

The Davis Pond Freshwater Diversion: A Case Study in Adaptive Management

Stephanie Oehler, Public Interest Law Fellow, Environmental Law Institute (ELI)



Adaptive Management in Coastal Louisiana

Adaptive management is the process by which projects and programs are amended over time in response to assessment of monitoring data and other feedback related to their implementation or performance to ensure they remain science-backed and effective.¹ The concept is being adopted with increasing frequency by decision-making bodies tasked with facilitating restoration efforts in response to the *Deepwater Horizon* oil spill, as well as in other coastal conservation and restoration contexts.²

Louisiana's Coastal Protection and Restoration Authority ("CPRA") is no exception, having outlined adaptive management approaches for different management levels in its latest Coastal Master Plan.³ CPRA received over 13 million dollars from the National Fish and Wildlife Foundation's ("NFWF's") Gulf Environmental Benefit Fund to implement its Adaptive Management Program in the context of river diversions and barrier island restoration projects.⁴ On top of that, CPRA received roughly 60.9 million dollars under the Spill Impact Component of the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States ("RESTORE") Act to fund adaptive

¹ NATIONAL FISH AND WILDLIFE FOUNDATION, GULF ENVIRONMENTAL BENEFIT FUND, ADAPTIVE MANAGEMENT: LOUISIANA RIVER DIVERSIONS & BARRIER ISLANDS (2014), available at: <https://www.nfwf.org/gulf/Documents/la-adaptive-management-14.pdf> (last accessed Sept. 26, 2019); see also NATURAL RESOURCE DAMAGE ASSESSMENT TRUSTEES, 2017 MONITORING AND ADAPTIVE MANAGEMENT PROCEDURES AND GUIDELINES MANUAL VERSION 1.0, APPENDIX TO THE TRUSTEE COUNCIL STANDARD OPERATING PROCEDURES FOR IMPLEMENTATION OF THE NATURAL RESOURCE RESTORATION FOR THE DWH OIL SPILL (Aug. 2019), at 5, available at: https://www.gulfspillrestoration.noaa.gov/sites/default/files/2019-08%20MAM_Manual_FULL_Updated%202019.pdf (last accessed Sept. 26, 2019); see also GULF COAST ECOSYSTEM RESTORATION COUNCIL, COMPREHENSIVE PLAN UPDATE 2016, at 27-28, available at: https://www.restorethegulf.gov/sites/default/files/CO-PL_20161208_CompPlanUpdate_English.pdf (last accessed Sept. 19, 2019).

² Examples include NFWF, NRDA, the RESTORE Council, and Louisiana's Coastal Protection and Restoration Authority.

³ COASTAL PROTECTION AND RESTORATION AUTHORITY, LOUISIANA'S COMPREHENSIVE MASTER PLAN FOR A SUSTAINABLE COAST, at 148 (2017) [hereinafter LA COASTAL MASTER PLAN], available at: http://coastal.la.gov/wp-content/uploads/2017/04/2017-Coastal-Master-Plan_Web-Book_CFinal-with-Effective-Date-06092017.pdf (last accessed Sept. 26, 2019); see also A.C. Hijuelos and D.J. Reed, LA COASTAL MASTER PLAN, APPENDIX F: ADAPTIVE MANAGEMENT, available at: http://coastal.la.gov/wp-content/uploads/2017/04/Appendix-F_FINAL_04.04.2017.pdf (last accessed Sept. 26, 2019).

⁴ NATIONAL FISH AND WILDLIFE FOUNDATION, *supra* note 1.

management efforts.⁵ Thus, being able to implement effective adaptive management programs will be particularly relevant in Louisiana in the coming years.

