

In-Lieu Fee Program Case Studies: Lessons Learned for Potentially Expanding In-Lieu Fee Habitat Coverage in Virginia



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Erika Bosack, J.D. Candidate 2022
Virginia Coastal Policy Center
William & Mary Law School

Luke Miller, J.D. Candidate 2022
Virginia Coastal Policy Center
William & Mary Law School



Spring 2022

About the Authors



Animal Law Society.

Erika Bosack is a third-year law student at William & Mary Law School and a member of the Spring 2022 VCPC Practicum. She grew up in Manassas, Virginia and got her undergraduate degree from William & Mary in International Relations with a minor in Environmental Science and Policy. During law school, she completed the Environmental Law Concentration. She was a staff member for the William & Mary Environmental Law and Policy Review, which published her student Note. She was also Co-President of the Student Environmental and



Luke Miller is a third-year law student at William & Mary Law School with a concentration in Environmental Law. He grew up in Strasburg, Pennsylvania and has degrees in English and Planetary Science & Astronomy from Penn State. At William & Mary, he is a member of the Moot Court Competition Team, the Environmental Law and Policy Review, and was Co-President of the Student Environmental and Animal Law Society. He is a member of the Spring 2022 VCPC Practicum.

About the Virginia Coastal Policy Center

The Virginia Coastal Policy Center (VCPC) at William & Mary Law School provides science-based legal and policy analysis of ecological issues affecting the state's coastal resources, by offering education and advice to a host of Virginia's decision-makers, from government officials and legal scholars to non-profit and business leaders.

With two nationally prominent science partners – the Virginia Institute of Marine Science and Virginia Sea Grant – VCPC works with scientists, local and state political figures, community leaders, the military, and others to integrate the latest science with legal and policy analysis to solve coastal resource management issues. VCPC activities are inherently interdisciplinary, drawing on scientific, economic, public policy, sociological, and other expertise from within the University and across the country. With access to internationally recognized scientists at VIMS, to Sea Grant's national network of legal and science scholars, and to elected and appointed officials across the nation, VCPC engages in a host of information exchanges and collaborative partnerships.

CONTACT US

Please contact
Elizabeth Andrews
(eaandrews@wm.edu)
if you have comments,
questions, or suggestions.

VCPC grounds its pedagogical goals in the law school's philosophy of the citizen lawyer. VCPC students' highly diverse interactions beyond the borders of the legal community provide the framework for their efforts in solving the complex coastal resource management issues that currently face Virginia and the nation.

I. INTRODUCTION

In 2021, NASA completed its most recent round of shoreline stabilization for its flight facility at Wallops Island, a barrier island off the coast of Virginia’s Eastern Shore. The northeast portion of Wallops Island is a known breeding area for the federally threatened piping plover, and to a lesser extent, a nesting area for the federally threatened loggerhead sea turtle.¹ NASA had obtained a permit to conduct this work through the proper federal (National Oceanic and Atmospheric Administration (“NOAA”) and U.S. Fish and Wildlife Service (“USFWS”)) and state (Virginia Marine Resources Commission (“VMRC”)) channels. A condition of the state and federal permits was that work not occur during the known seasons for threatened and endangered species as much as possible.² NASA’s contractors were required to stop work during the nesting season when piping plover and American oystercatcher nests were found on the beach, per additional permit conditions.³ However, NASA later requested—and was granted—an amended permit to allow work to proceed during known breeding and nesting seasons.⁴ The Nature Conservancy (“TNC”), concerned about the activities occurring on Wallops Island during nesting and breeding seasons, submitted a letter to VMRC asking the agency to issue a stop-work-order.⁵ VMRC responded to TNC that they had reviewed the project activities and determined they were not in violation of the permit.⁶ NASA conducts this shoreline stabilization work every few years.⁷

¹ Audio recording: Interview with Ruth Boettcher, Coastal Terrestrial Biologist, Va. Dep’t of Wildlife Res., at 06:15 (on file with VCPC). *See also* U.S. FISH AND WILDLIFE SERV., WALLOPS FLIGHT FACILITY UPDATE AND CONSOLIDATION OF EXISTING BIOLOGICAL OPINIONS, ACCOMACK COUNTY, VA, PROJECT NO. 2015-F-3317 (June 7, 2019) (on file with VCPC)..

² Commonwealth of Va. Marine Res. Comm’n Permit No. 2018-1590 at 2 (Jan. 22, 2019) [hereinafter “VMRC Permit”] (stating, under Condition 19(a), that “[i]n any given year activities shall not begin until the last piping plover or American oystercatcher chicks have fledged or the last sea turtle nest has hatched or been deemed nonviable by [Virginia Department of Wildlife Resources] staff, whichever is later.”); U.S. FISH AND WILDLIFE SERV., *supra* note 1, at 2 (“To minimize impacts to . . . plovers, and loggerheads, sand excavation on north Wallops Island will not begin until after the last plover chick has fledged or the last loggerhead has hatched, whichever is later.”).

³ VMRC Permit, *supra* note 2 (stating, under Condition 19(b-e), that “[e]very effort shall be made to complete activities by March 15 of any year. If work must continue past the March 15[] deadline, daily monitoring for red knot migrants and nesting piping plovers and American oystercatchers shall begin on March 15 and continue until the last chicks of either species fledges. Daily sea turtle nest patrols shall begin on May 1, and continue until the last nest hatches or is deemed nonviable by [Virginia Department of Wildlife Resources (VDWR)] staff. If a piping plover or sea turtle nest is found before sand mining and renourishment activities are completed, all activities must cease until the [Wallops Flight Facility] staff has notified the USFWS and [VDWR] and [VDWR] has completed an on-site determination about whether or not construction activities may continue.”); U.S. FISH AND WILDLIFE SERV., *supra* note 1, at 3 (“ . . . [D]epending on the start date, the work may overlap with the arrival and/or nesting of the species Starting March 15 of each year, a biological monitor will conduct a daily survey of the whole of Wallops Island beach for nesting plovers and sea turtles. Any nests discovered will be immediately exclosed and geolocated. The biological monitor will coordinate directly with onsite project personnel to ensure they are aware of nesting status and the need to suspend work activities within 1,000 ft of a nest until chicks have fledged and/or sea turtles have hatched.”).

⁴ E-mail from Shari A. Miller, Center NEPA Manager & Environmental Planning Lead, NASA GSFC Wallops Flight Facility, to Amy Ewing, VDWR (Apr. 3, 2020, 04:32 PM EST) (on file with VCPC).

⁵ Letter from Locke W. Ogens, Virginia State Director, The Nature Conservancy, to Steven G. Bowman, Commissioner of Marine Resources, Va. Marine Res. Comm’n (June 21, 2020) (on file with VCPC).

⁶ Letter from Steven G. Bowman, Commissioner of Marine Resources, Va. Marine Res. Comm’n, to Locke W. Ogens, Virginia State Director, The Nature Conservancy (July 2, 2020) (on file with VCPC).

⁷ Interview with Ruth Boettcher, *supra* note 1, at 17:38. *See* U.S. FISH AND WILDLIFE SERV., *supra* note 1, at 74-75.

The next shoreline stabilization project is slated for federal FY 2025 (S. Miller, pers. Commc'n). An ongoing concern for some stakeholders is that NASA has never been required to mitigate or compensate for the damage caused by the shoreline stabilization activities.⁸

In 2008, the federal Environmental Protection Agency (“EPA”) and United States Army Corps of Engineers (“USACE”) promulgated a joint rule governing compensatory mitigation “for unavoidable adverse impacts to wetlands, streams and other aquatic resources authorized by Clean Water Act Section 404 permits and other Department of the Army (“DA”) permits,” hereinafter referred to as the “2008 Mitigation Rule.”⁹ The rule defined multiple types of compensatory mitigation to “compensat[e] for the aquatic resource functions that will be lost as a result of the permitted activity. . . .”¹⁰:

In-lieu fee program means a program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for DA permits. Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu fee program sponsor. However, the rules governing the operation and use of in-lieu fee programs are somewhat different from the rules governing operation and use of mitigation banks. . . .

...

Mitigation bank means a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor.

...

...

Permittee-responsible mitigation means an aquatic resource restoration, establishment, enhancement, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility.¹¹

Mitigation banks and in-lieu fee programs rely on a system whereby credits are made available for sale to entities who need to compensate for their unavoidable environmental impacts.¹² The 2008

⁸ Interview with Ruth Boettcher, *supra* note 1, at 10:39.

⁹ Compensatory Mitigation for Loss of Aquatic Resources, 73 Fed. Reg. 19,593 (Apr. 10, 2008) (codified at 33 C.F.R. pt. 332).

¹⁰ 33 C.F.R. § 332.3(a)(1).

¹¹ 33 C.F.R. § 332.2.

¹² *Mitigation Banking Guide*, TELLURIUM PARTNERS, <https://telluriumpartners.com/mitigation-banking-guide/> (last visited Oct. 26, 2022).

