

LARGE SCALE MITIGATION FOR SMALL SCALE PROJECTS: A CASE STUDY

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ABSTRACT

Transitioning from site-specific to landscape-scale mitigation for transportation-related impacts has been broadly supported by resource and regulatory agencies as well as conservation entities in recent years. However, shifting to a landscape, or ecosystem, scale can be an imposing proposition after decades of project-by-project decision-making. This paradigm shift requires agency representatives to step outside of typical evaluation processes and mindsets, which entails time and individual fortitude. The Maine Department of Transportation (MaineDOT) has found that despite agency-level willingness, when faced with a landscape or ecosystem level mitigation proposal, reviewing agencies often cannot embrace the reality of mitigating on a large scale in advance of often undefined, site-specific impacts. MaineDOT's experience with state-wide, single applicant mitigation banking provides a case study that exemplifies some of the challenges associated with trying to provide proactive mitigation on a broad scale for smaller scale capital and maintenance projects. Restoration of Sherman Marsh, a tidal salt marsh in Midcoast Maine, began with the failure of a dam under a MaineDOT bridge in 2005 following a severe rain event. Catastrophic dam failure created both risk and opportunity. Risk in that the bridge was now susceptible to scour from regular tidal flushing and opportunity for one of the largest salt marsh restorations on the East Coast. This presentation will walk through the decision-making on the restoration, from in-the-moment decision-making about whether to reconstruct the dam, to controversies faced with surrounding landowners about the conversion from fresh to salt water, to the negotiation with regulatory and resource agencies about adding this site to MaineDOT's statewide federal mitigation bank. This dynamic and unfolding process illustrates the challenges faced and opportunities presented when a state DOT undertakes landscape-scale salt marsh restoration while considering both infrastructure and ecosystem functions.

INTRODUCTION

The Maine Department of Transportation's (MaineDOT) federal umbrella mitigation bank was established in 2011 as per a directive from the Maine State Legislature as the sole method to codify the preservation of 501 acres of Sears Island in Penobscot Bay. A contentious, 20 year negotiation over use of the largely undeveloped island culminated in a cooperative agreement to preserve approximately two thirds of its land area. It was this agreement that drove the timeline for developing a mitigation bank to 'hold' credits realized from this preservation for future transportation uses. As the owner of Sears Island, it fell to MaineDOT to develop the vehicle for potential future use of compensation credits in the federal permitting process under the Clean Water Act. MaineDOT has had a state mitigation bank since 2004, primarily as a vehicle to 'hold' credits for compensation required through federal permitting that were over and above state requirements. The reality is that MaineDOT rarely carries out a project that requires state, but not federal, permitting and it is even rarer that there is a requirement for stand-alone state mitigation. Based on the sunk costs associated with developing a federal mitigation bank and on the mitigation guidance issued by the US Army Corps of Engineers (USACE) in 2007 that prioritized mitigation banking, it remains in MaineDOT's best interest to look for and take advantage of opportunities to add to banked mitigation.

Like other entities conducting activities subject to Clean Water Act regulations, MaineDOT had become adept at researching and establishing project-specific, on- or near-site mitigation. There has been a relatively awkward transition from on-site to off-site landscape or ecosystem-scale mitigation despite the USACE guidance prioritizing banking and in lieu fee opportunities. It is only in the recent past that federal resource and regulatory agencies have allowed MaineDOT to forgo searches for on- or near-site mitigation. At an average of \$50,000 for each site search, MaineDOT felt caught between following the national USACE guidance and satisfying regional staffs' individual preferences. Misconceptions persist on the effectiveness of mitigation, namely whether compensating via in lieu fees or banked sites in essence "buys" impacts above and beyond what would be permitted if an applicant were required to mitigation on each project site. However, without a bank in place, MaineDOT was missing a leg of the stool that supports flexibility in mitigation options. So beyond meeting the Legislature's mandate to codify preservation commitments, Sears Island created a path to a state-wide, single-user mitigation bank.

