

Light Pollution and Shorelines

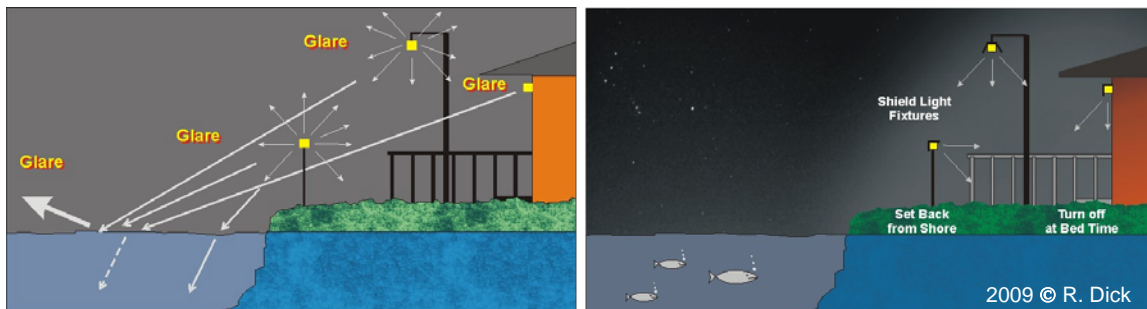
Historically, waterways have been used for transportation and recreation. However, they are also important ecosystems that support wildlife in the water and on the lands adjacent to the shoreline. Shoreline property is valued by our society and this is causing human developments along rivers and around lakes. An increasing number of properties have shoreline lighting that illuminates the waterway. This impacts the river and lakes in two ways.

From the human stand point; bright lights along the shoreline make it very difficult to navigate the channel. Glare from unshielded shoreline lighting prevents our eyes from becoming adapted to the darkness. At night, a boater will only be able to see the points of light along the shore rendering the channel markers and out-of-channel hazards very difficult to see. Clearly, glare along the shoreline results in a safety hazard that should be corrected.

The second impact is on the fish and aquatic plants¹. The effect of light on fish is not clear. Fish are attracted to the light from their natural feeding depths. The increase in the concentration of fish changes the hunting efficiency of predators. Although the behaviour of the nocturnal predator may not be compromised by artificial light, the ability of its prey to recognize the danger and to escape will affect their survival.

Zooplankton is near the bottom the aquatic food chain. They are quite vulnerable so they tend to stay deep during the day and surface during the night to feed. Their cue to rise from the depths is darkness. Shoreline lighting and even sky glow from a nearby city will deter this vertical migration. The zooplankton that does surface are easy prey for other animals because they are more easily seen in the illuminated water.

Artificial light that shines out over the water reflects off the surface to produce the glare for boaters, and homeowners across the waterway. But wave action ensures that perhaps half the light hits the water surface at greater than the critical angle for reflection, and penetrates the water. So artificial lighting will impact more than the narrow and shallow shoreline.



¹ Ecological Consequences of Artificial Night Lighting, C. Rich, T. Longcore, Island Press, 2006, Part V