Mitigation Rule established a hierarchy of the different compensatory mitigation types: mitigation banks first, followed by in-lieu fee (“ILF”) programs, and lastly, permittee-responsible mitigation.¹³ The rule also created new ILF program requirements to “improve accountability and performance.”¹⁴ Specifically, the rule requires a Compensation Planning Framework (“CPF”) for each ILF program.¹⁵ The CPF “is essentially a watershed plan designed to support resource restoration,”¹⁶ and details the process by which the program will select and conduct mitigation activities.¹⁷ Each CPF must describe: historical loss of aquatic resources in the service area; current environmental conditions and threats to resources; restoration goals for each resource; a long-term management plan; a strategy for periodic reporting on the program’s progress; and how stakeholders were involved in plan development and implementation.¹⁸ The project sponsor must begin the mitigation project “by the third full growing season after the first advance credit in that service area is secured by a permittee, unless the district engineer determines that more or less time is needed. . . .”¹⁹ The 2008 Mitigation Rule requires a minimum five-year monitoring period for all mitigation projects.²⁰

While Virginia has an ILF program already—the Virginia Aquatic Resources Trust Fund (“VARTF”)—as described below, it can only be used for compensatory mitigation in wetlands, not coastal or marine environments. Another ILF program could be a solution to requiring mitigation for protected species, migratory birds, shorebirds, and other types of fish and wildlife habitat loss induced by development projects in the Commonwealth, such as that on Wallops Island. ILFs enable the collection of payments from developers whose projects will cause impacts to covered resources.²¹ The developers purchase credits to satisfy their mitigation obligations, and the ILF program pools the money to implement an environmental restoration project, or enhancement or preservation of existing resources.²² The responsibility for creating, implementing, and monitoring the mitigation project thus transfers from the developer to the ILF Program Sponsor, which can be a state agency or nonprofit organization.²³ ILF programs can sell credits in advance of securing control of a project site or beginning mitigation work, which reduces the program’s startup costs.²⁴ An interagency review team (“IRT”) approves of each mitigation project.²⁵ Mitigation projects must be sited within the same service area as the environmental

¹³ 33 C.F.R. § 332.3(b)(3-4).

¹⁴ 73 Fed. Reg., *supra* note 9, at 19,599-600.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ 33 C.F.R. § 332.8(c)(1).

¹⁸ *Id.* at (c)(2).

¹⁹ 33 C.F.R. § 332.8(n)(4).

²⁰ 33 C.F.R. § 332.6(b).

²¹ *See* 73 Fed. Reg., *supra* note 9, at 19,595.

²² *Id.* at 19,594.

²³ *Id.* at 19,594-95.

²⁴ ENV’T LAW INST. & STETSON UNIV. COLL. L. INST. FOR BIODIVERSITY SCI. & POL’Y, IN-LIEU FEE MITIGATION: REVIEW OF PROGRAM INSTRUMENTS & IMPLEMENTATION ACROSS THE COUNTRY 6-7 (June 2019), <https://www.eli.org/sites/default/files/eli-pubs/lieu-fee-mitigation-review-program-instruments-and-implementation-across-country.pdf>.

²⁵ *See* 33 C.F.R. § 332.8(j).

impact.²⁶ Broadly, service areas are designated based on factors such as hydrological connectivity, historical environmental impacts and resource loss, and demand for development projects.²⁷

This white paper contains case studies of coastal ILF programs across the United States: Maine Natural Resources Conservation Program (“MNRCP”), Northwest Florida Water Management District (“NFWFMD”) ILF Program, Keys Restoration Fund (“KRF”), Sacramento District California ILF Program, Maryland Department of the Environment ILF Program, and Virginia Aquatic Resources Trust Fund (“VARTF”). The Conclusion will provide general recommendations and questions to consider in deciding whether and how to implement an in-lieu fee program for wildlife habitats in Virginia. Each program has a unique regulatory structure and method for selecting projects on which to spend their funds. The programs do tend to face similar challenges and provide similar benefits. Common challenges include securing buy-in from private landowners and completing the state and federal permit processes for mitigation projects by the third growing cycle after selling credits. Despite these frequent hurdles, program sponsors have observed that the programs streamline the permitting process for developers, which reduces the cost of building new projects. ILF programs allow for larger, more impactful mitigation projects, instead of proceeding by a piecemeal approach where the permittees must compensate for only their own environmental impacts.

II. CASE STUDIES

A. MAINE NATURAL RESOURCES CONSERVATION PROGRAM

The Maine Natural Resource Conservation Program (“MNRCP”), established October 3, 2007, is the state of Maine’s ILF program.²⁸ Applicants for permits from the Maine Department of Environmental Protection (“MDEP”) and USACE New England District can pay into the fund when mitigation is required.²⁹ MDEP is the Program Sponsor, and The Nature Conservancy (“TNC”) is the Program Administrator.³⁰ Utilizing a third-party Administrator addresses the concern that MDEP would otherwise lack the resources to administer the fund, and isolates the fund from state books so it cannot be redirected elsewhere.³¹ Payment into the fund transfers the responsibility for mitigation under a Maine Natural Resources Protection Act or other permit (e.g., those required under Sections 401 and 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act) from the applicant to MDEP.³²

²⁶ 33 C.F.R. § 332.3(b)(1). *See* 33 C.F.R. § 332.8(d)(6)(ii)(A).

²⁷ *See* § 332.8(d)(6)(ii)(A).

²⁸ ME. DEPT. ENV’T PROT., STATE OF MAINE - IN LIEU FEE PROGRAM INSTRUMENT 1 (Aug. 17, 2011) [hereinafter “ME. INSTRUMENT”],

https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Mitigation/ME/NRCP/ILFP_ME.pdf.

²⁹ *See id.*

³⁰ *Id.*

³¹ Audio Recording: Interview with Bryan Emerson, Mitigation Program Manager, TNC Maine, at 14:50, 16:35 (Feb. 11, 2022) (on file with VCPC).

³² ME. INSTRUMENT, *supra* note 28, at 5. *See generally* EPA, OVERVIEW OF CWA SECTION 401 CERTIFICATION (last updated Apr. 22, 2022), <https://www.epa.gov/cwa-401/overview-cwa-section-401-certification>; EPA, PERMIT PROGRAM UNDER CWA SECTION 404 (last updated Apr. 20, 2022), <https://www.epa.gov/cwa-404/permit-program->

Title 38 of the Maine Revised Statutes, Section 480-Z authorizes compensation for unavoidable losses to a protected area.³³ The statute defines such “areas” to include: Freshwater wetlands; Coastal wetlands; Significant vernal pool habitat; High and moderate value waterfowl and wading bird habitat, including nesting and feeding grounds; Shorebird nesting, feeding and staging areas; and Rivers, streams and brooks.³⁴ MDEP may allow the payment of a fee as compensation, in lieu of a traditional applicant-sponsored compensation project.³⁵ Any fund established is to be “dedicated to payment of costs and related expenses of restoration, enhancement, preservation and creation projects.”³⁶

Advanced credits available by service area are based on the estimation of impacts over the previous five years.³⁷ The credits required to mitigate an impact are determined on a case-by-case basis by MDEP and USACE.³⁸ Thirty advanced credits is the minimum that was made available in a service area, in order to ensure desirably large projects could be pursued.³⁹ “Advance credits convert to released credits” when a site has been protected by a long-term mechanism such as fee acquisition by a conservation entity or a conservation easement.⁴⁰ For restoration projects, credits are released once the restoration work has been completed, the long-term monitoring has been completed, and the site has been deemed successful by MDEP and USACE.⁴¹

Fees are calculated by land valuation and the projected cost of project planning, construction, and long-term monitoring.⁴² Fees are set on a county-by-county basis, and available on an MDEP provided Fact Sheet.⁴³ Fees for impacts to certain resources are multiplied by two to reflect the significance of those resources.⁴⁴ TNC holds and invests funds received from MDEP in a separate account for each service area.⁴⁵ Funds are required to be invested in a manner that

[under-cwa-section-404](#); EPA, SECTION 10 OF THE RIVERS AND HARBORS APPROPRIATION ACT OF 1899 (last updated Apr. 20, 2022), <https://www.epa.gov/cwa-404/section-10-rivers-and-harbors-appropriation-act-1899>.

³³ ME. STAT. tit. 38, § 480-Z (2019).

³⁴ 38 § 480-Z(7).

³⁵ E-mail from Bryan Emerson, Mitigation Program Manager, TNC Maine, to authors (May 16, 2022) (on file with VCPC).

³⁶ 38 § 480-Z(3)(B)(1).

³⁷ ME. INSTRUMENT, *supra* note 28, at 6.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ E-mail from Bryan Emerson, *supra* note 35..

⁴² ME. INSTRUMENT, *supra* note 28, at 7.

⁴³ ME. DEPT. ENV'T PROT., FACT SHEET: IN LIEU FEE COMPENSATION PROGRAM, https://www.maine.gov/dep/land/nrpa/ILF_and_NRCP/ILF/fs-in-lieu-fee.pdf (last visited May 9, 2022).