CPRA's guidance suggests that agencies overseeing individual projects adopt the following annual adaptive management process:

- Implement the operational plan;
- Monitor the project's progress;
- Assess collected data;
- Recommend adjustments to the plan; and
- Revise the operational plan for future use.⁶

While the Davis Pond Freshwater Diversion Project began more than a decade prior to adoption of this iteration of CPRA's adaptive management policy, many of these planning elements were incorporated into the project as conditions changed and issues arose. Accordingly, CPRA identified the Davis Pond project as an example of "active" adaptive management.⁷

Davis Pond Freshwater Diversion

The Davis Pond Freshwater Diversion Project is a freshwater diversion program through which water from the Mississippi River is being diverted to the Barataria Basin in order to reduce high salinity levels and prevent land loss in the Basin caused by, among other things, saltwater intrusion and erosion.⁸ This joint U.S. Army Corps of Engineers ("USACE") and Louisiana Department of Natural Resources ("DNR") project is authorized by the Flood Control Act and Water Resources Development Act, and aims to achieve desirable salinity levels in the Basin in order to preserve and increase the productivity of marshes, wildlife, and fisheries.⁹ The two agencies signed the Davis Pond Project Cooperation Agreement in 1993, and the first diversion operations took place in 2002.¹⁰ Davis Pond was not fully operational until 2009, however, because after diversions began, high water levels observed in the Ponding Area required removing rock weir and drilling through the marsh to improve drainage.¹¹

The diversion structure comprises four culverts connected to a levee on the side of the Mississippi River, each of which receives freshwater from the river and conveys it to a ponding area via

⁵ LA COASTAL MASTER PLAN, *supra* note 3, at 130.

⁶ *Id.* at 152.

⁷ *Id.* at 151-53 (defining an active adaptive management project as one that has "ongoing operational requirements," while a passive project does not).

⁸ U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, DAVIS POND FRESHWATER DIVERSIONS, available at: <https://www.mvn.usace.army.mil/About/Projects/Davis-Pond-Freshwater-Diversion/> (last accessed Sept. 26, 2019).

⁹ *Id.*; see also Davis Pond Advisory Committee Bylaws (received from Grace Tucker, Environmental Defense Fund).

¹⁰ U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, DAVIS POND FRESHWATER DIVERSIONS, *supra* note 8.

¹¹ Erin Plitsch, COASTAL PROTECTION AND RESTORATION AUTHORITY, 2017 OPERATIONS, MAINTENANCE, AND MONITORING REPORT FOR DAVIS POND FRESHWATER DIVERSION (July 2017), at 1, available at:

<https://cims.coastal.louisiana.gov/RecordDetail.aspx?Root=0&sid=22840> (last accessed Oct. 9, 2019); Telephone Interview with Alisha Renfro, National Wildlife Federation (Sept. 24, 2019).

an outflow channel, before the water ultimately enters the Barataria Bay.¹² Over time, the Davis Pond Diversion is anticipated to protect 810,000 acres of wetlands, marshes, and bays near New Orleans.¹³

In recent years, low salinity levels in the Barataria Basin have reduced demand for freshwater diversions, which are most beneficial when salinity levels are too high.¹⁴ While the diversion structure at Davis Pond has the capacity to divert up to 10,650 cubic feet per second (“cfs”) of freshwater, the average diversion discharge thus far has ranged between 1,000 and 6,000 cfs.¹⁵ A proposal to modify the project so it would also expressly serve a wetland-building function, which would require operating the structure at a higher diversion rate, was suspended by CPRA in 2012.¹⁶ Nevertheless, Davis Pond’s current monitoring results indicate that salinity levels are more predictable, fish and wildlife populations are stable, and that land and vegetation has grown since the diversions began.¹⁷

Governance Structure

A variety of government agencies, committees, and working groups are or have been involved with Davis Pond in different capacities throughout the project’s development. The project was created by an agreement between USACE and DNR.¹⁸ USACE oversaw construction and continues to pay for 75 percent of the operations and maintenance of the project, thereby maintaining some aspect of control over project decisions.¹⁹ Further, USACE’s Environmental Impact Statement (“EIS”) required the formation of an interagency body to be tasked with advising operations and monitoring, and those requirements continue to guide the governance structure of Davis Pond today.²⁰

¹² U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, DAVIS POND FRESHWATER DIVERSION PROJECT: DAVIS POND FRESHWATER DIVERSION STRUCTURE (2000), available at: <https://www.mvn.usace.army.mil/Portals/56/docs/PAO/Brochures/DavisPondBrochure.PDF> (last accessed Sept. 26, 2019).

