

**Diversions Operations:
Addressing Socioeconomic Challenges with Fishers**

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February 13, 2016

Fishes vs. Fishers

Large-scale alterations to Louisiana's coastal hydrology will affect not only fishes, but also fishers. Biophysical modelling can help characterize management-driven changes to the distribution and productivity of specific fish assemblages, but an expanded analysis is required to examine the socioeconomic effects of these changes on individual businesses and harvest sectors. Identifying a standard context is the principle challenge of such an expansion. While fisheries-independent and fisheries-dependent impact analyses are inexorably linked, they are often conducted on different scales. This difference is evidenced by fisheries impact simulations recently commissioned on behalf of the state's 2012 coastal restoration plan. Those modeling efforts center on forecasted changes in ecosystems services (fish biomass) over relatively long time periods (20y, 50y) and large geographic regions (coast wide, basin wide). Such simulations may constitute long-term proxies of social welfare, but are typically too broad in scope for estimating localized economic impacts.

Current Approach

For most public works initiatives, comprehensive project accounting includes some measure of the compensation costs required for acquiring private property and public easements. In the case of common property resources such as fisheries, and for river diversion projects in particular, direct compensation costs are seldom, if ever budgeted. Instead, economic concerns have historically been addressed through a multi-stakeholder advisory process that affords access to, and partial control of, diversion operations. This approach has at least partially contributed to the underutilization of existing structures, with average annual flow rates of less than 20% of capacity for the state's two largest diversions projects, Caernarvon and Davis Pond. Given the apparent lack of economic impact mitigation strategies in the current state master plan, it is likely that future diversions will continue being constrained by this approach, and by stakeholder opposition over project-driven changes in hydrology and salinity.

Alternative Approach

An alternative strategy involves the pre-project assessment and provision of limited compensation to those businesses expected to be rendered commercially infeasible by a given project. The identification of these businesses would be based on a number of factors related to target species, harvester location and mobility, and expected flow rates. Economic impact assessment would begin with detailed mapping of the current fisheries infrastructure in relation to the hydrologic footprint of a planned diversion. For firms and sectors in which sufficient data exist, market-based appraisal methods could be utilized to establish baseline economic valuations. Project-driven changes to these values would then be simulated using bioeconomic methods in which net returns are subject to changes in water depth, isohalines, and sediment deposition under average and maximum flow rates. Such projections would by necessity require distribution and productivity projections by species on a smaller scale (sub-basin grid) estimated over an annual or seasonal basis. The resulting subset of legitimately at-risk firms identified through this process would likely be greater than zero, yet considerably less than the dire predictions of diversion opponents. Once identified, numerous policies are available for mitigating economic impacts, including: one-time payments (buyouts), infrastructure relocation programs, and transition assistance via low interest loans and professional retraining programs.

Maximizing Operational Capacity

Current projections of diversion-based land reclamation and loss offset are dictated by an operational flow regime constrained only by river stage and structure capacity. Realizing this upper bound of restoration capacity would likely require that this regime be established in statute, similar to the legislation governing the state's existing flood control structures. The ultimate potential for realizing this process-driven approach to river management could be facilitated through the comprehensive accounting of, and preemptive mitigation of, legitimately impacted firms in fisheries and other economic sectors. At a minimum, the direct costs of alternative compensation strategies should be compared to the indirect, opportunity costs resulting from stakeholder accommodations that currently characterize diversion operations.