CASE STUDY

Concurrent to the mandate to establish a bank to 'hold' the Sears Island preservation area, Maine experienced a not uncommon 50-year storm event over Columbus Day Weekend 2005. This storm took out a dam under a MaineDOT bridge carrying US Route 1, a major coastal arterial in the National Highway System. The original timber bridge at this location was constructed in the 1800s, and replaced with a swing bridge in the 1920s. The earthen berm/causeway constructed in 1934 functionally converted a stream-fed tidal estuary into a 220-acre shallow freshwater lake that was home to large and smallmouth bass and other freshwater species as well as to landowners who appreciated their lakefront property. Old Route 1 ran across the top of the impoundment wall, which was essentially a gravel berm with a clay core. As a lake, the impoundment required no maintenance on behalf of the state's Highway Department. In 1960,

plans show that the Highway Department drove piles into the impoundment berm to build a new concrete and steel bridge, causeway and dam above it. In 1985, the town of Newcastle asked MaineDOT to raise the elevation of the lake by permanently raising the flash boards at the outlet. Concurrently, the Maine Department of Marine Resources (DMR) installed a fish ladder to facilitate migration of alewives in and out of the lake for spawning. In May of 2005, a large peat mat broke off in the lake and began floating freely, eventually hanging up on the dam at the lake outlet. In August, DMR conveyed concerns to MaineDOT that the floating peat mat was interfering with juvenile alewives' migration from the lake. Using an excavator, MaineDOT created a channel through the peat mat with the blessing of Maine's Department of Environmental Protection. On October 9, 2005, after heavy rains, lake water overtopped the impoundment wall (old Route 1) and eventually scoured the backside and caused the saturated gravel and clay core to blow out.

Meeting on site, just hours after the 2005 failure, MaineDOT Environmental Office (ENV) staff advocated with MaineDOT's Chief Engineer to carefully consider whether to replace the dam. Under emergency provisions, MaineDOT could have dumped truckloads of rock under the bridge as a stopgap measure pending permanent replacement of the dam without permits. With trucks idling on site, the Chief Engineer agreed to delay replacement pending consideration of all possible options, ranging from full replacement to full restoration, provided that the delay didn't pose additional risk to the bridge's substructure. At this point in time, this was a conversation, face-to-face, between two people staring directly at the issue, both concerned about the dynamic natural environment as well as the public infrastructure.

Following failure of the dam, both the US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) described the area formerly encompassed by Sherman Lake as one of the most significant potential salt marsh restoration sites on the east coast. These agencies along with other non-governmental advocacy groups lobbied MaineDOT not to replace the dam. NOAA indicated their intent to pursue conversion of Sherman Lake back to Sherman Marsh with future competitive restoration funding. By 2007, the vast majority of funding needed to restore the 220 acres to fully functioning salt marsh remained unsecured. At the same time, inspection of the bridge substructure highlighted serious concern for its stability and resistance to scour from tidal action as well as salt action on exposed steel. With the MaineDOT umbrella mitigation bank development underway, we asked ourselves whether the immediate need to stabilize the bridge substructure, the short term need to restore full ecological function to the marsh, and future interests wouldn't be best served by undertaking restoration with an eye toward a mitigation bank deposit.

MaineDOT was not completely caught off guard that NOAA's restoration program staff did not react favorably to our considering taking on the project as a potential mitigation banking effort. We anticipated that moving the restoration from 'proactive' to 'compensatory' would result in some disappointment, but hoped that the ability to reach the ecosystem goals in a timely fashion would soften this sentiment. Despite the general positive track record nationwide, a false presumption still exists that having mitigation credits in a bank makes it easier for DOTs to impact other, equally or more sensitive natural resources without pause for alternative analyses, avoidance, or minimization measures on a project-specific basis. Although MaineDOT is new to mitigation banking, we have an excellent track record of 16 years of stewardship over site-

specific and commercial banking projects. The continuing skepticism is frustrating to those who implement MaineDOT's program, but it seems to be a permanent feature of the mitigation process.

Because of the ongoing threat to the bridge substructure, time became of the essence. In effect, to realize an economy of scale for channel work related to restoration by having it occur in conjunction with the bridge project, restoration would have to begin prior to approval of the umbrella banking instrument. Going forward on the restoration came with significant risk, but the agencies would not consider the project until the bank was in place and the urgency associated with deteriorating substructure conditions provided an opportunity for work that would also enhance tidal flows. There was also urgency associated with control of invasives in the marsh itself as the more time went by, the more aggressive the spread of *Phragmites*. With documentation in hand on the value of the restoration project according to the federal resource agencies, MaineDOT acted.

