

that option, existence, and legacy values be included in the estimates.

Second, after a certain level of pollution, the rate of damages declines (Crocker and Forster 1981). Such would be the case where most of the fish are gone and further pollution has little or no impact. This feature of nonconvexity would suggest that benefits of LRTAP control are much higher, increasing at a faster rate in a relatively unpolluted environment. Once the rate of damages starts to decline, the benefits of abatement would be commensurately lower. The limitation of this suggestion is that it is based on the adverse effect on a few species. If acidic deposition affects numerous species, any mitigation effort even at high levels of pollution could show significant benefits.

#### 7.4.2 Conclusions and Recommendations

This paper has attempted to provide an overview of techniques of deriving the economic value of benefits associated with LRTAP abatement. There is a large body of economic literature which deals more thoroughly with the intricacies of the theory and is replete with numerous empirical studies. However, many of the latter have not dealt specifically with the effects of LRTAP.

Four conclusions arise from the material presented here.

1. There are several techniques which can be applied to determine the primary economic benefits associated with a particular activity category. The values are underestimated since they fail to include option and legacy values for some effects. However, the lack of data on dose-response relationships limits the application of these techniques at this time.
2. Even in the absence of dose-response data, a variation in the factor income approach is available to estimate the benefits of changes due to reduced LRTAP deposition. This approach provides benefit estimates on the basis of the differences due to various levels of LRTAP in production costs for a given level of output and could be applied to commercial fisheries, agriculture, forestry, and buildings and structures.
3. The value of the benefits can be further estimated for specific economic sectors, and hence regions, to derive an estimate of the impacts in various geographical areas.
4. It is evident that more economic research is required. Economic techniques have yet to be rigorously tested in some sectors, (e.g., historical value) and are limited in their treatment of option and legacy values and in dealing with the issue of property rights.