¹³ U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, DAVIS POND FRESHWATER DIVERSIONS, *supra* note 8.

¹⁴ *Id.*

¹⁵ U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, MODIFICATION OF DAVIS POND DIVERSION (Jan. 2013), available at: <https://www.mvn.usace.army.mil/Portals/56/docs/environmental/LCA/Near-Term%20Projects/ModofDavisPondFactSheetJanuary2013PAO.pdf> (last accessed Sept. 26, 2019) (stating the average diversion speed is 6,000 cfs); *see also* LOUISIANA COASTAL AREA, MODIFICATION TO THE DAVIS POND DIVERSION (SUSPENDED): PROJECT DESCRIPTION, available at: <https://www.lca.gov/Projects/14/Default.aspx> (last accessed Sept. 19, 2019) (stating the average is between 1,000 cfs and 5,000 cfs).

¹⁶ U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, MODIFICATION OF DAVIS POND DIVERSION, *supra* note 15.

¹⁷ COASTAL PROTECTION AND RESTORATION AUTHORITY, MISSISSIPPI RIVER MID-BASIN SEDIMENT DIVERSION PROGRAM: SEDIMENT DIVERSIONS, available at: <http://coastal.la.gov/our-work/key-initiatives/diversion-program/about-sediment-diversions/> (last accessed Sept. 26, 2019); *see also* Plitsch, *supra* note 11, at 20.

¹⁸ U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, DAVIS POND FRESHWATER DIVERSIONS, *supra* note 8.

¹⁹ Davis Pond and Caernarvon Governance PowerPoint, slide 1 (received from Grace Tucker, Environmental Defense Fund).

²⁰ U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, LOUISIANA COASTAL AREA, LOUISIANA, FEASIBILITY REPORT ON FRESHWATER DIVERSION TO BARATARIA AND BRETON SOUND BASINS (Sept. 1984), Vol. 1 at 72-73, 77-78, available at: https://biotech.law.lsu.edu/blog/EIS-LCA_Fresh-Div-Barat-and-Breton-Sound-Basin_Feasibility-Study_Volume-1.pdf (last accessed Oct. 18, 2019); *see also* U.S. ARMY CORPS OF ENGINEERS - NEW ORLEANS DISTRICT, LOUISIANA COASTAL AREA, LOUISIANA, FEASIBILITY REPORT ON FRESHWATER DIVERSION TO BARATARIA AND BRETON SOUND BASINS (Sept. 1984), Vol. 3, Appendix K (Freshwater Diversion Structure Operation Criteria and Comprehensive Monitoring System).

Initially, DNR was tasked with overseeing operations of the diversions.²¹ Today, CPRA, which covers the other 25 percent of program costs, is the primary state government authority on Davis Pond's operations.²² In 2009, the state centralized its coastal management-related efforts, created a new agency, the Office of Coastal Protection and Restoration (which became known as CPRA in 2012), and tasked it with implementing and enforcing coastal management plans and projects, including the Davis Pond freshwater diversion.²³ CPRA now conducts daily monitoring of salinity, water levels, and meteorological events, as well as frequent monitoring of fish and wildlife and land-building impacts of the freshwater diversions, and contacts its contractors in the St. Charles Parish to carry out any changes to diversion rates that are necessary to comply with the Operational Plan.²⁴ Further, CPRA typically writes a publicly-available annual report detailing operational activities, monitoring results, and maintenance requirements from the preceding year, and outlining recommendations for the following year.²⁵

The Operational Plan serves as a guide for CPRA's day-to-day diversion operations, outlining salinity levels to be maintained each season, monitoring parameters, and conditions that can trigger deviations from the Plan.²⁶ The Davis Pond Operational Plan is evaluated by two advisory bodies each year to determine whether revisions are necessary: the Davis Pond Advisory Committee ("DPAC") and the Davis Pond Technical Working Group ("TWG").²⁷ DPAC is the project's overarching advisory body, which brings together and facilitates dialogue between diverse stakeholders at its annual public meeting before advising CPRA on operational aspects of the project.²⁸ The Committee is composed of 20 members, each of whom represents a different federal or state agency, local government, or stakeholder interest group.²⁹

