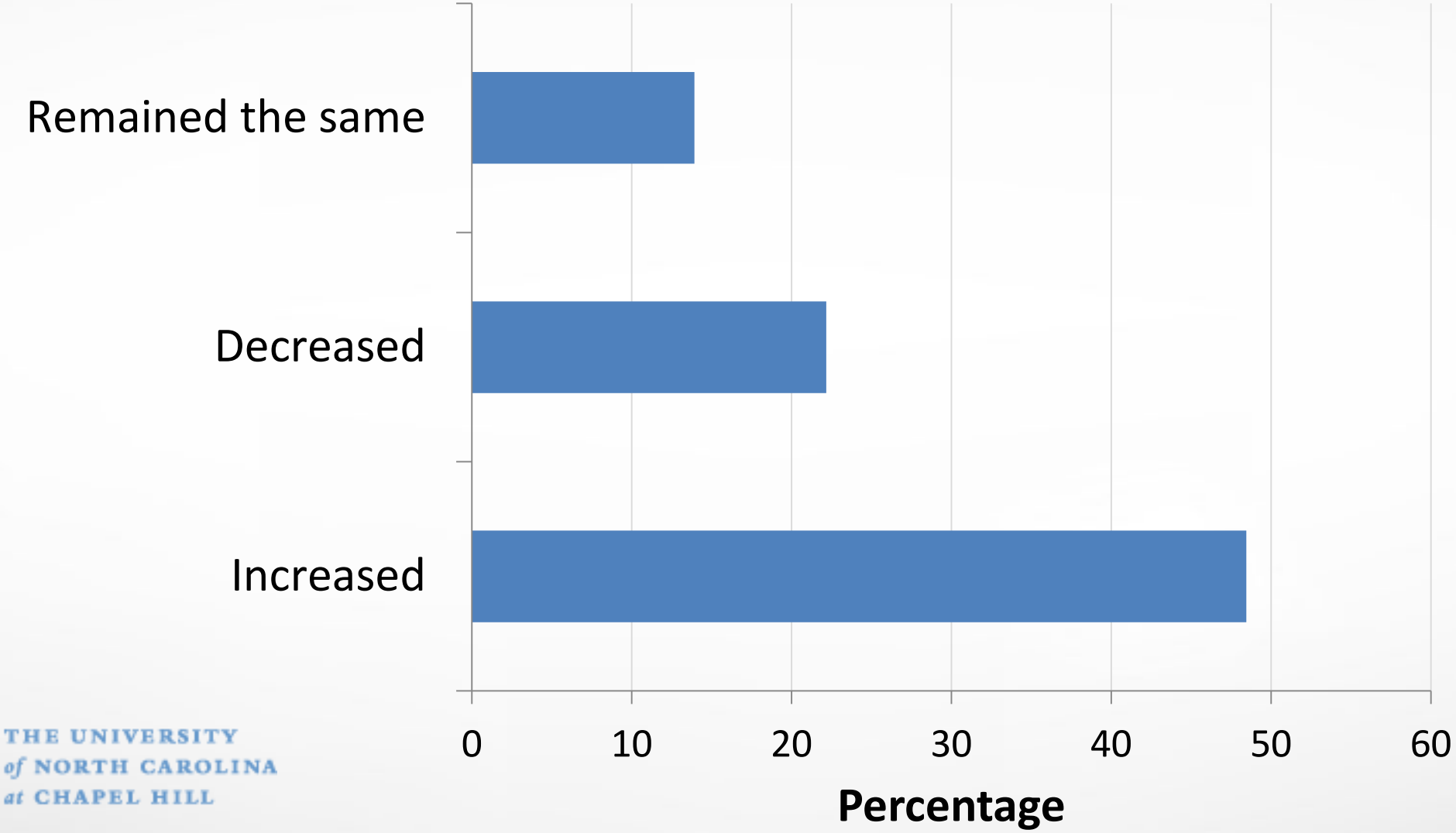
Key, hidden part of the “green economy”

- The Bureau of Labor Statistics’ *Green Goods and Services* survey found that the “green” economy accounted for 3.4 million U.S. jobs in 2011, with the vast majority of jobs in the private sector.
- The green economy recognized as a source of innovation that drives the broader economy (Chapple et al. 2011).
- Very difficult to study ecological restoration; many, many forms, funding sources, and motivations

