U.S. Department of the Interior

Report on Prize Competitions
Fiscal Years 2019–20

Estimated Cost of Preparing this Report — $13,400

November 2020

DOI Report on Prize Competitions, Fiscal Years (FY) 2019–20

This report summarizes the U.S. Department of the Interior (DOI) prize competition activities during FY 2019 and 2020 undertaken under the authorities of the Stevenson-Wydler Technology Innovation Act of 1980, as amended (15 U.S.C. 3719), and other authorities. The Act requires the Director, White House Office of Science and Technology Policy (OSTP), to submit a biennial report on prize competition activities during the preceding two fiscal years. Agencies are encouraged to also provide information to the OSTP on competitions conducted under other authorities for inclusion in the biennial report.

The appendix consists of a compilation of PDFs of the information prepared by DOI bureaus and offices in response to OSTP's web-based survey for each competition that was active during FY 2019 or FY 2020. These surveys consist of specific questions posed by the OSTP, and the responses have been filled out per its instructions so that it can fulfill the requirements of the Stevenson-Wydler Technology Innovation Act of 1980, as amended.

The bulk of the prize competition activities at DOI are undertaken by the Bureau of Reclamation (Reclamation). Following the success of the "Desal Prize" in 2014, Reclamation developed its Prize Competition program, funded under the Research and Development Office's Science and Technology Program, to leverage innovation from the citizen-solver community to further the agency's mission to manage, develop, and protect water and related resources in an environmentally and economically sound manner for the benefit of the American public. Since 2014, Reclamation has launched 24 prize competitions and awarded nearly $1.5 million in prizes.

The following tables summarize the competitions that were completed or underway at DOI in FY 2019 and FY 2020. A total $3,860,000 in prizes has been offered over the two-year period.

FY 19 - 20 PRIZES COMPLETED				
Prize Title	**Purse (in $)**	**Partners (lead agency in bold)**	**Winners**	**More Information**
Sub-Seasonal Climate Forecast Rodeo *NOTE: Competition completed prior to FY19 thus no OSTP PDF generated*	800k	**Bureau of Reclamation** National Oceanic and Atmospheric Administration U.S Army Corps of Engineers U.S. Geological Survey	Team Salient, Cambridge, MA Team Still Learning, Arlington, MA/Newton, MA/Stanford, CA Team Lupoa13, Columbia,MO/Oshkosh,WI	https://www.usbr.gov/research/challenges/forecastrodeo.html
Pathogen Monitoring Challenge - Stage 1	80k	**Bureau of Reclamation** U.S. Environmental Protection Agency The Water Research Foundation Xylem	Hannah Safford/Heather Bischel Team, Stanford, CA James Vickers, Carlsbad, CA John Newport, Chadds Ford, PA David Wick, Stevensville, MT	https://www.usbr.gov/research/challenges/pathogen.html
Sediment Removal Techniques for Reservoir Sustainability – Stage 1	75k	**Bureau of Reclamation** U.S. Army Corps of Engineers Federal Energy Regulatory Commission Natural Resource Conservation Service American Rivers	Baha Abulnaga, Mazdak International, Inc. Lawrence Kearns, Chicago, IL Eric Hinterman, Cambridge, MA Pradeep Nalabalapu, Round Rock, TX/Olivier Loidi, Toulouse, Midi-Pyrenees	https://www.usbr.gov/research/challenges/sediment-removal.html
Eradication of Invasive Mussels in Open Water - Stage 1 *NOTE: Competition completed prior to FY19 thus no OSTP PDF generated*	100k	**Bureau of Reclamation** U.S Army Corps of Engineers U.S. Geological Survey Molloy & Associates, LLC	Steven Suhr/Marie-Claude Senut, Biomilab, LLC Wen Chen, Harvard Medical School Absar Alum, Bo Detek/Stephanie Bone	https://www.usbr.gov/research/challenges/mussels.html