⁴⁴ *Id.* at 2. Fees are multiplied for direct impacts to: “Wetland areas containing at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, except for artificial ponds or impoundments and areas of wetland routinely altered by anthropogenic activities such as road ditches etc.; . . . peatlands dominated by shrubs, sedges, and sphagnum moss; . . . coastal wetlands; . . . freshwater wetland areas contained within inland wading bird & waterfowl habitat; . . . shorebird habitat and associated buffers; . . . great ponds; and . . . freshwater wetland areas contained within a significant vernal pool habitat.” Fees are also multiplied for “indirect impacts to shorebird habitat and associated buffers.”

⁴⁵ ME. INSTRUMENT, *supra* note 28, at 10.

prioritizes “the safety of the principle amount.”⁴⁶ Fifteen percent of funds received go towards administrative overhead costs, with MDEP receiving 7.05% and TNC receiving 7.95%.⁴⁷

Projects are solicited through a competitive grant process.⁴⁸ Compared to a sponsor- or administrator-run site selection process, this allows the fund to outsource site selection while providing applicants guidance on the priorities they are seeking to address.⁴⁹ On the other hand, applicants will often have their own goals and ideas that will need to be aligned with the program’s.⁵⁰ Grant applicants are invited to submit Letters of Intent, which are reviewed by MDEP, USACE, and the Program Administrator for compatibility with the Compensation Planning Framework (CPF).⁵¹ Acceptable projects are invited to submit full proposals.⁵²

The Compensation Project Review Committee⁵³ meets twice a year to review grant proposals and present funding recommendations to the Interagency Review Team (IRT).⁵⁴ The Program Administrator provides administrative support and record-keeping for the IRT.⁵⁵ The Committee prioritizes the following considerations: Potential to Meet MNRCP Goals (35%), including resource types, proximity to impacts, and the action (restoration v. preservation) intended; Landscape Context (20%), including the presence of areas or resources of significant conservational value; Project Readiness/Feasibility (20%), including landowner willingness and exposure to adverse impacts; Project Sponsor Capacity (15%), including long-term sustainability of the project and level of support from relevant agencies and the community; Cost Effectiveness (10%); and Other Benefits (5%).⁵⁶

Active restoration sites are monitored for five years jointly by TNC, MDEP, and USACE.⁵⁷ The pandemic has negatively affected recent site visitation, but the goal is to see every site at least once every two years.⁵⁸ Where projects are not on track to meet performance standards, adaptive management is put into place to bring the project into compliance.⁵⁹ For example, where the removal of a logging road impacting a salt marsh was not revegetating as planned, it was addressed by transplanting plugs to the site and increasing the monitoring period.⁶⁰ TNC has recently started

⁴⁶ *Id.*

⁴⁷ E-mail from Bryan Emerson, *supra* note 35.

⁴⁸ ME. INSTRUMENT, *supra* note 28, at 18; Interview with Bryan Emerson, *supra* note 31, at 4:50.

⁴⁹ *Id.* at 33:30.

⁵⁰ *Id.* at 34:41.

⁵¹ ME. INSTRUMENT, *supra* note 28, at 10-11.

⁵² *Id.* at 11.

⁵³ *Id.* at 9; E-mail from Bryan Emerson, *supra* note 35. The Review Committee includes representatives from MDEP (MDEP chairs the Committee), USACE, Maine Department of Inland Fisheries and Wildlife, Maine Department of Agriculture, Conservation and Forestry, Maine Department of Marine Resources, Maine Department of Transportation, Maine Audubon, and Maine Municipal Association. As the Program Administrator, TNC is a non-voting member.

⁵⁴ ME. INSTRUMENT, *supra* note 28, at 9-10. The IRT is composed of federal and state agency representatives and is chaired by the USACE and MDEP.

⁵⁵ *Id.* at 10.

⁵⁶ *Id.* at 18-20.

⁵⁷ Interview with Bryan Emerson, *supra* note 31, at 6:48.

⁵⁸ *Id.* at 8:15.

⁵⁹ *Id.* at 8:58.

⁶⁰ *Id.* at 9:26.

an internal audit, looking at past projects where the monitoring period has ended and credits have fully been released.⁶¹ Bryan Emerson, TNC’s Mitigation Program Manager for the state of Maine, identified this as a beneficial change to the program.⁶²

One notable difference between the operating environment in Maine and Virginia is the lack of mitigation banks operating in Maine.⁶³

B. FLORIDA’S ILF PROGRAMS

Unlike Maine, Florida does not have a statewide ILF program. Rather, the state’s ILF programs are small and geographically distinct. One reason for this is that there are many active mitigation banks in Florida,⁶⁴ and the ILF programs fill gaps in their coverage.⁶⁵ This white paper will analyze the most well-established ILF programs in the state: the Northwest Florida Water Management District (“NFWWMD”) ILF Program and the Keys Restoration Fund (“KRF”).

i. Northwest Florida Water Management District

The NFWWMD’s ILF program began in 2006, and its instrument was most recently updated in 2015.⁶⁶ The NFWWMD, “an entity of the State of Florida,” is the program sponsor.⁶⁷ The program functions to mitigate the Florida Department of Transportation’s (“FDOT”) unavoidable environmental impacts, authorized under federal and/or state permitting programs.⁶⁸ With FDOT concurrence, 0.06 credits were provided to CSX Railroad in 2015, but since then, the position of FDOT and NFWWMD has been that the ILF program is reserved for FDOT use only.⁶⁹ This structure is the product of Fla. Stat. Section 373.4137, which requires FDOT to submit a list to NFWWMD of upcoming development projects annually, for which they will need to mitigate the environmental impacts.⁷⁰ The Florida legislature found that “environmental mitigation for the impact of transportation projects proposed by the Department of Transportation or a transportation authority . . . can be more effectively achieved by regional, long-range mitigation planning rather than on a project-by-project basis;”⁷¹ therefore, it required FDOT to use mitigation banks or ILF programs to consolidate its impacts.⁷² Instead of compensating the relatively small impacts of

⁶¹ *Id.* at 12:15.

⁶² *Id.*

⁶³ *Id.* at 37:29.

⁶⁴ *See, e.g.*, USACE, RIBITS: REGULATORY IN-LIEU FEE AND BANK INFORMATION TRACKING SYSTEM, <https://ribits.ops.usace.army.mil/ords/f?p=107:158:2414074326653::NO> (last accessed Apr. 16, 2022) (showing 136 active mitigation banks in Florida).

⁶⁵ Audio Recording: Interview with David Clayton & Robert Lide, Environmental Scientists, Nw. Fla. Water Mgmt. Dist., at 1:08:00 (Mar. 16, 2022) (on file with VCPC).

⁶⁶ NW. FLA. WATER MGMT. DIST., IN-LIEU FEE MITIGATION PROGRAM 2022 ANNUAL REPORT 3 (Mar. 31, 2022), https://www.nfwwater.com/content/download/19414/129942/NFWWMD_ILF_2022_Program_Report_Final.pdf.

⁶⁷ NW. FLA. WATER MGMT. DIST., IN-LIEU FEE MITIGATION PROGRAM FINAL INSTRUMENT 7 (Nov. 25, 2014) [hereinafter “NFWWMD Instrument”], https://www.nfwwater.com/content/download/8264/68254/ILF_Final_Instrument_031815b.pdf.

⁶⁸ *Id.* at 7, 12.

⁶⁹ E-mail from Robert Lide, Environmental Scientist, NFWWMD, to authors (May 17, 2022) (on file with VCPC).

⁷⁰ FLA. STAT. § 373.4137 (2022).

⁷¹ *Id.* at § (1).

⁷² *Id.*

several projects separately, ILFs and other mitigation methods can consolidate many small impacts into a larger mitigation project that is more impactful.⁷³

Like the 2008 Mitigation Rule, the Florida statute prioritizes mitigation banks over ILF programs; if there is an active mitigation bank with available credits in the water management district, FDOT must use the mitigation bank credits.⁷⁴ Around 63% of the NFWFMD jurisdiction is not covered by a private bank service area, as more mitigation banks are located in the south, where there is more development.⁷⁵

The NFWFMD ILF program generates credits for four types of wetlands: estuarine emergent, palustrine emergent, palustrine scrub/shrub, and palustrine forested.⁷⁶ The service area for the program is the NFWFMD, which spans 11,305 square miles and seven watersheds.⁷⁷ In 1972, well before the ILF program was established, Florida determined the boundaries of each water management district “primarily by watersheds and related natural hydrologic and geographic features.”⁷⁸ Consistent with the 2008 Mitigation Rule, the NFWFMD ILF sites its mitigation projects within the same watershed as the impacts being mitigated.⁷⁹ USACE, in consultation with the IRT, approves a project-specific area for this purpose.⁸⁰ The IRT is chaired by USACE and includes the EPA, U.S. Fish & Wildlife Service (“USFWS”), NOAA’s National Marine Fisheries Service (“NMFS”), Florida Fish & Wildlife Conservation Commission, and the Florida Department of Environmental Protection.⁸¹

There are seven projects carried over from the prior version of the NFWFMD ILF program, which was called the Umbrella Plan.⁸² Each project has a detailed project plan which contains specific and quantitative information about how the site was originally selected; goals for restoring, enhancing, or preserving certain areas; a detailed work plan; planned maintenance, long-term management, and monitoring actions; quantitative performance standards; and a determination of how many credits each project will generate.⁸³ NFWFMD uses the Uniform Mitigation Assessment Method (“UMAM”) to calculate “the amount of mitigation needed to offset adverse impacts to wetlands and other surface waters and to determine mitigation bank credits awarded and debited.”⁸⁴ The UMAM scores an assessment area based on the functions it provides to its plant and animal communities, comparing the current condition with projected impacts of mitigation.⁸⁵ Various ecological and hydrological factors must be considered, including time lag between the adverse environmental impact and the completion of the mitigation project, as well as

⁷³ See *id.*; see also FLA. STAT. § 373.4135(1) (2022).