²¹ See Davis Pond Advisory Committee Bylaws, *supra* note 9; see also DEPARTMENT OF NATURAL RESOURCES, DAVIS POND FRESHWATER DIVERSION PROJECT ANNUAL REPORT 2003-2004 (June 2005), available at: <https://cims.coastal.louisiana.gov/RecordDetail.aspx?Root=0&sid=588> (last accessed Sept. 26, 2019) (showing that DNR prepared the annual report).

²² Davis Pond and Caernarvon Governance PowerPoint, *supra* note 19.

²³ During the recovery efforts taking place after Hurricanes Katrina and Rita, and in response to the desire of the federal government to communicate with a single agency on coastal management matters, the state legislature transformed the existing Wetland Conservation and Restoration Authority into the CPRA Board in 2005. It then expanded CPRA's authority in 2009, and combined CPRA and OCPR in 2012. COASTAL PROTECTION AND RESTORATION AUTHORITY, STRUCTURE, available at: <http://coastal.la.gov/about/structure/> (last accessed Oct. 17, 2019).

²⁴ LA COASTAL MASTER PLAN, *supra* note 3, at 153; see also Davis Pond and Caernarvon Governance PowerPoint, *supra* note 19; see also Delta Dispatches Radio Show, *Freshwater Diversions with Erin Plitsch* (March 29, 2019), available at: <http://mississippiriverdelta.org/delta-dispatches-operating-diversions-with-erin-plitsch/> (last accessed Sept. 24, 2019) (Erin Plitsch, CPRA's freshwater diversions monitoring manager, examined Davis Pond environmental data "constantly" to develop recommendations for her team to use to make its diversion decisions).

²⁵ See Plitsch, *supra* note 11.

²⁶ COASTAL PROTECTION AND RESTORATION AUTHORITY, DAVIS POND OPERATIONAL PLAN 2018, available at: <http://coastal.la.gov/wp-content/uploads/2017/02/Davis-Pond-Operational-Plan-2018-final.pdf> (last accessed Sept. 19, 2019).

²⁷ Davis Pond Advisory Committee Bylaws, *supra* note 9.

²⁸ *Id.*

²⁹ COASTAL PROTECTION AND RESTORATION AUTHORITY, DPAC MEMBERSHIP LIST, available at: <http://coastal.la.gov/wp-content/uploads/2015/11/DPAC-Membership-List.pdf> (last accessed Sept. 26, 2019).

DPAC utilizes a variety of resources when developing its advice for CPRA, including monitoring data, feedback from members and the public, and recommendations made by TWG.³⁰ DPAC's annual meetings follow an agenda that is distributed in advance (unless it is an emergency meeting), are transcribed by court reporters, and offer an opportunity for public comment that is capped at two minutes per person.³¹ Anyone may raise concerns to DPAC about the Operational Plan, or the Davis Pond diversions more generally, during the public comment portion of its meeting, regardless of whether they are affiliated with a committee or working group, but they may be limited to two minutes of speaking time.³² In practice, between five and ten members of the public typically attend DPAC's meetings.³³

TWG is a subcommittee of DPAC tasked with specifically advising CPRA on how it should operate the diversions in order to comply with the current Operational Plan.³⁴ Further, TWG may evaluate and amend monitoring plans, interpret data, and synthesize information for DPAC.³⁵ TWG also holds meetings, but they are closed to the public.³⁶

In practice, CPRA typically presents TWG with a proposed Operational Plan, which TWG then amends as it deems necessary before approving and passing along to DPAC.³⁷ DPAC then discusses the proposed plan at its annual meeting and votes on whether or not to recommend the Plan to CPRA.³⁸ CPRA then makes the ultimate decision on what is included in its Operational Plan, but it usually includes DPAC's recommendations.³⁹ The 2018 Plan incorporated recommendations, for example, to work more closely with LDWF to set species-protective diversion levels during critical seasons.⁴⁰

