

b. Estimated Benefits and Costs of the Preferred Option for the Northern California Region

Table X-48 presents the total annual costs of the preferred regulatory option

for the Northern California region. The estimated pre-tax cost for facilities located on estuaries or tidal rivers is \$6.6 million and, for ocean-located

facilities, \$13.5 million. The total annualized cost is \$20.1 million.

TABLE X-48.—TOTAL ANNUAL COSTS FOR THE NORTHERN CALIFORNIA REGION (PRE-TAX) AS OF 2005 (IN 2002\$, MILLIONS)

	Estuary/ Tidal River	Ocean	Total
Northern California	\$6.60	\$13.50	\$20.10

Table X-49 presents EPA's estimates of the total use benefits from impingement and entrainment reduction at cooling water intake structures in the Northern California

region under the preferred option. The estimated use benefits of impingement and entrainment reduction under the preferred option range from \$0.62 to \$0.81 million per year (2002\$),

depending on the factor for discounting the use value of lost resources. EPA did not estimate net benefits in CA due to the lack of information on nonuse.

TABLE X-49.—ANALYSIS OF COSTS AND BENEFITS OF THE PREFERRED OPTION IN THE NORTHERN CALIFORNIA REGION (MILLIONS 2002\$)

	Before discounting	Discounted using 3% discount rate	Discounted using 7% discounted rate
Annual Use Benefits			
Commercial ^{a b}	\$0.02	\$0.02	\$0.02
Recreational ^{a b}	0.79	0.66	0.60
Total Use Benefits	0.81	0.68	0.62
Nonuse Benefits	(^c)
Annualized Costs			
Total Costs	20.10	20.10	20.10
Net Annual Benefits (Benefits—Costs)			
Total Net Benefits	(^c)	(^c)	(^c)

Note: Sum of components may not equal totals due to rounding.

^a Welfare losses represent losses due to both impingement and entrainment because recreational estimates cannot be presented separately for these categories.

^b Commercial and recreational losses are presented undiscounted, and discounted at 3% and 7%. There are no low or high estimates for welfare losses.

^c Not estimated.

G. Break-Even Analysis

Estimating nonuse values is an extremely challenging and uncertain exercise, particularly when primary research using stated preference methods is not a feasible option (as is the case for this rulemaking). In the preceding section, EPA described possible alternative approaches for developing nonuse benefit estimates based on benefits transfer and associated methods. Due to the uncertainties of providing estimates of

the magnitude of nonuse values associated with the regulation, this section provides an alternative context with which to consider the potential magnitude of nonuse values. The approach used here applies a "break-even" analysis to identify what nonuse values would have to be in order for the proposed option to have benefits that are equal to costs.

The break-even approach uses EPA's estimated commercial and recreational use benefits for the rule and subtracts them from the estimated annual costs.

The resulting "net cost" enables one to work backwards to estimate what nonuse values would need to be (in terms of willingness to pay per household per year) in order for total annual benefits to equal annualized costs. Table X-50 provides such an assessment for the marine resources impacted in the two regions for which commercial and recreational benefit estimates are available to date. The table shows the values using a seven percent discount rate.