INFORMATION ITEM

Research Impact Assessment (RIA) of Delta Science Program Funded Research

Summary

The Delta Science Program (DSP), under both the Delta Stewardship Council's DSP and its predecessor, the CALFED Science Program, has funded over $52 million of research since 2004. What impact is that research having on management decisions that affect the Delta, or beyond? To answer this question, the Delta Stewardship Council's DSP is currently developing a research impact assessment (RIA) of projects funded from 2018-2020 to evaluate their science and management impact in the Sacramento-San Joaquin Delta. In this pilot assessment, staff are tracking multiple impact metrics, such as publications and citations in management documents. Findings will inform the scope of impact of DSP-funded research and will also help to shape future funding requirements and decisions.

Background

The mission of the DSP is to provide the best possible unbiased scientific information to inform water and environmental decision-making in the Delta (Water Code section 85280(b)(4)). One way the DSP does this is by funding research that, in turn, informs decision-making in the Delta. The DSP is an important player when it comes to science funding in the Delta; the Council, through the DSP, is the third-largest funding agency for Delta science (Delta Plan Interagency Implementation Committee 2024). Furthermore, DSP funding tends to be more flexible than others in the system, with solicitations being updated regularly to tackle relevant topics. This underscores the importance of assessing the impact of the limited budget the DSP has for funding science in the Delta. However, to date, the impact of DSP-funded research has not been comprehensively documented. To address this, the DSP is utilizing the RIA framework to assess the impacts of the 2018 Delta Research Awards and 2020 Delta Science Fellows.

Staff are focusing on these awards given that it typically takes up to nine years for management and policy impacts of research to become apparent (Cvitanovic et al. 2021). RIA is similar in concept to assessing return on investment (ROI), but instead of assessing financial returns of funded research, we instead focus on broader societal benefits of funded research in the context of the Council's mission. Staff tracked many metrics of impact, such as the money allocated, scientists funded, institutional affiliation, project topic(s), presentations, publications, reports, media coverage, broader impacts, whether the funded research influenced Delta restoration projects or management, and more.

Overall, staff see the RIA framework as a valuable platform to pilot and begin to measure the impact of DSP-funded research in order to maximize positive impacts to the Delta in the future.

Information about Research Impact Assessment

A new approach for measuring impact: Research Impact Assessment (RIA)

Research impact assessment (RIA) originates from a movement in public research funding agencies working to justify budgetary requests to elucidate the impacts that arise from funded research. In this context, impact is inherently defined as the positive and demonstrable benefits that can be attributed to scientific research. Research impacts on policy and management are notoriously difficult to track as they are often non-linear and occur over long timescales (e.g., management decisions are often based on multiple lines of research evidence that may date back decades). Although RIA is gaining traction in academic literature and funding agencies, there is no one prescriptive method for determining research impact. However, a commonly accepted approach is to use a framework that breaks down impact into stages: inputs, activities, outputs, outcomes, and impacts. With this framework, we can assess metrics at each stage to infer whether funded research is making progress towards impact.

Approach

As a means for testing this framework, staff assessed the impact of a subset of DSP research funding: the 2018 Delta Research Awards and 2020 Delta Science Fellows. The assessment included consulting the products and reports from the research

contracts, as well as surveying the funded scientists. The survey consisted of 24 questions that asked about research outputs such as published papers, conference presentations, and media coverage; outcomes such as community engagement and communication with interested parties; and impacts such as management and policy changes based on funded science.

Key Findings

We present preliminary data on 22 out of the 25 funded projects (22/25 scientists completed the survey) according to each stage of the RIA framework.

Inputs (resources utilized)

- Funded projects utilized approximately $8.6 million total in research funding and were required to align with at least one of the 25 Science Actions from the 2017-2021 Science Action Agenda.

Activities (actions of the program)

- This funding resulted in 22 research projects led by 46 scientists representing 6 multi-institution collaborations. Of the projects, 16 were targeted foundational research and 6 were synthesis projects.

Outputs (direct results of program activities)

- Funded projects produced 68 conference presentations, 44 peer-reviewed publications, 13 published datasets, 9 reports, 3 StoryMaps, 2 book chapters, and 1 dissertation.
    - The peer-reviewed publications have been cited at least 517 times, accessed (viewed)over 88,000 times, and downloaded at least 6,200 times.
- Funded projects have been featured in the media, including 17 blog posts, 6 press releases, and 2 podcasts.

Outcomes (community-level awareness of program activities)

- Community engagement: 5 projects informed the community, 5 projects consulted with the community, 2 projects involved the community, and 7 projects collaborated with the community.

- Groups communicated with 11 projects with the Federal government, 13 with State government, 4 with local government, 10 with NGOs, 2 with CBOs.

Impacts (system-level changes from program activities)

- 1 project informed NOAA's green sturgeon recovery 5-year update.
- 1 project informed tidal wetland hypotheses in the Healthy Rivers and Landscapes Science Plan.
- 1 project's model is now informing the Air Resources Board to track greenhouse gas emissions.
- 1 project was cited in the 2024 Biological Opinion from the U.S. Fish and Wildlife Service
- 1 project was cited in the 2024 Biological Opinion from NOAA's National Marine Fisheries Service.

Next Steps

Results from the RIA will inform future Delta Research Awards and Delta Science Fellows funding solicitations. Documented management impacts from DSP-funded science could also support communicating the value of the DSP's research awards program to external audiences, including the California Legislature, as well as partner agencies. Staff will continue to refine the RIA process to continually capture the impact of DSP-funded research.

Fiscal Information

Not applicable.

List of Attachments

Attachment 1: Table of Research Impact Assessment Preliminary Results

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References

Cvitanovic, C., Mackay, M., Shellock, R.J., van Putten, E.I., Karcher, D.B. and Dickey-Collas, M., 2021. Understanding and evidencing a broader range of 'successes' that can occur at the interface of marine science and policy. Marine Policy, 134, p.104802.

Delta Plan Interagency Implementation Committee. 2024. FY 2022-2023 Delta Crosscut Budget Report: Building an Effective Delta Science Enterprise.

Sacramento-San Joaquin Delta Reform Act of 2009, Wat. Code § 85000 et seq.