Adaptive Management at Davis Pond—Successes and Areas for Improvement

In overseeing the Davis Pond Freshwater Diversion Project, CPRA has incorporated a variety of adaptive management components.⁴¹ The successes observed at Davis Pond may serve as a guide for incorporating adaptive management into future diversion projects, while the various challenges faced

³⁰ Davis Pond Advisory Committee Bylaws, *supra* note 9 (TWG is composed of one representative from each of the following agencies: the Louisiana Department of Environmental Quality, Department of Health and Hospitals, Department of Natural Resources, the Department of Wildlife and Fisheries, and U.S. Army Corp of Engineers); see also COASTAL PROTECTION AND RESTORATION AUTHORITY, DAVIS POND & CAERNARVON TECHNICAL WORK GROUP (Nov. 3, 2016), available at: <http://coastal.la.gov/wp-content/uploads/2015/11/Davis-Pond-and-Caernarvon-Technical-Work-Group.pdf> (last accessed Sept. 26, 2019).

³¹ Davis Pond Advisory Committee Bylaws, *supra* note 9.

³² Davis Pond Advisory Committee 2017/18 Annual Meeting Summary Minutes (Dec. 7, 2017), at 3 (provided by Grace Tucker, Environmental Defense Fund) (showing that one public comment was made by a member of Save Louisiana Coalition during the 2017 Annual Meeting).

³³ Telephone Interview with Alisha Renfro, National Wildlife Federation (Sept. 24, 2019).

³⁴ Davis Pond Advisory Committee Bylaws, *supra* note 9.

³⁵ *Id.*

³⁶ Davis Pond and Caernarvon Governance PowerPoint, *supra* note 19.

³⁷ *Id.* at slide 3; see also Plitsch, *supra* note 11, at 2.

³⁸ Davis Pond and Caernarvon Governance PowerPoint, *supra* note 19, at slide 3; see also Davis Pond Advisory Committee 2017/18 Annual Meeting Summary Minutes, *supra* note 32, at 3.

³⁹ Davis Pond and Caernarvon Governance PowerPoint, *supra* note 19, at slide 3.

⁴⁰ Davis Pond Advisory Committee 2017/18 Annual Meeting Summary Minutes, *supra* note 32, at 2.

⁴¹ LA COASTAL MASTER PLAN, *supra* note 3, at 153.

may highlight areas for improvement. The following is a collection of successes and lessons learned from Davis Pond:

Implementing the operational plan

- **Including clear directives in the Operational Plan provides structure for consistent operations:** The Davis Pond Freshwater Diversion Project is primarily operated at the direction of CPRA, which is currently executing the 2018 Operational Plan and has a contract with the St. Charles Parish to carry out the day-to-day operations of the diversion.⁴² The Operational Plan outlines the average salinity levels to be maintained in the Barataria Basin during each season, how the average should be calculated, the sources from which monitoring data are to be collected, minimum and maximum flow levels, and the specific conditions under which CPRA can deviate from the Plan.⁴³ The Plan is specific and provides a clear description of the project's parameters. This provides a straightforward guide for the implementing agency to follow, and allows members of the public and other stakeholders to evaluate how their interests are being addressed in the operations so they can formulate comments and suggestions.

Monitoring progress and assessing data

- **Extensive monitoring of a variety of project impacts provides necessary context for a detailed assessment of the status of operations:** CPRA monitors salinity levels,⁴⁴ the status of fish and wildlife,⁴⁵ land creation (via aerial photographs),⁴⁶ and more in the Barataria Basin.⁴⁷ The routine collection of this information allows CPRA to decide how best to move forward with operations of the project, while keeping the various project goals in mind, by providing feedback on the impacts of earlier diversions.
- **Collaborating with agency partners and others to gather data can facilitate more responsive management:** The 2018 Operational Plan allows CPRA to coordinate with LDWF during certain times of the year to ensure that diversions are not interfering with shrimp or oysters, even if it means deviating from the other requirements of the Plan.⁴⁸ The breadth of up-to-date information available to CPRA about the impacts of diversions on various aspects of the Barataria Basin ecosystem and surrounding communities allows it to further adapt diversion levels to a wide range of current circumstances.