To date, MaineDOT has spent approximately \$825,000 to restore Sherman Lake to salt marsh and stabilize the bridge substructure. Costs include excavating to install fiberglass sleeves around existing steel pilings well below grade, armoring against scour with heavy riprap both around pilings and along abutments, deepening the existing channel and excavating a second channel to enhance tidal flushing, and aggressively controlling highly invasive *Phragmites* throughout the marsh. Baseline and post-construction hydrologic and biologic data has been gathered throughout the project. Approximately \$648,000 is accounted for by work associated with the bridge infrastructure, while approximately \$174,000 is attributable to restoration-related activities. For a bit of perspective, replacing the dam at the time of failure with a structure built to modern standards was estimated to be as high as \$1,000,000. Ongoing costs are associated with a bank stabilization project immediately downstream from the bridge (approximately \$90,000) and invasive plant monitoring and control, estimated at \$15 – 30,000 annually in perpetuity in order to maintain high and low marsh ecosystems dominated by *Spartina* species.

MaineDOT's timing in approaching the federal agencies about adding Sherman Marsh was less than ideal given that most of the construction work required for restoration had already been completed. One of the awkward realities of banking is that opportunities sometimes arise that need to be acted on out of the recommended sequence to maximize ecological benefit. If MaineDOT had opted to wait for approval of its federal mitigation bank and prospectus approval, *Phragmites* control in the marsh would now be a daunting, reactive effort. Also, the opportunity to combine restoration hydrology/hydraulics improvements with the critical steel piling protection work would have been lost. It is likely that if the bridge protection work (which had to take place by winter 2008/09) were separated from restoration work, the restoration work would never have taken place and a significant flow restriction would have remained.

In MaineDOT's limited experience, timing of requests for mitigation bank credit for sites has been problematic. For the Sears Island parcel, an agreement to preserve most of the island was subject to strong political influence and so the timing of executing a conservation easement was not at the sole discretion of MaineDOT. Similarly, MaineDOT acquired land in excess of that required for project-specific mitigation in Mattawamkeag, Maine. By law, easements were

required to be in place before the project requiring mitigation was 50% complete. The need for accelerated timing of finalized conservation easements for this parcel, deemed of high value for both wildlife and fisheries habitat, was discussed in detail with the bank Interagency Review Team (IRT) prior to its execution. The discussion focused on IF&W holding title for this parcel while MaineDOT retains preservation credit on a future deposit in MaineDOT's mitigation bank. During that discussion, the resource agencies agreed that this would not affect the available credit as long as a Memorandum of Understanding was developed that provided details on monetary contributions, agency roles, site uses and restrictions. Unfortunately, when approached with a request to consider a prospectus for the Mattawamkeag parcel, the IRT appeared to have forgotten its commitment and declared the parcel ineligible for banking provided it was already under a conservation agreement. Fortunately, subsequent discussions and documentation of past agreements led to the IRT agreeing to consider a prospectus for the site.

An unfortunate consequence of sometimes awkward timing is the opportunity it provides for selective memory. Questions posed by the federal agencies on submittal of a draft prospectus included: How does MaineDOT know that this site provides ecological value? If the work is already done, what is the impetus to approve the site for banking? Won't having the site banked allow MaineDOT to destroy other valuable coastal wetlands? Questions like these coming from agencies intimately engaged in Section 404 permitting, with its project-specific requirements for alternatives analyses, avoidance and minimization, were particularly frustrating. Maine is not a big state when it comes to agency staffing levels and so individual players have sat across the table for years, approving MaineDOT projects, reviewing mitigation proposals, and receiving post-construction compensation reports showing successful mitigation site management.

When talk did turn toward considering Sherman Marsh as a banking site, federal resource agencies suggested limitations that would effectively hamstring the use of credits from the site, thereby compounding MaineDOT's frustration. Initial suggestions included awarding only preservation credit with a very limited amount of enhancement (i.e., no restoration); restricting the use of credits to mitigate for coastal wetland impacts; and narrowing the biophysical region in which credits could be applied. Given that impacts to coastal wetlands in general, and salt marshes in particular, are the most limited type of natural resource impact MaineDOT has, restricting use of the banked marsh credits to coastal wetland offsets only would render this deposit virtually useless. Such a restriction does not appear in federal law or regulation and in fact runs counter to Maine state regulations which allow use of coastal wetland mitigation for freshwater wetland impacts, but not *vice versa*, depending on similar functions and values. Biophysical regions described in the approved MaineDOT mitigation banking instrument mirror those in Maine's in lieu fee mitigation program and so narrowing the geographic region within which Sherman Marsh credits could potentially be used would create another inconsistency. Yet another condition of use under consideration was that MaineDOT acquire additional conservation easements to widen the upland buffer area on private properties ringing the marsh, effectively limiting rights of landowners who in many cases were not happy about losing their lakefront property in favor of salt marsh and tidal mud flats. As with Sears Island, there was also discussion of limiting use of marsh credits to mitigate for indirect impacts only. Sears Island's highly charged political history contributed to MaineDOT's decision not to argue the restriction in that case, but hearing the same restriction proposed for the Sherman Marsh deposit realized our fear that Sears Island had set certain precedents for bank deposits.

