

ID: W2123925606

TITLE: The value of long-term environmental monitoring programs: an Ohio River case study

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ABSTRACT:

As a subset of environmental monitoring, fish sampling programs have been an important part of assessing the potential impacts of water withdrawals and effluent discharges on fish populations for many years. New environmental regulations often require that adverse environmental impacts to fish populations be minimized. Without long-term field data, population evaluations may incorrectly indicate adverse impacts where none exist or no impact where one is likely to occur. Several electric utility companies have funded the Ohio River Ecological Research Program, which has been in existence for over 40 years and consists of fish, habitat, and water quality studies at multiple power plant sites on the mainstem Ohio River. Sampling includes seasonal night-time electrofishing and daytime beach seining at three upstream and three downstream locations near each plant. The long-term nature of the program allows for the establishment of aquatic community indices to support evaluations of technology performance, the collaborative development of compliance metrics, and the assessment of fish population trends. Studies have concluded that the Ohio River fish community has improved in response to better water quality and that power plant fish entrainment and impingement and thermal discharges have had little or no measureable impact. Through collaboration and the use of long-term data, \$6.3 million in monitoring costs have been saved during recent fish impingement studies. The ability to access a multiyear fish abundance database, with its associated data on age, growth, and fecundity, improves the quality of such evaluations and reduces the need for extensive field sampling at individual locations.

SOURCE: Environmental monitoring and assessment

PDF URL: <https://link.springer.com/content/pdf/10.1007/s10661-013-3258-4.pdf>

CITED BY COUNT: 18

PUBLICATION YEAR: 2013

TYPE: article

CONCEPTS: ['Electrofishing', 'Environmental science', 'Population dynamics of fisheries', 'Water quality', 'Population', 'Environmental monitoring', 'Habitat', 'Sampling (signal processing)', 'Environmental impact assessment', 'Fishing', 'Fishery', 'Environmental resource management', 'Ecology', 'Hydrology (agriculture)', 'Fish <Actinopterygii>', 'Environmental engineering', 'Biology', 'Engineering', 'Geotechnical engineering', 'Filter (signal processing)', 'Electrical engineering', 'Demography', 'Sociology']