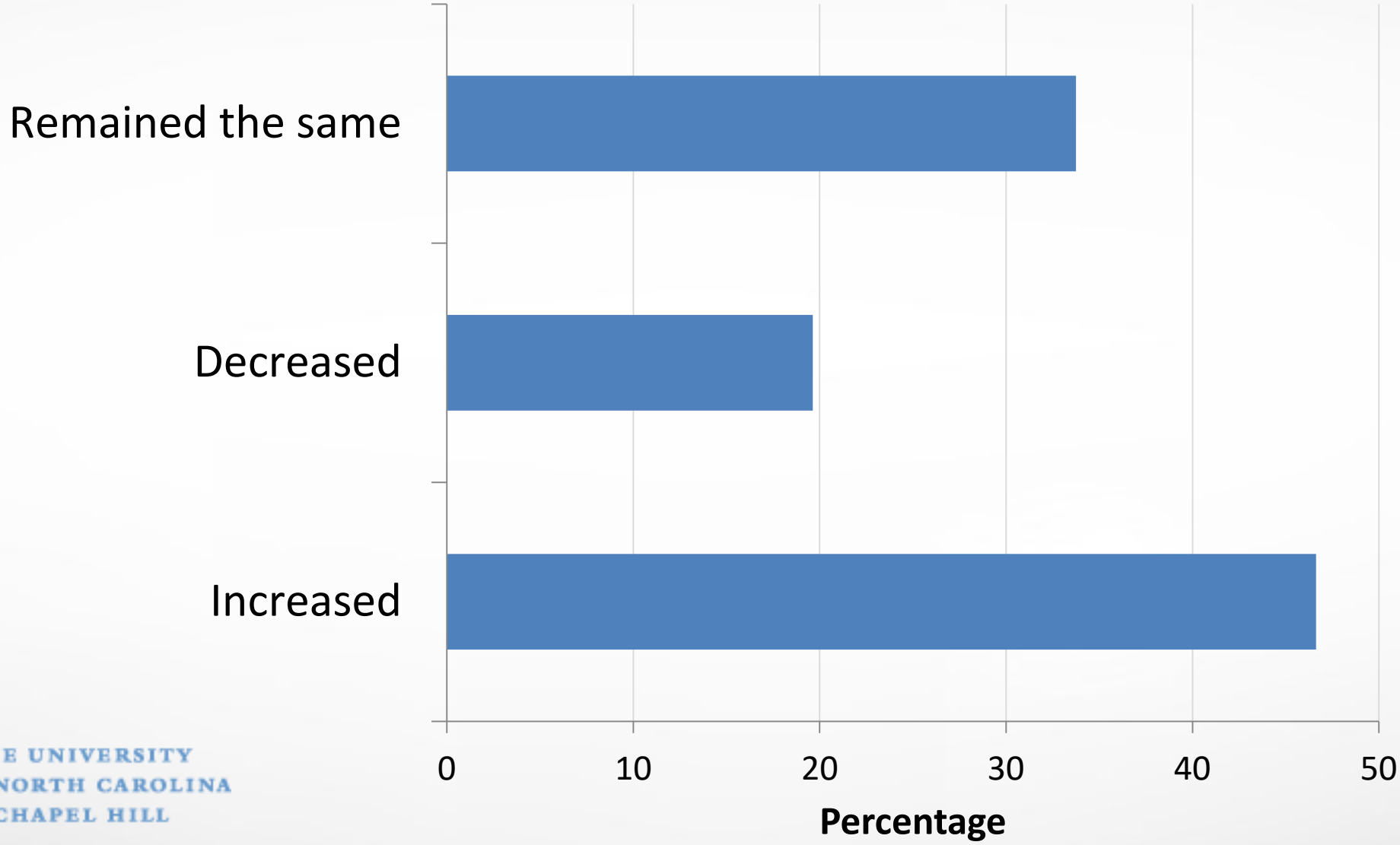
In which types of environmental restoration does your company directly participate?



Over the last five years, has your firm's total revenue?



What has happened to the share of your firm's total revenue related to restoration?



Long-Term Economic Benefits of Environmental Restoration

Aesthetics	
Increased property values	*Isley, Isley and Hause 2011, Bark et al. 2009, Kiel and Zabel 2001*
Increased tourism	*Isley, Isley and Hause 2011, McCormick et al 2010*
Recreation	
Boating, swimming, water sports	*Carson and Mitchell 1993*
Park visitation	*McCormick et al 2010*
Fish and Game	
Fishery enhancement	*Kroeger 2012, Barbier 2007, Kruze and Scholz 2006*
Wildlife enhancement	*Vickerman 2013*
Ecosystem Services	
Erosion Control	*Kroeger 2012*
Stormwater Management	*Valderrama et al. 2013*
Groundwater Recharge	*McCormick et al 2010*
Surface water availability	*Mueller et al. 2013, Milon and Scrogin 2006*
Water quality	*Vickerman 2013, Kroeger 2012, Milon and Scrogin 2006*
Flood Control	*Kroeger 2012, Barbier 2007, Milon and Scrogin 2006*
Carbon sequestration	*Vickerman 2013, Weinerman, Buckley and Reich 2012*

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Ecological Restoration forms an Industry

- Historical involvement of many industries in restoration
  - Environmental consulting
  - Earth moving
  - Planning, design, landscape architecture
  - Real estate
- National Mitigation Banking Association (NMBA)
  - Lobbying efforts
  - Tax legislation – capital gains, not income.