In the case of Sherman Marsh, the agencies' justification for constraints on the assignment and use of credits seems to rest wholly on their opinion that a storm event, in effect an "act of nature", had been the pivotal event in the failure of the dam. From this perspective, MaineDOT should not benefit by an "act of nature". Though the storm event was the direct cause of the failure, not acknowledging the deliberate decision to not reconstruct the dam negates the human involvement required for restoration of the salt marsh ecosystem. When the restoration was heralded as a proactive, resource-agency driven project, credit was given for the anthropogenic influence; however this same acknowledgement does not seem to be forthcoming once the project became a mitigation effort.

To assess whether its expectations for the Sherman Marsh site were unrealistic and therefore the root of conflict within the banking process, MaineDOT opted to engage the U.S. Institute for Environmental Conflict Resolution (ECR). Our awareness of ECR came at a fortuitous time, corresponding with a high level of frustration in the review of the Sherman bank deposit prospectus. ECR is a neutral, non-partisan federal program established in 1998 by the U.S. Congress to assist parties in collaboration and resolving environmental, natural resource, and public land conflicts. ECR is a program of the Udall Foundation, an independent agency of the executive branch of the U.S. government. Identified benefits of third party neutral facilitation were: productive communication; greater understanding of seemingly divergent perspectives; help framing issues in an understandable way; assisting participants in setting aside preconceived ideas; restored trust; engaging participants in effective brainstorming help participants in exploring the many interests to be considering and potential for mutual gain; increase likelihood that outcomes will be acceptable to all; and improve likelihood that decisions will be implemented. MaineDOT also hoped for specific benefits for decision makers, namely demonstrated commitment to a more open and consultative process; building of goodwill; enhancement of credibility; freeing MaineDOT to participate in content discussions and decisions with the other participants; support for meeting preparation, facilitation, delivery, and documentation; and maximizing the possibility that participants would feel satisfied with the process as well as the outcomes.

ECR's involvement began in February 2012. ECR staff conducted interviews with sixteen individuals representing seven agencies, including commenting federal agencies, the IRT charged with vetting the bank site prospectus, and MaineDOT staff associated with the Sherman Marsh project. Interviews focused on exploring background issues, relationships, and a potential collaborative process for resolving outstanding conflicts. Areas of where interviewees agreed included that MaineDOT should receive some unspecified credit for the work on Sherman Marsh, and that consensus is probable. General areas of disagreement centered on how much and what type of mitigation credit should be allowed; what, if any, restrictions should be placed on the use of any credits; and whether any restrictions should be placed at the banking or project level.

Through the interviews, ECR found that participants generally acknowledged that the emergency nature of the dam breach and the safety-related concerns resulted in a need to make decisions quickly. Seemingly at odds with this acknowledgement, interviewees also stated that future candidate banking projects should be reviewed and approved prior to MaineDOT undertaking any work on a site. Ideally, receiving approval to add a site to a mitigation bank, including

details of work to be done, significantly reduces risk for parties both undertaking and approving site work. In states where mitigation banking is well established, DOTs may have more opportunity and financial resources to undertake long range planning of banking projects; however in states such as Maine, where there is little to no track record for mitigation banking and limited opportunity for planning long range purchases, the banking system needs to remain nimble enough to maximize ecological gain as well as make efficient use of limited dollars.