⁴² See DAVIS POND OPERATIONAL PLAN 2018, *supra* note 26; Telephone Interview with Alisha Renfro, National Wildlife Federation (Sept. 24, 2019).

⁴³ *Id.*

⁴⁴ Salinity levels, along with flow levels, water temperature, height, and other data, are available online. See COASTAL PROTECTION AND RESTORATION AUTHORITY, CAERNARVON AND DAVIS POND DIVERSIONS: OPERATION STATUS UPDATE, DAVIS POND, available at: <http://coastal.la.gov/diversion-operations/> (last accessed Sept. 27, 2019).

⁴⁵ Jill A. Jenkins et al., U.S. DEPARTMENT OF THE INTERIOR AND U.S. GEOLOGICAL SURVEY, DAVIS POND FRESHWATER DIVERSION BIOMONITORING: PREDIVERSION AND POSTDIVERSION FRESHWATER FISH DATA (2012), available at: <https://pubs.usgs.gov/ds/604/downloads/DS604.pdf> (last accessed Sept. 27, 2019).

⁴⁶ NASA EARTH OBSERVATORY, DAVIS POND, LOUISIANA, available at: <https://earthobservatory.nasa.gov/images/4194/davis-pond-louisiana> (last accessed Sept. 27, 2019).

⁴⁷ LA COASTAL MASTER PLAN, *supra* note 3, at 153; see also Davis Pond and Caernarvon Governance PowerPoint, *supra* note 19, at slide 4.

⁴⁸ DAVIS POND OPERATIONAL PLAN 2018, *supra* note 26, at 3.

- **Making data widely available for viewing fosters robust analysis and discussion:** Since much of the data CPRA collects is publicly available, it may be monitored by DPAC, TWG, other stakeholders, and members of the public.

Recommending changes

- **Facilitating an annual review of operations by an advisory body allows for regular revision of the operational plan:** CPRA, with the advice of DPAC and TWG, creates and adopts new operational plans, typically each year.⁴⁹ Since DPAC is composed of members from 20 different local, state, and federal government agencies, as well as stakeholders from different industries and with varied interests, a variety of perspectives are represented, in theory, at its meetings and in its recommendations to CPRA.⁵⁰ While a variety of groups are reflected on the Committee, they do not appear to always be present at the meetings to express their views.⁵¹
- **The selection of advisory committee members should be transparent and fair:** Concerns have been raised surrounding the informality and lack of transparency regarding the selection of representatives for DPAC, but CPRA has indicated that it is working on addressing this challenge by creating improved procedures.⁵²
- **Meetings must be structured in a way that facilitates productive dialogue from a variety of stakeholders and interest groups:** The formality of DPAC’s annual meetings, at which court reporters transcribe the proceedings and comments from members of the public are limited to two minutes each, may discourage ideas from being freely shared and discussed, thereby reducing the potential benefits of bringing together a diverse group of stakeholders.⁵³ CPRA has indicated that it began hosting less formal meetings with different stakeholder groups each year prior to the DPAC meeting, and found this to be a productive exercise for fostering more open dialogue.⁵⁴ Making meetings less formal, and/or hosting smaller meetings with individual stakeholders prior to a larger annual meeting, may provide a better forum for open dialogue.

Revising the operational plan

- **The Operational Plan should evolve in response to observed impacts and lessons learned:** Over time, Davis Pond’s Operational Plan has changed, seemingly in part due to CPRA’s monitoring procedures and opportunities for feedback. While the average salinity level cutoffs have largely remained unchanged, the exceptions that allow CPRA to deviate from the ordinary

⁴⁹ Davis Pond and Caernarvon Governance PowerPoint, *supra* note 19, at slide 3.

⁵⁰ Davis Pond Advisory Committee Bylaws, *supra* note 9, at 2.

