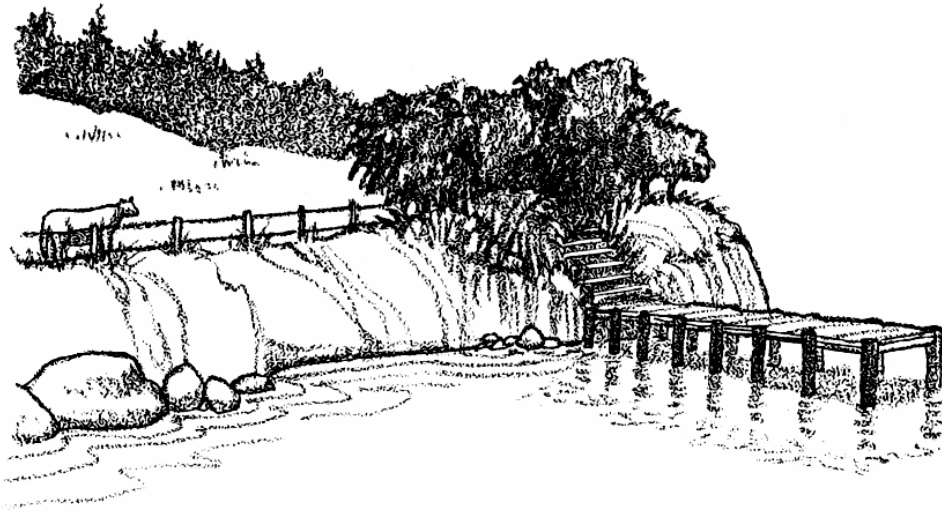


# How Estuaries are Polluted

by Kenn Oberrecht

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*For centuries, humans have been piling their various wastes on land and dumping them into rivers, estuaries, and seas the world over. We have not only increased our numbers to dangerous levels, but, clever critters*

*that we are, we have also found extremely efficient ways to use up our natural resources and defile nature in almost fiendish ways. What's more, we have created hideous toxins with far-reaching effects, as well as pollutants, contaminants, and trash that will continue to punish our environment for hundreds, even thousands, of years.*

*It is indeed possible to overharvest the oceans' fish and shellfish stocks and to destroy the breeding and rearing habitat of our most important species with our excessive wastes.*

Although the world's oceans have a tremendous capacity to assimilate the human race's waste products, as they've done throughout humanity's brief history, we now know that we're overstressing our coastal waters and open seas with too much filth and debris. It is indeed possible to overharvest the oceans' fish and shellfish stocks and to destroy the breeding and rearing habitat of our most important species with our excessive wastes.

Rivers and creeks are direct recipients of industrial waste and municipal sewage. They also drain urban, suburban, and rural areas where they collect more pollutants and litter. As they move toward the coast, they gather or join the waters of other streams. They eventually reach the sea, usually via an estuary, the area where fresh and salt water mingle. Most of the estuaries themselves are bordered by dense population and industrial development that add significantly to the water's pollution load.

Estuaries are vital links in the life histories of more than two thirds of all our commercially important fishes and shellfishes, most of the near-shore and intertidal sport species, and all anadromous fishes. Pollution of our estuaries is among the greatest threats to our environmental health. Like vandalism, it's also wasteful, costly, and senseless, if not downright criminal.

Estuarine pollution may be defined as the human introduction to an estuary of any substances such as chemicals and waste products that are hazardous or potentially harmful to the estuarine ecosystem. This includes pollutants that are directly toxic to plants and animals, as well as materials that overload the estuary's capacity to assimilate wastes and thus deplete essential oxygen.

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estuaries on the drawing board.  
So it looks like we'll have to  
protect the ones we have.*

Toxic substances commonly found in estuaries include heavy metals, pulp-mill effluents, insecticides, herbicides, and various chemicals and petroleum products. Further stressing estuarine waters are such contaminants as sewage, slaughterhouse and seafood-processing wastes, tree bark and sawdust from sawmills, wood fibers from log-rafting operations, phosphates and nitrates from detergents and fertilizers, and livestock wastes.

Humans have been polluting their environment for as long as they have existed, but the effects were comparatively minor until fairly recently. Now that the population bomb has exploded, we don't have as much environment to go around as we used to.

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