Another area of general agreement was that the process to date could have benefited from more frequent and effective communication, a common theme of many processes in which participants represent divergent interests and missions. Until ECR compiled the interview results, MaineDOT was not aware that other agency representatives were unclear as to why the marsh restoration was converted from a 'proactive' restoration project to a candidate banking site, and were largely unaware of what work was being undertaken. DOT staff had relied on its own expertise and frequent, but less formal, communications with other agencies. Though they were asked for their input and informed of progress anecdotally, some participants felt there was a vacuum that precluded their input and involvement in decisions regarding data collection, flow enhancement, and other details related to the restoration. From MaineDOT's perspective, documenting the ecological 'lift' in the marsh following excavation of the two channels under the bridge was critical prior to presenting the bank deposit proposal to the IRT. In retrospect, more regular, formal coordination during the project by MaineDOT may have averted some of the uncertainty surrounding expectations. While expectations and advocacy may drive a project, having expectations that don't come to fruition often leads to resentment, frustration, and eventually conflict. MaineDOT experienced some of the consequences of having high initial expectations: frustration/resentment; entrenchment; loss of trust externally; divergence of missions. These expectations were based on the recognized ecological value of the salt marsh and conviction that we were accomplishing landscape level goals initially identified when resources agencies articulated their desire for restoration. Meanwhile, we experienced the consequences of low initial expectations of the IRT, likely created by uncertainty around MaineDOT's intent and actions. Consequences of low expectations potentially include limited usefulness of the banking site; increased cost for decreased benefit; loss of credibility; and lack of viable instrument.

Several interviewees acknowledged disappointment that restoration of Sherman Marsh went from a proactive restoration project to mitigation banking. In essence, they saw this as changing a collaborative, voluntary process into a formal, applicant review process. It turns out that not everyone involved shortly following dam failure understood the impetus for MaineDOT to assume responsibility for the restoration. One interviewee described their perception that the Sherman Marsh site was more valuable to MaineDOT as a mitigation banking project than a restoration. This, in fact, would be an accurate perception given the mission of a state transportation agency to maintain safe, efficient infrastructure while meeting applicable laws and regulations, including those related to compensation for natural resource impacts. The lesson to be learned by MaineDOT is that despite communication of our intent to ask for mitigation banking credits very early in the actual restoration project, that intent was lost over time. While several key MaineDOT staff were fully engaged in the restoration on almost a daily basis, federal agency resource staff felt disconnected from both the reasoning and the work happening on site. Anecdotal conversations between parties were not sufficient to maintain momentum in terms of

excitement about the ecosystem gains going on in the marsh. It turns out that MaineDOT carried an unreasonable expectation forward that the successful restoration of Sherman Marsh would meet the objectives of agencies and organizations with multiple missions, regardless of the banner under which that restoration occurred. Results of the ECR interviews also point out that there is still a lack of clarity around appropriate use of original federal technical assistance funding and restoration-based funding given to assist with proactive restoration project planning. Initial NOAA funding put into the project was reimbursed using FHWA funding and restoration funding provided as part of mitigation during the closure of a nuclear power plant will be directed toward stabilizing the tidal channel below the bridge abutments outside of the area MaineDOT is asking to add to the mitigation bank, an area affected only incidentally by failure of the dam, but important to nursery fisheries.

Another discrepancy in agencies' perceptions surrounds the potential use of credits from banking projects. According to one respondent, the "system will only break even" if Sherman Marsh is approved as a banking site because the credits will be used to reduce habitat later, while as a restoration project, a net gain to the system would have been realized. It is a valid statement to say that mitigation offsets unavoidable impacts to natural systems. This offset occurs regardless of whether a project proponent uses on-site and project specific, in lieu fee, or banked mitigation. All are allowable under current federal regulations and guidance prioritizes mitigation banking over the other two compensatory alternatives (Title 33, CFR 332.8). MaineDOT's experience with mitigation banking is that the sites added to the bank are in place and functioning long before credits are being withdrawn based on ecological functions and values.

The past few years have seen extreme funding limitations for new infrastructure or expansion of existing infrastructure, accompanied by restrictions on the eco-regions within which credits can be 'withdrawn'. We expect this trend to continue into the foreseeable future. Over the last decade, MaineDOT has impacted less than an acre of salt marsh habitat throughout the state; all of those impacts were related to work on existing facilities. Knowing this, the IRT could easily limit the expenditure of credits associated with Sherman Marsh by restricting their use to unavoidable, in kind, coastal wetland impacts. However that restriction does not appear in law or guidance.

When participants explained their various perspectives on the potential consequences of a successful Sherman Marsh bank deposit on future impacts in the biophysical region and use of the credits, responses included "no strong feeling about the use of credit in the future and impacts to the region", little to no impact to the region, "losing a few acres here and there would not result in a large impact to the overall region", and "not concerned about the consequences".