⁵¹ See Davis Pond Advisory Committee 2017/18 Annual Meeting Summary Minutes, *supra* note 32, at 1 (four members of DPAC were not represented at the 2017 meeting); see also Davis Pond Advisory Committee Meeting Summary Minutes (Dec. 9, 2010), available at: <https://cims.coastal.louisiana.gov/RecordDetail.aspx?Root=0&sid=1267> (last accessed Sept. 27, 2019) (six members of DPAC were not represented at the 2010 meeting).

⁵² Davis Pond Freshwater Diversion Advisory Committee 2017 Meeting PowerPoint (Dec. 7, 2017), at slide 39 (from Grace Tucker, Environmental Defense Fund); see also DPAC and CIAC Overview, at 2 (from Grace Tucker, Environmental Defense Fund).

⁵³ DPAC and CIAC Overview, *supra* note 52, at 1.

⁵⁴ *Id.* at 2.

requirements of the Plan for various reasons first appeared in the 2015 and 2016 Plans.⁵⁵ Further, in preparation for the 2019 Operational Plan, DPAC discussed changing the 14-day period over which the average salinity levels are calculated, which some believe is too long to be sufficiently responsive to changes.⁵⁶

- **Information about the Operational Plan and relevant decision-making processes should be easily available to the public:** Notes and agendas for past and upcoming meetings, former and current planning documents, current committee bylaws, member lists and contact information, and status updates on the project could be shared online to maintain transparency. CPRA’s main Davis Pond webpage has limited information about the project and DPAC, some of which is from several years ago.⁵⁷ Many past annual reports, meetings notes, studies, and presentations related to Davis Pond are also available through CPRA’s Coastal Information Management System (“CIMS”).⁵⁸ Linking the CIMS page to the main Davis Pond project page, updating the documents that are available, and including information about upcoming meetings would improve transparency.

⁵⁵ The Operational Plan became much more detailed between 2014 and 2015. The first two exceptions appeared in the 2015 report, and the third appeared in the 2016 report. See COASTAL PROTECTION AND RESTORATION AUTHORITY, DAVIS POND OPERATIONAL PLAN 2015, available at:

<https://cims.coastal.louisiana.gov/RecordDetail.aspx?Root=0&sid=11384> (last accessed Sept. 27, 2019); COASTAL PROTECTION AND RESTORATION AUTHORITY, 2015-2016 OPERATIONS, MAINTENANCE AND MONITORING REPORT FOR DAVIS POND FRESHWATER DIVERSION, at 32, available at: <https://cims.coastal.louisiana.gov/RecordDetail.aspx?Root=0&sid=21340> (last accessed Sept. 27, 2019); COASTAL PROTECTION AND RESTORATION AUTHORITY, 2014 OPERATIONS, MAINTENANCE AND MONITORING REPORT FOR DAVIS POND FRESHWATER DIVERSION, at 2, available at: <https://cims.coastal.louisiana.gov/RecordDetail.aspx?Root=0&sid=14822> (last accessed Sept. 27, 2019).

⁵⁵ Davis Pond Freshwater Diversion Advisory Committee 2017 Meeting PowerPoint, *supra* note 52. Each year’s Davis Pond Operational Plan is available as an appendix to the “Annual Plan: Integrated Ecosystem Restoration and Hurricane Protection in Coastal Louisiana” from the prior fiscal year. See COASTAL PROTECTION AND RESTORATION AUTHORITY, REPORTS: ANNUAL PLANS, available at: <https://coastal.la.gov/resources/library/reports/> (last accessed Sept. 27, 2019).

⁵⁶ DPAC and CIAC Overview, *supra* note 52.

⁵⁷ COASTAL PROTECTION AND RESTORATION AUTHORITY, CAERNARVON AND DAVIS POND DIVERSIONS, available at: <http://coastal.la.gov/diversion-operations/> (last accessed Sept. 26, 2019).

⁵⁸ COASTAL PROTECTION AND RESTORATION AUTHORITY, COASTAL INFORMATION MANAGEMENT SYSTEM (CIMS), <https://cims.coastal.louisiana.gov/default.aspx>.