⁷⁴ *Id.* at § (2)(c).

⁷⁵ Interview with David Clayton & Robert Lide, *supra* note 65, at 2:30.

⁷⁶ NW. FLA. WATER MGMT. DIST., *supra* note 66, at 5.

⁷⁷ NFWFMD INSTRUMENT, *supra* note 67, at 10.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ Interview with David Clayton & Robert Lide, *supra* note 65, at 2:30.

⁸² NFWFMD INSTRUMENT, *supra* note 67, at 7. The Umbrella Plan agreement was signed between USACE and NFWFMD in 2006.

⁸³ NW. Fla. Water Mgmt. Dist., *In-Lieu Fee Program* (see list under “ILF Projects”), <https://www.nfwwater.com/Water-Resources/Regional-Wetland-Mitigation-Program/In-Lieu-Fee-Program>.

⁸⁴ NFWFMD INSTRUMENT, *supra* note 67, at 16.

⁸⁵ See FLA. ADMIN. CODE ANN. r. 62-345.400-500 (2007).

the risk that the project may fail.⁸⁶ The Florida legislature requires all state agencies and mitigation project providers to use this unified method to increase consistency throughout the different programs.⁸⁷ It is helpful to have a consistent method for valuing the mitigation credits required for each development project and how many credits each mitigation project can generate; however, this can be more difficult to achieve when a program covers multiple types of resources.⁸⁸

All the NFWFMD's mitigation projects will be monitored, managed, and protected in perpetuity.⁸⁹ The program generally hires outside contractors to carry out monitoring activities per each project plan, using the Florida Natural Areas Inventory ("FNAI"), which is associated with Florida State University and is much cheaper than private sector consulting firms.⁹⁰ At the beginning of the mitigation project, monitoring occurs every year.⁹¹ Depending on the project, twice a year quantitative monitoring may be required for several years, although only one ILF project currently requires twice a year frequency.⁹² Once the project is complete and all its credits have been released, i.e., made available for sale to entities who need to compensate for their unavoidable environmental impacts,⁹³ monitoring will continue once every two to five years.⁹⁴

A strength of the NFWFMD ILF program is that its staff is small, which necessitates self-reliance and self-motivation.⁹⁵ Robert Lide, Environmental Scientist for NFWFMD, said the Water Management District has "great working relationships" with the agencies in its IRT.⁹⁶ This creates a level of trust that the ILF program will get its work done without the need for day-to-day oversight, which enables the program to operate more efficiently.⁹⁷ Transparency in making all the project plans and documents publicly available from NFWFMD bolsters this trust.⁹⁸ Like many of the other ILF programs analyzed in this white paper, the NFWFMD program finds it difficult to find property owners willing to sell their land at fair market value so the program can conduct a mitigation project there; but the NFWFMD policy is to encourage the development of private mitigation banks in areas not currently served, and does not compete with private mitigation banks, so only rarely would the program consider seeking land for a new project.⁹⁹

ii. Keys Restoration Fund

Similar to the NFWFMD ILF program, the Keys Restoration Fund ("KRF") existed under a different name decades before the 2008 Mitigation Rule and updated its instrument more recently

⁸⁶ See FLA. ADMIN. CODE ANN. r. 62-345.500-600 (2007).

⁸⁷ FLA. STAT. § 373.414(18) (2022).

⁸⁸ See *infra* Section C (discussing the lack of a uniform mitigation method as an area of improvement for the Sacramento District ILF Program).

⁸⁹ Interview with David Clayton & Robert Lide, *supra* note 65, at 1:12:00; NFWFMD INSTRUMENT, *supra* note 67, at 19.

⁹⁰ Interview with David Clayton & Robert Lide, *supra* note 65, at 1:12:34; E-mail from Robert Lide, *supra* note 69.

⁹¹ Interview with David Clayton & Robert Lide, *supra* note 65, at 1:12:20.

⁹² E-mail from Robert Lide, *supra* note 69.

⁹³ ENV'T LAW INST., *supra* note 24, at 47.

⁹⁴ Interview with David Clayton & Robert Lide, *supra* note 65, at 1:13:15.

⁹⁵ *Id.* at 1:01:30.

⁹⁶ *Id.* at 1:02:08.

⁹⁷ *Id.* at 1:01:50.

⁹⁸ See *id.* at 04:50.

⁹⁹ Interview with David Clayton & Robert Lide, *supra* note 65, at 23:29; E-mail from Robert Lide, *supra* note 69.

to be in compliance with the 2008 Mitigation Rule. The KRF began in the 1980s as the Keys Environmental Restoration Fund, which was sponsored by the Audubon Society.¹⁰⁰ Since 2013, a different nonprofit organization called Coastal Resources Group has been the Program Sponsor.¹⁰¹ The program’s service area encompasses approximately two thirds of the Florida Keys National Marine Sanctuary, excluding the South Florida mainland as well as Everglades and Biscayne National Parks.¹⁰² The service area is further divided into Upper and Lower project areas, “based on a number of factors including geology, development patterns, historic permitting activity and distinctive wetland plant community types.”¹⁰³ The KRF is considering combining the two project areas to ensure that there is enough demand for development projects and enough supply of mitigation projects.¹⁰⁴

Unlike the NFWFMD ILF program, the KRF only provides mitigation required by federal permits—Clean Water Act Section 404 and Rivers and Harbors Act Section 10 permits, specifically.¹⁰⁵ It does not provide mitigation associated with state permits.¹⁰⁶ The KRF generates credits for impacts to seagrass as well as tidal wetlands, which include marsh and mangrove habitats.¹⁰⁷ In theory, the program could generate credits for freshwater wetlands, but those are so rare in the Florida Keys that projects impacting them are practically never permitted.¹⁰⁸ All projects must be approved by the IRT, which includes USACE, EPA, USFWS, NOAA NMFS and the Florida Keys National Marine Sanctuary, and the Monroe County Department of Growth Management.¹⁰⁹

The number of credits each project generates is calculated using the UMAM, per Florida law, and the credit prices (which fluctuate over time) are based on historical restoration project costs in the area.¹¹⁰ The KRF requires that “[f]ees generated within each Project Area [either the Upper or Lower Keys] . . . be committed to in-kind wetland or seagrass mitigation within that Project Area.”¹¹¹ Some projects tackle both seagrass and tidal wetlands, and the KRF tracks the amount and type of credits generated, released, and sold with spreadsheets using commonly accepted general accounting principles.¹¹² The KRF actively monitors its mitigation projects for five years, and protects and manages them in perpetuity.¹¹³

¹⁰⁰ COASTAL RES. GRP., KEYS RESTORATION FUND IN-LIEU FEE MITIGATION PROGRAM FINAL INSTRUMENT 4, 6 (July 2013) [hereinafter “KRF INSTRUMENT”], <https://www.mangroverestoration.com/wp-content/uploads/2020/03/KRF-ILF.pdf>.

¹⁰¹ *Id.* at 4.

¹⁰² *Id.* at 7; *see id.* at 23 for more detail on service area delineation.

¹⁰³ *Id.* at 7.

¹⁰⁴ Audio Recording: Interview with Laura Flynn, President, Coastal Res. Grp., at 15:39 (Mar. 25, 2022) (on file with VCPC).

¹⁰⁵ KRF INSTRUMENT, *supra* note 100, at 4.

¹⁰⁶ *See id.*

¹⁰⁷ *Id.* at 9.

¹⁰⁸ Interview with Laura Flynn, *supra* note 104, at 5:55.

¹⁰⁹ KRF INSTRUMENT, *supra* note 100, at 7.

¹¹⁰ *Id.* at 8-9.

¹¹¹ *Id.* at 23.

¹¹² Interview with Laura Flynn, *supra* note 104, at 32:16.

¹¹³ *Id.* at 45:40; KRF INSTRUMENT, *supra* note 100, at 10-11.