We seem to be at the point where Sherman Marsh is seen by the resource agencies as possessing great value (in the technical sense) as a restoration project, but little value in the mitigation sense. The inconsistency and contradiction are self-evident. If, for the most part, there is little concern around the restoration of over 200 acres of salt marsh to the region, why was Sherman Lake initially regarded as a high restoration priority in terms of grant funding regarding loss? And why would it not provide those same rare functions and values regardless of funding and labor sources? If benefits from adding the Marsh to the landscape are indeed negligible, then impacts from specific projects that might use part of the credited area for mitigation should de facto be

considered equally as minor within the context of the biophysical region. If negligible, then these impacts should not require mitigation, regardless of the type, functions, or values of the impacts resources.

CONCLUSION

It is MaineDOT's concern that despite the potential of mitigation bank sites to contribute on a landscape scale, decision-makers are reluctant to go beyond a project-by-project consideration of either impacts or compensation. As one interviewee put it, there is fear of making a "misstep". Several interviewees went as far as to say they continue to be uncomfortable with mitigation banking because of its "newness". While this process may be relatively new to New England, in other parts of the country it has been successful for decades. Some participants in the Sherman Marsh process seem unwilling or unable to translate national experience to a regional or state-specific level. Maine's in lieu fee mitigation program faced the same initial resistance, but is now touted as a functional, efficient and effective method to mitigate in a coordinated fashion on an ecosystem scale. As a state transportation agency charged with responsible use of resources, our concern going forward is that the mitigation banking system is not inherently nimble enough to respond to sudden opportunities. Should Sherman Marsh deposit prove unsuccessful either through insufficient credit award to balance costs or due to restrictions that limit its usefulness, it is unlikely that MaineDOT will continue to pursue mitigation banking on any significant scale. DOTs are one of the few types of agencies that can bring institutional heft, continuity, technical expertise, and significant funding to these projects. The view that only "proactive" ecological gains are desirable will inevitably slow landscape level restoration, and negate the potential to partner on significant restoration initiatives. Mitigation banking seems to be perhaps the best way currently available to create a formalized, ongoing restoration partnership with real continuity and structure between DOTs and resource agencies that ultimately transcends individual projects. It may be the only way to engage DOTs in landscape-scale thinking. Regarding MaineDOT, this may be the only opportunity for some time to come and the opportunity for a paradigm shift shouldn't be minimized. Banking should be encouraged, not discouraged using technicalities based on fear of uncertainty.

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Judy Gates has served as the Director of MaineDOT's Environmental Office since 2006 where she provides advanced management to diverse groups of scientists and specialists who implement policies, programs, projects and practices related to environmental, cultural, functional and regulatory aspects of state transportation systems; advocates for the Department's mission in the interpretation and application by external parties of statutes and regulations; participates in the development of both long-range and triennial work plans; and oversees diverse

stakeholder efforts focused on improving resource management and increasing predictability of the regulatory environment. Prior to MaineDOT, Judy worked for seven years with the Maine Department of Environmental Protection coordinating their natural resource licensing program, and three years with the Maine Department of Agriculture. Judy earned a B.S. in Agriculture from West Virginia University, an M.S. in Plant & Soil Science and an M.S. in Forest Biology from the University of Maine Orono, and is ABD in the Ph.D. in Public Policy program at the University of Southern Maine's Muskie School of Public Service.

Deane Van Dusen is a registered Landscape Architect and a member of the American Society of Landscape Architects (ASLA-1050). He has been employed at MaineDOT for 24 years and is currently overseeing wetland assessments, ESA - Section 7, animal passage and compensatory mitigation. Deane has researched and designed projects involving fluvial geomorphology in natural channel restoration as ways to mitigate for stream impacts. He was a trailblazer in the development of the state's In Lieu Fee Program (2007) which has streamlined the federal and state mitigation permitting process. Deane developed the Maine Umbrella Mitigation Banking Instrument (2011) for the department and is currently pursuing new sites for deposit. This is the first federally recognized wetland bank in the ACOE New England District. Deane is a graduate of the University of Massachusetts (BS) and has completed MA course work at the University of Southern Maine in Public Policy and Management.

Charles Hebson is Manager of the Surface Water Resources Division in the MaineDOT Environmental Office. He holds a PhD in Hydrology/Water Resources (Civil Engineering) from Princeton University and a ScB (Civil Engineering) from Brown University. His responsibilities include hydrology and hydraulics for transportation design, special projects with significant water-related environmental issues, and special emphasis on field evaluations and design for fish passage. Charlie also provides technical support to ongoing policy development related to fish passage and stormwater as well as development of technical guidance materials for hydrology, hydraulics, and fish passage design. The Surface Water Resources Division includes 2 engineers, 2 hydrologists, 1 environmental specialist, and 2 field representatives.