

# Using Market Forces to Manage the Ecology of Enclosed Coastal Seas

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In 1776, Adam Smith introduced the world to the combined power of free markets and the individual pursuit of personal material wealth. Most of the world had not been mapped at that time and the earth's human population of about 600 million was only using about 2% of the earth's net primary productivity to meet economic needs. The world population now is about ten times larger, is using approximately 25% of global net primary productivity, and is expected to double in thirty or forty years. Some researchers dabbling in the new field of ecological economics are considering how big market economies can become and how much man-made wealth can be amassed without jeopardizing important ecological systems. Others are wondering how the proven power of the market system can be harnessed to conserve and restore important ecological systems that already are in jeopardy.

Nowhere have market forces been so powerful and resulted in more ecological disruptions than in and around enclosed coastal seas. However, if these powerful forces can be understood and used effectively, they offer extraordinary opportunities for those managing these complex ecological economic systems to achieve their management goals. In fact, as the focus of resource management shifts from individual resources (e.g., wetlands or fisheries) to broader resource systems (e.g., watersheds and ecosystems) these opportunities will increase substantially.

As the focus of resource management broadens, policy-makers will be forced to deal more explicitly than ever before with ecological tradeoffs and with ecological risk. Decisions to protect one ecological feature often transfers ecological threats, e.g., industrial development, to some other resource or some other region where they may have more serious consequences. Decisions to dedicate money and political capital to restore one feature of the ecological landscape leaves less for other initiatives that may be more important or more urgent. In complex ecological economic systems like enclosed coastal seas tradeoffs are difficult, but enormously important. Market-based systems, if they incorporate incentives that reflect relative risks and ecological priorities, can be very effective tools for making tradeoffs, for allocating scarce economic resources to meet competing ecological goals, and for reducing and distributing risk.

In the near-term the most practical opportunities for harnessing market-based incentives to achieve watershed goals probably involve improvements in policies that deal with mitigation — the creation, restoration or enhancement of ecological features to offset accidental, illegal or unavoidable damage to some other ecological feature. Historical mitigation policy in the US. has been an ecological and economic disaster. The reason, however, is not the inadequacy of restoration science. Those in charge of U.S. mitigation policy simply failed to understand market forces and established perverse incentives in mitigation markets that rewarded low cost, not high quality mitigation and discouraged ecologically beneficial trading of one ecological feature for another. This paper will explore this problem and describe market-based mitigation alternatives — private mitigation banks and fee-based mitigation systems — that work with, not against the prevailing economic system.