The daily operations of the KRF are handled by one person, which is currently Laura Flynn, President of Coastal Resources Group.¹¹⁴ She generates new mitigation projects by reaching out to cities, state habitat restoration groups, and landowners who own damaged lands (information the public can access via land appraiser websites).¹¹⁵ A letter of interest to the owner comes next, explaining KRF and the specific project idea.¹¹⁶ If the landowner replies positively to the letter, KRF follows with a letter of engagement, which contains a more conceptual project plan but makes it clear that the project has not yet been and may not be permitted.¹¹⁷ Once that is signed, field assessments can begin and a preliminary project proposal can be submitted to the IRT.¹¹⁸ What follows are more detailed engineering assessments, a mitigation plan, and a budget for the project.¹¹⁹ In this way, the landowner's agreement to the project is in writing and a lot of groundwork has already been laid before the detailed and costly engineering and hydrological studies.¹²⁰ As other ILF programs have experienced, it can be difficult to convince private landowners to sell their land or allow access in perpetuity, so projects on public land are particularly desirable.¹²¹ The state government can also take over the long-term management of public lands projects, reducing the KRF's costs.¹²² When developing projects, the KRF prioritizes the project's sustainability, the degree to which it increases the functionality of the aquatic resource, the use of riparian buffers, ecological connectivity to other habitats, location on or adjacent to public lands, rarity of the resource, urgency in terms of future risks, likelihood of success in achieving the desired environmental benefits, feasibility of the long-term management plan, support from other agencies and the community, and low threats of vandalism or invasive species.¹²³

Like the NFWFMD staff, Ms. Flynn views the small size of the KRF's staff as a strength.¹²⁴ She also emphasized the importance of fostering a good relationship with the IRT, erring on the side of more communication and not less.¹²⁵ She reaffirmed that larger projects are more efficient and less costly overall than a piecemeal approach to compensating for small environmental impacts.¹²⁶ A more technical recommendation she made is to use a transect method for monitoring—taking samples along a line through the project area—as opposed to a plot approach, which only samples one section of the project area and may not be a fully representative sample of how well the project as a whole is achieving its restoration goals.¹²⁷

Because the Florida Keys are particularly vulnerable to the effects of climate change, the KRF has begun to take climate change into account when planning projects to a much greater

¹¹⁴ Interview with Laura Flynn, *supra* note 104, at 27:45; *Meet the Team*, COASTAL RES. GRP., <https://www.mangroverestoration.com/> (last accessed Apr. 28, 2022).

¹¹⁵ Interview with Laura Flynn, *supra* note 104, at 18:42.

¹¹⁶ *Id.* at 24:20.

¹¹⁷ *Id.* at 25:06.

¹¹⁸ *Id.* at 25:55.

¹¹⁹ *Id.* at 26:32.

¹²⁰ *See supra* note 118.

¹²¹ *Id.* at 18:49.

¹²² *Id.*

¹²³ KRF INSTRUMENT, *supra* note 100, at 29-30.

¹²⁴ Interview with Laura Flynn, *supra* note 104, at 29:13.

¹²⁵ *Id.* at 42:20.

¹²⁶ *Id.* at 40:52.

¹²⁷ *Id.* at 13:05.

extent than the other ILF programs featured in this white paper.¹²⁸ When projects have a riparian buffer, the natural area can migrate in response to sea level rise.¹²⁹ KRF projects now include catastrophic climate change as a force majeure, which absolves the KRF of liability if the project area is destroyed by a hurricane or other natural disaster.¹³⁰ Sea level rise can be incorporated into project design by implementing diverse kinds of projects. For example, KRF's projects do not focus only on resources directly on the coast such as mangroves; they also seek to "create some higher elevation areas that will eventually be mangrove in thirty years from now."¹³¹ Adaptive management, a strategy that accounts for uncertainty and provides for implementation of actions in response to unforeseen challenges, can only recover a limited amount of work and costs if the project area is in the path of a catastrophic hurricane.¹³² Other ILF programs would do well to emulate this approach given the pace of climate change. For similar reasons, USACE is considering requiring climate change considerations in permit applications for mitigation projects, though they do not currently.¹³³

C. SACRAMENTO DISTRICT CALIFORNIA ILF PROGRAM

The Sacramento District California ILF program was established in 2014 at the request of the USACE Sacramento District to provide a third-party mitigation option in cases where mitigation bank credits are unavailable.¹³⁴ The National Fish and Wildlife Foundation ("NFWF"), a nonprofit organization, is the Program Sponsor.¹³⁵ The USACE Sacramento District, Region IX of the EPA, NOAA's NMFS, the State of California Water Resources Control Board, Central Valley Regional Water Quality Control Board, and Lahontan Regional Water Quality Control Board make up the IRT.¹³⁶ The program administers aquatic resource credits and vernal pool credits, and its program area is defined as the jurisdictional limits of the USACE Sacramento District within California.¹³⁷ The program area is divided into "17 Aquatic Resource Service Areas and 12 Vernal Pool Service Areas, which spans 37 counties and 65,000 square miles."¹³⁸ The aquatic resources service areas were designed based on a "comprehensive watershed approach," and some river drainages were combined with ecologically similar adjacent river basins "to increase the potential that adequate funds could accrue for viable compensation projects."¹³⁹

¹²⁸ *See id.* at 9:21, 41:15.

¹²⁹ *Id.* at 41:15.

¹³⁰ *Id.* at 9:50.

¹³¹ *Id.* at 41:30.

¹³² *Id.*; KRF INSTRUMENT, *supra* note 100, at 34.

¹³³ Interview with Laura Flynn, *supra* note 104, at 41:30.

¹³⁴ NAT'L FISH & WILDLIFE FOUND., SACRAMENTO DISTRICT CALIFORNIA IN-LIEU FEE PROGRAM AMENDED ENABLING INSTRUMENT 2 (last amended June 17, 2021) [hereinafter "SACRAMENTO INSTRUMENT"], <https://www.nfwf.org/sites/default/files/2022-02/Amended-Enabling-Instrument-Revised-FINAL-02.18.22.pdf>.

¹³⁵ *Id.*

¹³⁶ SACRAMENTO INSTRUMENT, *supra* note 134, at 7.

¹³⁷ NAT'L FISH & WILDLIFE FOUND., SACRAMENTO DISTRICT CALIFORNIA IN-LIEU FEE PROGRAM AMENDED ENABLING INSTRUMENT EXHIBIT B (revised July 27, 2022), <https://www.nfwf.org/sites/default/files/2022-08/exhibit-b-revised-final-10.12.21-revised-07.27.22.pdf>. For a map of the program area, which is located in Northwest and Central California, see NAT'L FISH & WILDLIFE FOUND., SACRAMENTO DISTRICT CALIFORNIA IN-LIEU FEE PROGRAM AMENDED ENABLING INSTRUMENT EXHIBIT A (revised Oct. 12, 2021), <https://www.nfwf.org/sites/default/files/2021-10/EXHIBIT-A-Revised-FINAL-10.12.21.pdf>.

¹³⁸ SACRAMENTO INSTRUMENT, *supra* note 134, at 11.

¹³⁹ NAT'L FISH & WILDLIFE FOUND., EXHIBIT B, *supra* note 137, at 2.

Aquatic resource credits can compensate for “impacts to Riverine, Lacustrine, and Palustrine wetlands, other Waters of the US, Waters of the State, and other aquatic resources including threatened or endangered anadromous fish.”¹⁴⁰ Impacts to anadromous fish are regulated by NMFS under the federal Endangered Species Act as well as the Magnuson-Stevens Fishery Conservation and Management Act.¹⁴¹ The Sacramento District California ILF program mitigates impacts authorized under both federal and state permits.¹⁴²

In-kind mitigation is not required for resources covered in aquatic resource credits;¹⁴³ for example, impacts to anadromous fish could be compensated for with a mitigation project targeting wetlands (although NFWF would prioritize projects that benefit anadromous fish). Impacts to aquatic resources can even be mitigated through vernal pool projects, but not the other way around, because “vernal pools are considered a more specialized credit type in the region.”¹⁴⁴ This flexibility helps NFWF develop meaningful ILF projects to address critical or priority needs,¹⁴⁵ similar to how Maine’s ILF program’s expanded service areas help them generate enough credits for larger projects with more ecological benefits in each one.

Chris Gurney, Wetlands Program Director of the Impact-Directed Environmental Accounts Department of NFWF, agrees that it is difficult to find landowners willing to sell their land for mitigation projects or allow the level of access required for perpetual monitoring.¹⁴⁶ It is therefore easier to conduct mitigation projects on public lands, which are more abundant in California than on the East Coast.¹⁴⁷ Though public partnerships are a particular strength of the Sacramento District California ILF program, public ownership of the land is not a factor in project selection.¹⁴⁸ The factors the ILF program prioritizes in selecting a project are summarized in the Instrument and include: (1) degree to which the project addresses Service Area priorities; (2) potential for re-establishment or rehabilitation of wetlands; (3) use of natural processes in restoring ecological function; (4) extent of connectivity with other protected lands; (5) extent of buffer; (6) experience of project proponent; (7) cost effectiveness; and (8) number of credits generated.¹⁴⁹

¹⁴⁰ NAT’L FISH & WILDLIFE FOUND., SACRAMENTO DISTRICT CALIFORNIA IN-LIEU FEE PROGRAM AMENDED ENABLING INSTRUMENT EXHIBIT C (revised Aug. 16, 2022), <https://www.nfwf.org/sites/default/files/2022-08/exhibit-c-revised-final-06.29.21-revised-08.16.22.pdf>.

¹⁴¹ Audio Recording: Interview with Chris Gurney, Wetlands Program Director, Impact-Directed Environmental Accounts, Nat’l Fish & Wildlife Found., at 06:55 (Apr. 8, 2022) (on file with VCPC).

