Appendix 1:

Supplemental Table 1: Underlying distributions assumed for variables in general linear models used to analyze benefit zone and beneficiaries among conservation area types.

Variables	Hydrologic
Percentage White beneficiaries	Lognormal (0.02)
Percentage Black beneficiaries	Exponential (0.85)
Percentage other beneficiaries	Lognormal (0.11)
Percentage Hispanic beneficiaries	Lognormal (0.17)
Median income	Lognormal (0.06)
Benefit zone area	Exponential (0.91)
Total beneficiary density (units?)	Exponential (0.76)
Total beneficiaries	Exponential (0.84)

Non-hydrologic services

Potential local beneficiaries of non-hydrologic services include people living within a close proximity to the service-providing area, in this case the CA. Little is known about the flow of services across landscapes, but presumably the flow distance is different depending on the service. For example, research has suggested that freshwater anglers were 1.8 times more likely to fish within 10 miles of their homes than areas between 11 and 100 miles (Hunt and Hutt 2010). This suggests that most beneficiaries of a recreational fishing, a cultural ES, likely live within 10 miles of a CA that hosts a fishing spot. For other services, like scenic views, topography and the built environment play influencing roles in the distance benefits of scenery extend. Research focused on each of these local non-hydrologic benefits is needed to better describe the attenuation of services to beneficiaries over space and time. For some services like recreational fishing or hunting, a fixed-distance approach for delineating benefit zones may be adequate. For services like air quality or scenic views, a more complex modeling approach is needed (e.g. Schirpke et al. 2013). ArcGIS provides a viewshed tool that can accomplish this task, but requires information about the landscape itself, which is beyond the scope of this paper. An ES framework coming out of South East Queensland (AU) provides an excellent overview of the directional biases associated with ES delivery (http://www.ecosystemservicesseq.com.au/ecosystem-services.html). We demonstrate a fixed-distance omni-directional approach for delineating non-hydrologic benefit zones within 10 miles of CAs. A conceptualization of this approach and that for the hydrologic service analysis is provided in Supplemental Figure 1 (Appendix 2). Results from a beneficiary analysis analogous to that of the hydrologic benefit zones are provided in Supplemental Tables 2 and 3 (below) and Supplemental Figures 2 and 4 (Appendices 3 -5).

Supplemental Table 2: Mean (± standard deviation) estimates of non-hydrologic (non-hydro) ecosystem service beneficiaries from state, federal and easement conservation areas. Least-square means were used to test for differences among conservation area types; the same superscript letter following the mean and standard deviation values indicate non-significant differences based on Bonferroni confidence limits. P-values are provided above each comparison. The analogous state-level metrics for North Carolina and Virginia, according to 2010 Census, are provided for comparison.

	Benefit Zone (km^2)	Mean Beneficiary Population	Percent of White	Percent of Black	Percent of Other	Percent of Hispanic	Median Income
Non-Hydro	<.0001	0.853	<.0001	<.0001	<.0001	<.0001	0.036
State	941 ± 1 ^{a}	4035 ± 1 ^{a}	73.9 ± 1.01 ^{a}	19.5 ± 1.01 ^{a}	4.1 ± 1.03 ^{a}	3.2 ± 1.03 ^{a}	$42020 ± 1 ^{a}
Federal	1391 ± 1.1 ^{b}	3902 ± 1 ^{a}	89.6 ± 1.02 ^{b}	6.2 ± 1.03 ^{b}	2.5 ± 1.04 ^{b}	1.7 ± 1.05 ^{b}	$43491 ± 1 ^{ab}
Easement	869 ± 1.1 ^{a}	4113 ± 1 ^{a}	74.2 ± 1.02 ^{a}	17.1 ± 1.02 ^{c}	4.2 ± 1.04 ^{a}	3.0 ± 1.05 ^{a}	$51875 ± 1 ^{b}
North Carolina	125920	9535483	68	21	3	8	$46450
Virginia	102279	8001024	69	19	6	8	$63636

Supplemental Table 3: A proportional comparison of the population outside and inside non-hydrologic (non-hydro) benefit zones among state, federal protected areas and private conservation easements. Percentages are calculated based on the total combined population of North Carolina and Virginia and percent median income is reported as the percent greater or less than the mean of North Carolina and Virginia's median household incomes reported in the 2010 US census.

	Percent of Total Population	Percent White	Percent Black	Percent Other	Percent Hispanic	Percent Area	Percent Median Income
Outside Non-hydro	47%	31%	10%	3%	4%	37%	-3%
Inside Non-Hydro	53%	36%	11%	2%	4%	63%	+10%
State	14%	11%	3%	< 1%	1%	41%	-5%
Federal	9%	7%	1%	< 1%	< 1%	30%	-7%
Easement	6%	5%	1%	< 1%	< 1%	18%	-2%