



## Life history and migration of American eels in the Penobscot River, Maine

1. Characterize the suite of regulatory and non-regulatory tools afforded by existing legal/regulatory framework (i.e., FERC, CWA) and public-private landscape scale synthesis efforts.
2. Characterize the degree to which regulatory decisions at dams are independent of the characteristics and regulation in other nearby dams.
3. Assess perceived range of regulatory actions, specific authorities, knowledge of available tools, information gaps, use of ecological information in decision-making, and history of stakeholder driven actions in the local region.
4. Communicate results to resource agencies to inform future relicensing decisions

Decision-making regarding dams in New England stands at a crossroad. Over 52 dams in Maine, New Hampshire, and Rhode Island will require FERC relicensing in the next decade, many are approaching their design life, and preferences for dams and ecosystem services are changing. However, despite increased momentum for change and renewed calls to consider a broader range of options including removal, dams remain a symbol of cultural identity, economic prosperity, and technological innovation; they represent a source for clean energy and an opportunity for recreation. Placed squarely at the center of the contentious debate are numerous federal and state resource and regulatory agencies charged with the difficult task of balancing ecological, economic, and social tradeoffs related to dam relicensing decisions.

Numerous federal and state agencies assert jurisdiction over dam projects, and a confusing array of laws and policies inform dam relicensing, removal, retrofit, and on-going operations. As key stakeholders in the process, however, agencies have the unique opportunity to serve as “agents of change.” Through interagency coordination and engagement with stakeholders including private landowners, non-governmental organizations, municipal governments, and industry, agencies have the capacity to mobilize

action at the basin-wide scale using a range of regulatory and non-regulatory tools. Conceptual “blueprints” for basin-scale hydropower development have been introduced.

To date, these decision frameworks have proven difficult to implement in practice. Instead agency actions tend to be case-specific and reactive to individual projects and events rather than proactive, considering alternative actions and consequences before issues reach a boiling point. This research will characterize agency actions and perspectives including knowledge gaps and challenges faced in the relicensing process.

Work began in 2017 and has focused on document analysis of document sources for projects in the Kennebec and Penobscot River watersheds. Data from the FERC eLibrary Database provide detailed correspondences, comments, and official documents relating to hydropower energy projects. From these sources, abiotic, biotic and social correlates are being quantified about regulatory outcomes. A targeted content analysis of these sources is being used to characterize the roles of agencies and tribal entities, entity participation, and agency decision-making behaviors. Knowledge of these patterns may inform future relicensing efforts.

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