¹⁴² SACRAMENTO INSTRUMENT, *supra* note 134, at 4.

¹⁴³ Interview with Chris Gurney, *supra* note 141, at 06:24.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.* at 8:10.

¹⁴⁶ *Id.* 11:30.

¹⁴⁷ CONG. RSCH. SERV., FEDERAL LAND OWNERSHIP: OVERVIEW AND DATA 12-13 (updated Feb. 2020), <https://crsreports.congress.gov/product/pdf/R/R42346>.

¹⁴⁸ Interview with Chris Gurney, *supra* note 141, at 12:50.

¹⁴⁹ NAT’L FISH & WILDLIFE FOUND., SACRAMENTO DISTRICT CALIFORNIA IN-LIEU FEE PROGRAM AMENDED ENABLING INSTRUMENT EXHIBIT E 6 (revised Oct. 12, 2021), <https://www.nfwf.org/sites/default/files/2021-10/EXHIBIT-E-Revised-FINAL-10.12.21.pdf>.

In order to ensure compliance with performance standards, the Sacramento District California ILF program has a contingency fund “to allow the [NFWF], with written notice to the IRT, to respond to contingencies that may arise from time to time in implementing the program.”¹⁵⁰ Approximately 10-30% of the sale price of credits goes into a Program Contingency Sub-Account, which is used as a reserve fund and financial security for the ILF program.¹⁵¹ Its uses include responding to contingencies that may arise across the ILF program, including both Aquatic Resource and Vernal Pool Service Areas.¹⁵²

Like other ILF Program Administrators, Mr. Gurney views a good working relationship with the IRT as a strength of this program.¹⁵³ It allows the ILF program to work through the approval processes for mitigation projects more efficiently.¹⁵⁴ The 2008 Mitigation Rule does allow for the USACE district engineer to “determine[] that more or less time is needed to plan and implement an in-lieu fee project.”¹⁵⁵ Accordingly, the Sacramento District California ILF Program Instrument sets forth a project development process whereby the IRT may authorize extensions to the third full growing season timeline, which many programs struggle to meet.¹⁵⁶ In cases where it is not possible to implement a suitable project by the third full growing season, under the project development process, NFWF may obtain extensions of time not to exceed twenty-four months, and thereafter will consult with the IRT as to how to proceed, which may include a specified time extension, the merging of funds with another Service Area, or the purchase of mitigation bank credits.¹⁵⁷ This is a unique approach among the ILF programs analyzed in this paper, and an expanded or new ILF program in Virginia should consider adopting it if it finds the third full growing season rule to be difficult to meet.

One area for improvement in this program is that there is no uniform method for determining how many credits a project generates; it is calculated on a project-by-project basis.¹⁵⁸ Without the consistency a uniform method like Florida’s would provide, there is some uncertainty at the initial project prospectus stage that a project may not generate as many credits as was initially assumed.¹⁵⁹ There are many different methodologies for calculating credit ratios in existence; however, some work well for one particular resource type and not as well for others.¹⁶⁰ There appears to be a tradeoff here, too, between covering multiple types of resources and ease of analysis in determining the credit ratios for each type of project.

¹⁵⁰ SACRAMENTO INSTRUMENT, *supra* note 134, at 24-25.

¹⁵¹ *Id.*; NAT’L FISH & WILDLIFE FOUND., SACRAMENTO DISTRICT CALIFORNIA IN-LIEU FEE PROGRAM AMENDED ENABLING INSTRUMENT EXHIBIT F 5-6 (revised June 3, 2022), <https://www.nfwf.org/sites/default/files/2022-06/exhibit-f-revised-6-3-22.pdf>.

¹⁵² NAT’L FISH & WILDLIFE FOUND., EXHIBIT F, *supra* note 151.

¹⁵³ Interview with Chris Gurney, *supra* note 141, at 38:00.

¹⁵⁴ *Id.* at 38:20.

¹⁵⁵ 33 C.F.R. § 332.8(n)(4).

¹⁵⁶ Interview with Chris Gurney, *supra* note 141, at 14:42.

¹⁵⁷ NAT’L FISH & WILDLIFE FOUND., EXHIBIT E, *supra* note 149, at 3.

¹⁵⁸ Interview with Chris Gurney, *supra* note 141, at 42:22.

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

On the whole, NFWF has heard from permittees that the Sacramento District California ILF program has resulted in a more streamlined permitting process.¹⁶¹

D. MARYLAND DEPARTMENT OF THE ENVIRONMENT ILF PROGRAM

The Maryland Department of the Environment (“MDE”) has utilized an ILF mitigation program for tidal and nontidal wetland impacts since 1996 and 1991, respectively.¹⁶² Since 2013, these programs have been considered out of compliance with the 2008 Federal Mitigation Rule, and can no longer be used to mitigate adverse impacts from activities requiring federal permits under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.¹⁶³ MDE is working to bring their ILF programs into compliance with the 2008 Mitigation Rule, and in 2015 submitted a prospectus to the ILF program’s IRT for comment.¹⁶⁴ There has not yet been further progress made.¹⁶⁵

The biggest challenge to bringing the program in line with the 2008 Mitigation Rule is updating the existing fee structure.¹⁶⁶ The fees in Maryland are not dictated by statute or regulation, and they have not been updated since the program’s inception.¹⁶⁷ Bringing the fees in line with modern valuation will require increases of multiple times the value of current fees.¹⁶⁸ Such increases face significant political challenges, and one lesson learned from the Maryland program is to progressively update fees to avoid facing such a large disparity.¹⁶⁹ For the nontidal fee structure, Kelly Neff, Mitigation and Technical Assistance Section Chief at MDE, plans to institute not just regular fee updates, but to also seek expanded regulatory language instructing what should be considered in those fee updates.¹⁷⁰

MDE has found valuable support for updating the fee rates from the building industry and developers.¹⁷¹ Outreach to this community alleviated concern about the fee increase by characterizing it as a new option for developers; at present, the ILF program is often unavailable for impacts that are greater than “minor” impacts or that require a federal permit.¹⁷² One agreement reached with developers was an understanding that the ILF program can be used

¹⁶¹ *Id.* at 3:15.

¹⁶² MDE’S IN-LIEU FEE PROGRAM,

<https://mde.maryland.gov/programs/water/WetlandsandWaterways/AboutWetlands/Pages/inlieu.aspx> (last visited Apr. 29, 2022).

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ Audio Recording: Interview with Kelly Neff, Mitigation and Technical Assistance Section Chief, Water and Science Administration, Md. Dep’t Env’t, at 00:28 (Apr. 4, 2022) (on file with VCPC).

¹⁶⁶ *Id.* at 00:34, 17:20.

¹⁶⁷ *Id.* at 00:47.

¹⁶⁸ *Id.* at 00:42.

¹⁶⁹ *See id.* at 00:47, 18:00.

¹⁷⁰ *Id.* at 18:00, 18:45.

¹⁷¹ *Id.* at 1:46, 3:29.

¹⁷² *Id.* at 2:46, 15:15, 16:18.

instead of mitigation banks if it appears the available banks are price gouging.¹⁷³ Having the ILF program available for mitigation can expedite the permit process, a boon for permit applicants and MDE alike.¹⁷⁴

The Maryland Tidal Wetlands Act¹⁷⁵ allows the Board of Public Works to require compensation for issuing a wetlands license and creates the Tidal Wetlands Compensation Fund to receive “[a]ny monetary payment by a licensee in lieu of creating, restoring, or enhancing tidal wetlands that is required by the Department [of the Environment] or the Board as a condition of a permit or license.”¹⁷⁶

The Nontidal Wetlands Protection Act states that MDE shall require mitigation practices where “all necessary steps to first avoid significant impairment and then minimize losses of nontidal wetlands . . . were taken and losses or significant impairment of nontidal wetlands are unavoidable”¹⁷⁷ Monetary compensation may be accepted in lieu of these practices “only if it is determined that creation, restoration, or enhancement of nontidal wetlands are not feasible alternatives.”¹⁷⁸ The act then creates the Nontidal Wetland Compensation Fund to hold such compensation.¹⁷⁹

MDE partners with the Chesapeake Bay Trust (“CBT”) to solicit mitigation projects under a grant program funded by the Nontidal Wetland Compensation Fund.¹⁸⁰ This process has worked well for MDE, and alleviated concerns about adhering to the procurement processes required when individuals came forward with projects.¹⁸¹ The most recent Request for Proposals was issued in 2017, and is still available online.¹⁸² Sadie Drescher, Vice President of Programs for Restoration with CBT, said the nontidal wetland program sees a ratio of about two applicants to every award, which is less than some of CBT’s other programs.¹⁸³ This is due to the specific nature of the work, geographic limitations, amount of funding available, and maintenance and monitoring requirements.¹⁸⁴ Nontidal wetland projects are given preference in the following

¹⁷³ *Id.* at 3:55, 13:31.

¹⁷⁴ *Id.* at 14:30.

¹⁷⁵ MD. CODE ANN., ENV’T § 16-205.

¹⁷⁶ MD. CODE ANN., ENV’T § 16-205(c)(2)(i) (West 2013); MD. CODE REGS. 26.24.05.01(B)(4) (2021) (listing the preferred types of mitigation for the loss of tidal wetlands: Restoration; In-Kind creation; Out-of-kind creation; Enhancement of existing tidal wetlands; and Monetary compensation to the Wetlands Compensation Fund).

¹⁷⁷ MD. CODE ANN., ENV’T § 5-909(a) (West 2019).

¹⁷⁸ MD. CODE ANN., ENV’T § 5-909(b)(2) (West 2019).

¹⁷⁹ MD. CODE ANN., ENV’T § 5-909(c) (West 2019).

¹⁸⁰ *Nontidal Wetlands Awards Program*, CHESAPEAKE BAY TR., <https://cbtrust.org/grants/non-tidal-wetlands/> (last visited Apr. 29, 2022); Audio Recording: Interview with Sadie Drescher, Vice President of Programs for Restoration, CHESAPEAKE BAY TR., at 02:00, (Mar. 21, 2022) (noting that CBT has also begun an ILF partnership with the Maryland Port Authority and Critical Area Commission) (on file with VCPC).

¹⁸¹ Interview with Kelly Neff, *supra* note 165, at 33:10.

¹⁸² MD. DEP’T ENV’T AND CHESAPEAKE BAY TR., 2017-2018 NONTIDAL WETLAND GRANT PROGRAM, https://cbtrust.org/wp-content/uploads/FY18_NTW_revisedRFP_final.pdf (last visited Apr. 29, 2022); E-mail from Kelly Neff, Mitigation and Technical Assistance Section Chief, Water and Science Administration, Maryland Department of the Environment, to authors (May 3, 2022) (on file with VCPC) (noting that a new RFP is planned for 2022).

¹⁸³ Interview with Sadie Drescher, *supra* note 180, at 10:20.

¹⁸⁴ *Id.*

order: wetland restoration; creation; enhancement; preservation; and out-of-kind mitigation.¹⁸⁵ Wetland preservation will only be funded as part of a larger restoration or creation project.¹⁸⁶ Nontidal mitigation sites generally must include a buffer area.¹⁸⁷ Projects that fit best into the MDE and CBT award program for nontidal wetlands include sites that have minimal impacts to existing natural resources such as trees and wetlands and sites that do not currently support listed plant or animal species.¹⁸⁸ In the wake of climate change and what inundation might look like in 2050, MDE has considered the possibility of protecting migration zones to enable wetlands to move upland as sea level rises.¹⁸⁹ Environmental justice concerns are also considered, not just at the point of impact, but also how the mitigation project may benefit or harm the communities.¹⁹⁰

Mitigation sites must be protected long-term through (in order of preference): land donated to a third-party long-term land conservation steward; a conservation easement with the third-party holding the easement; or a deed restriction.¹⁹¹ Tidal wetland sites generally require monitoring for five years.¹⁹² Nontidal wetland sites under the 2008 Mitigation Rule generally require monitoring for 10 years; however, starting in year five, if the site meets final standards for two consecutive monitoring years, the project manager may propose an early termination of monitoring and a release of all credits.¹⁹³

E. VIRGINIA AQUATIC RESOURCES TRUST FUND

The Virginia Aquatic Resources Trust Fund (“VARTF”) began operating in 1995 under an agreement between the TNC, as Program Sponsor, and USACE, with the intent to pool fees from projects having relatively small wetlands impacts and use the fees for larger, more beneficial wetlands mitigation projects.¹⁹⁴ The Virginia Department of Environmental Quality (“DEQ”) has

¹⁸⁵ MD. DEP’T ENV’T, COMPONENTS OF A COMPENSATORY MITIGATION PLAN – GUIDANCE FOR DEVELOPING WETLAND AND WATERWAY MITIGATION IN MARYLAND 8-9 (April 1, 2022), <https://mde.maryland.gov/programs/water/WetlandsandWaterways/AboutWetlands/Documents/Components-Mit-Plan-Guidance.pdf>.

¹⁸⁶ *Nontidal Wetlands Awards Program*, *supra* note 180.

¹⁸⁷ MD. DEP’T ENV’T, *supra* note 185 at 14-15.

¹⁸⁸ Interview with Kelly Neff, *supra* note 165, at 26:15; E-mail from Sadie Drescher, Vice President of Programs for Restoration, Chesapeake Bay Trust, to authors (May 17, 2022) (on file with VCPC).

¹⁸⁹ Interview with Kelly Neff, *supra* note 165, at 30:15.

¹⁹⁰ *Id.* at 31:30.

¹⁹¹ MD. DEP’T ENV’T, *supra* note 185, at 16.

¹⁹² MD. CODE REGS. 26.24.05.01(E)(1) (2021); *See also* MD. CODE REGS. 26.24.05.01(E)(3) (2021) (“Through written notification to the permittee or licensee, the Department may extend the required monitoring period for not more than an additional 3-year period, for a total of 8 years, if the mitigation project fails to comply with the standards in §C of this regulation.”).

¹⁹³ MD. DEP’T ENV’T, *supra* note 185, at 21.

¹⁹⁴ *Compensatory Mitigation*, VA. DEP’T ENV’T QUALITY, <https://www.deq.virginia.gov/water/wetlands-streams/compensatory-mitigation> (last visited Apr. 24, 2022); *Virginia Aquatic Resources Trust Fund*, THE NATURE CONSERVANCY, <https://www.nature.org/en-us/about-us/where-we-work/united-states/virginia/stories-in-virginia/virginia-aquatic-resources-trust-fund/> (last visited Apr. 24, 2022).

since joined as a co-administrator.¹⁹⁵ VARTF now operates under its 2019 Program Instrument.¹⁹⁶ Dave Davis, Director of the Office of Wetlands & Stream Protection at DEQ, said that, thanks to the long-running stability of the program and the lack of turnover, valuable institutional knowledge has been retained, with TNC knowing what DEQ is looking to see in project proposals and being able to present it up front.¹⁹⁷ VARTF provides mitigation for nontidal and tidal wetland impacts from projects authorized by USACE permits, Virginia Water Protection permits, and Virginia Marine Resources Commission (“VMRC”) permits.¹⁹⁸ Like many ILF programs, having VARTF in place as an option for permittees helps expedite the permitting process, allowing developers the economic benefits of moving ahead with their projects.¹⁹⁹

Compensation requirements for nontidal wetland permits are laid out in Section 62.1–44.15:21(B) of the Virginia Code: “[C]ompensation . . . may be met through (i) wetland creation or restoration, (ii) purchase or use of mitigation bank credits . . . or (iv) contribution to a Board-approved fund dedicated to achieving no net loss of wetland acreage and functions.”²⁰⁰ Like some other states, Virginia arranges these options in a preferred hierarchy, but allows for an “appropriate compensatory mitigation option on a case-by-case basis with consideration for which option is practicable and ecologically and environmentally preferable”²⁰¹ The Virginia Administrative Code actually goes further by requiring an analysis to “justify that permittee-responsible compensatory mitigation is ecologically and environmentally preferable to the purchase of mitigation bank credits or in-lieu fee program credits with a primary service area that covers the impact site if such credits are available in sufficient quantity for the project at the projected time of need.”²⁰² Under the regulations, mitigation options are “preferred in the following sequence: mitigation banking, in-lieu fee program, and permittee-responsible mitigation.”²⁰³ Compensation is allowed to include preservation of wetlands or adjacent upland buffers as long as the work is done alongside creation or restoration of wetlands, or the purchasing of mitigation bank credits.²⁰⁴

Challenges specific to Virginia tidal²⁰⁵ and nontidal wetlands mitigation are the requirements under Section 62.1–44.15:21(B) of the Virginia Code and Chapter 9, Section 25-

¹⁹⁵ *Virginia Aquatic Resources Trust Fund*, *supra* note 192.

¹⁹⁶ THE NATURE CONSERVANCY, VIRGINIA AQUATIC RESOURCES TRUST FUND (VARTF) 2019 – AMENDED AND RESTATED PROGRAM INSTRUMENT (2019) [hereinafter “VARTF INSTRUMENT”], https://www.nature.org/content/dam/tnc/nature/en/documents/VARTF_Program-Instrument_2019.pdf.

¹⁹⁷ Audio Recording: Interview with Dave Davis, Director of the Office of Wetlands & Stream Protection, and Sarah Woodford, Mitigation Specialist, Dep’t Env’t Quality, at 04:25 (Apr. 5, 2022) (on file with VCPC).

¹⁹⁸ VARTF INSTRUMENT, *supra* note 196, at 6; VA. CODE ANN. § 28.2-1306 (1994) (establishing the Virginia Marine Resources Commission’s power over permitting within wetlands zoning ordinances); VA. CODE ANN. § 28.2-1308(D) (2020) (specifically referencing VARTF, stating, “Where an agreed-upon permit condition requires the contribution of in-lieu fees to offset permitted wetland losses, the wetlands board shall credit the applicant for any in-lieu fee payments made to the Virginia Aquatic Resources Trust Fund . . .”).

¹⁹⁹ Interview with Dave Davis and Sarah Woodford, *supra* note 197, at 2:04.

²⁰⁰ VA. CODE ANN. § 62.1–44.15:21(B) (2021).

²⁰¹ *Id.*

²⁰² 9 VA. ADMIN. CODE § 25-210-116(B)(1) (2021).

²⁰³ *Id.* § (C)(2).

²⁰⁴ *Id.*

²⁰⁵ 4 VA. ADMIN. CODE § 20-390-20 (establishing VMRC’s wetlands mitigation compensation policy: “The need to compensate for all permitted wetland losses is further emphasized by the Commonwealth’s commitment to the restoration of the Chesapeake Bay. In 2000, Virginia, as a Chesapeake Bay Program partner committed to ‘achieve a no-net loss of existing wetlands acreage and function in the signatories’ regulatory programs.’ If Virginia is to meet

210-116 of the Virginia Administrative Code, that compensation be “sufficient to achieve no net loss of existing wetland acreage and functions.”²⁰⁶ Any expansion of an existing ILF to include new habitat types would have to ensure that wetland credits continue to meet the no net loss requirement.²⁰⁷ USACE and DEQ have instituted a requirement that 80 percent of credits from a mitigation bank have to come from wetland restoration or creation actions to meet the no net loss requirement.²⁰⁸ VARTF in particular tracks the exact acreage of impacts they must account for through sales, and once they meet that, any credits above and beyond that can be generated by other types of mitigation, like preservation, enhancement, or upland buffer.²⁰⁹ Sea level rise and any accompanying transformation of nontidal wetlands into tidal ones (a nontidal wetland “loss”) may soon create a challenge for Virginia.²¹⁰

TNC reserves the ability to deny credit sales based on either “impacts to sensitive or priority resources or based on the Conservancy’s ability to mitigate for the impacts in the appropriate watershed.”²¹¹ Advance credit limits are set by program service areas, and laid out in Exhibit B to the Program Instrument.²¹² Once TNC has assumed responsibility for a permittee’s mitigation following a credit sale, TNC submits site proposals to the IRT for approval.²¹³ A Site Development Plan follows an Initial Evaluation Letter, allowing the proposal to proceed.²¹⁴ VARTF’s CPF describes how site selection is approached.²¹⁵

VARTF’s 2011 Instrument instituted mandatory five-year third party audits of the program, which have been very helpful for identifying what it is going well and what can be improved upon.²¹⁶ The 2016 audit,²¹⁷ performed by the Environmental Law Institute, found VARTF in compliance with all examined factors save the requirement of implementing improvements within three growing seasons of Advance Credit sales.²¹⁸ One cause of not meeting this requirement was the delay between acceptance of Initial Evaluation Letters and development

this goal, wetland losses permitted through the tidal wetland regulatory program, no matter how small, must be replaced.”).

²⁰⁶ VA. CODE ANN. § 62.1–44.15:21(B); 9 VA. ADMIN. CODE § 25-210-116(A).

²⁰⁷ Interview with Dave Davis and Sarah Woodford, *supra* note 197, at 11:00.

²⁰⁸ *Id.* at 12:35.

²⁰⁹ *Id.* at 13:12.

²¹⁰ *Id.* at 50:02.

²¹¹ VARTF INSTRUMENT, *supra* note 196, at 6.

²¹² THE NATURE CONSERVANCY, VIRGINIA AQUATIC RESOURCES TRUST FUND (VARTF) 2019 – AMENDED AND RESTATED PROGRAM INSTRUMENT EXHIBIT B (2019), https://www.nature.org/content/dam/tnc/nature/en/documents/VARTF_Exhibit-B-2021_Advance-Credit-Modification.pdf.

²¹³ VARTF INSTRUMENT, *supra* note 196, at 12.

²¹⁴ *Id.*

²¹⁵ THE NATURE CONSERVANCY’S WATERSHED APPROACH TO COMPENSATION PLANNING FOR THE VIRGINIA AQUATIC RESOURCES TRUST FUND (Mar. 2021), https://www.nature.org/content/dam/tnc/nature/en/documents/VARTF-CPF-March2021_Final.pdf.

²¹⁶ VARTF INSTRUMENT, *supra* note 196, at 19; Memorandum from Karen Johnson, VARTF Program Director, The Nature Conservancy, to [VARTF] IRT (May 11, 2016), <https://www.conservationgateway.org/Documents/VARTF2016AuditMemo51116-2.pdf>; Interview with Dave Davis and Sarah Woodford, *supra* note 197, at 39:01.

²¹⁷ ENV’T L. INST., PROGRAM AUDIT OF VIRGINIA AQUATIC RESOURCE TRUST FUND (Apr. 29, 2016), <https://www.conservationgateway.org/Documents/EnvironmentalLawInstituteVARTFProgramAuditReport.pdf>.

²¹⁸ Memo from Karen Johnson, *supra* note 216, at 2-3.

of Site Development Plans.²¹⁹ The third growing season timeline is a requirement of the 2008 Mitigation Rule.²²⁰ In order to ensure future compliance, the 2019 program instrument has been updated to require VARTF to issue a request for proposals for suitable sites or mitigation bank credits if TNC has not found a suitable site two years after the sale.²²¹ Sarah Woodford, Mitigation Specialist with DEQ, said the change has been successful: since the new plan was put into place, a number of old contributions that had not been met with timely expenditures have been addressed.²²² Balancing out these old existing liabilities was identified by Mr. Davis as one of the biggest changes in VARTF between the early days of the program and the present.²²³ Mr. Davis stressed the importance of beginning mitigation projects in a timely fashion and noted that adverse impacts are happening immediately, and mitigation has to happen on the same time frame; it cannot wait on the perfect project or perfect site.²²⁴

Once work has begun, sites are monitored for a period of ten years, with reports submitted following years 1, 2, 3, 5, 7, and 10.²²⁵ Sites must be afforded long-term protection, ideally through a conservation easement.²²⁶ Often TNC serves as the long-term steward of the site, though DEQ has seen an increase in other third-party conservation organizations pursuing that role.²²⁷

III. CONCLUSION

As the above case studies show, ILF programs come in a variety of sizes and structures. In almost all cases they are valuable tools to make permitting processes faster and more efficient. They also transform small, isolated impacts into larger, more ecologically meaningful mitigation projects. However, many routinely face challenges with identifying willing landowners, matching mitigation projects closely (in habitat type and in geography) to adverse impacts, and achieving the requirements set out in the 2008 Mitigation Rule. While the 2008 Mitigation Rule demands a lot from ILF programs, it has galvanized some to expand the amount of monitoring they engage in, take a closer look at past projects deemed completed, and put funds to use on new projects more expeditiously. Multiple programs have expressed a wish that they had begun these actions sooner and noted that they have obvious benefits beyond complying with the 2008 Mitigation Rule.

Emphasizing the ability of the fee to expedite permitting, which is a benefit for state agencies and permit applicants, as well as the economic benefits of allowing development to move forward, should be helpful in garnering support from the development industry and, ultimately, Virginia's administration. MDE saw initial success with this approach when looking to update their fee before the pandemic halted progress. The size and scope of the program do not have to fit neatly inside a box and can be tailored to local needs and available resources. The Sacramento District California ILF Program has successfully managed to group a diverse selection of resources

²¹⁹ *Id.*

²²⁰ 33 C.F.R. § 332.8(n)(4).

²²¹ VARTF INSTRUMENT, *supra* note 196 at 16; Interview with Dave Davis and Sarah Woodford, *supra* note 197, at 28:27.

²²² Zoom Interview with Dave Davis and Sarah Woodford, *supra* note 197, at 32:35.

²²³ *Id.* at 29:30, 38:05.

²²⁴ *Id.* at 38:30.

²²⁵ VARTF INSTRUMENT, *supra* note 196, at 21.

²²⁶ *Id.* at 14.

²²⁷ Interview with Dave Davis and Sarah Woodford, *supra* note 197, at 44:00.

into their fund, but as a result faces the complex task of proper credit accounting per resource, without a concrete methodology to fall back on. KRF and NFWFMD have had success with a very small amount of dedicated staff. MNRCP's experience in reducing their amount of service areas shows both the importance of being realistic about the expected number of impacts in a location, and the ability to adapt an ILF to unforeseen circumstances. The ability to adapt is crucial: fees must keep up with increases in valuation; climate change and sea level rise will undoubtedly affect impacts and mitigation projects; and programs have already had to undergo an overhaul once to comply with the 2008 Mitigation Rule.

Virginia must investigate the likely amount of impacts to the considered resource and the opportunities for mitigation projects in order to establish whether there is enough demand for a successful expanded ILF program. Assessing whether mitigation banks are already fulfilling that demand will also inform whether there is an existing gap an ILF program can fill. These investigations will also indicate how broad or narrow a potential ILF program can afford to be, both in terms of in-kind mitigation and the geographic proximity between impacts and mitigation. If there are not enough impacts concentrated among resource types and within specific locations, it may still be possible to group several impact types together and deliver preferable large mitigation projects. It would, however, be harder to fit such a program into an existing wetland ILF program in Virginia that must deal with no net loss requirements and the requirements of the 2008 Mitigation Rule.