FY 19 - 20 PRIZES COMPLETED				
Prize Title	**Purse (in $)**	**Partners (lead agency in bold)**	**Winners**	**More Information**
Powering Electronic Instruments on a Rotating Shaft	250k	**Bureau of Reclamation** U.S Army Corps of Engineers Bonneville Power Administration	Darren Verebelyi/Clint Schneider, CoScientific LLC Fredrik Kauma/Andreas Berggren, residing in Skelleftea, Sweden Halina Stromecky Des Plaines, IL Eric Nutsch, Burley, ID Christine Parisani's, Goose Creek, SC Christopher Suprock, Warren, NH	https://www.usbr.gov/research/challenges/shaft-power.html
Improving Fish Exclusion from Water Diversions and Intakes	75k	**Bureau of Reclamation** Department of Energy's Water Power Technologies Office U.S. Geological Survey NOAA Fisheries U.S. Fish and Wildlife Service U.S. Army Corps of Engineers State of Washington Department of Fish and Wildlife Pacific Northwest National Laboratory	Ted Ground of Keller, TX Benjamin Mater, Alden Research Laboratory Edem Tsikata, Ph.D., Cambridge, MA Jeremy Martinez,Los Angeles, CA/Micheal Ahimbisibwe, Kampala, Uganda Timothy Hogan, TWB Environmental Research and Consulting, Inc. David Orlebeke, Roy, UT	https://www.usbr.gov/research/challenges/fishexclusion.html
Lowering the Cost of Continuous Stream Flow Monitoring	75k	**Bureau of Reclamation** U.S. Geological Survey	Qian Liao, Milwaukee, WI Pierre Stoermer, DroneMapper Daniel Buscombe, Ph.D., Flagstaff, AZ Alain Trottier of Kennesaw, GA David Orlebeke of Meridian, ID	https://www.usbr.gov/research/challenges/streamflow.html
White-Nose Syndrome: Fight the Fungus, Save the Bats	100k	**U.S. Fish and Wildlife Service** Several partners served as judges, but did not offer the Challenge with FWS.	Overall winners announcement expected November 2020	https://www.whitenosesyndrome.org/static-page/white-nose-syndrome-challenge
Saving the 'Ōhi'a – Hawai'i's Sacred Tree	70k	**National Invasive Species Council** **DOI Office of Native Hawaiian Relations** National Park Service U.S Fish and Wildlife Service U.S. Geological Survey	Winner: Dr. Ryan Perroy, University of Hawai'i, Hilo Honorable mentions: Lauralea Oliver, with K9inSCENTive, LLC, Miguel Castrence, with Resource Mapping Hawai'i	https://conservationx.com/challenge/invasives/ohia
Developing the Next Generation of Animal Telemetry	30k	**Bureau of Ocean Energy Management** **National Aeronautics and Space Administration**	Team Gaia: Hugo Shelley, Dani Epstein, and David Curnick *Team NEMO (The Near Earth Marine* Observer): *Rina Onishi, Tane Tatum, Remy Derollez, Justin Kruger, and Andrew Gatherer*	https://www.herox.com/animaltracking/

FY 19 - 20 PRIZES UNDERWAY			
Prize Title (Launch month/year)	**Purse**	**Partners (lead agency in bold)**	**More Information**
Sub-Seasonal Climate Forecast Rodeo II (June 2019)	800k	**Bureau of Reclamation** NOAA National Integrated Drought Information System	https://www.usbr.gov/research/challenges/forecastrodeo.html
Rust Busters (August 2019)	350k	**Bureau of Reclamation** U.S Army Corps of Engineers	https://www.usbr.gov/research/challenges/corrosion.html
Streamflow Forecast Rodeo (August 2020)	500k	**Bureau of Reclamation** CEATI International's Hydropower Operations and Planning Interest Group Tennessee Valley Authority Hydro-Quebec Department of Energy's Water Power Technologies Office RTI International	https://www.usbr.gov/research/challenges/streamflowrodeo.html
Guardians of the Reservoir (July 2020)	550k	**Bureau of Reclamation** U.S Army Corps of Engineers	https://www.usbr.gov/research/challenges/sediment-removal.html

Appendices
to
DOI Report on Prize Competitions, FY 2019–20

These Appendices are a compilation of information prepared by DOI bureaus and offices in response to OSTP's web-based survey for each competition that was active during FY 2019 or FY 2020. The conversion of the completed survey form into a PDF using the OSTP's platform resulted in some formatting anomalies, which could not be corrected in this document. Anomalies include the following:

- Hawaiian words such as *ʻŌhiʻa* appear as *'?hi?a* in the PDF.
- The PDFs may display the number of awards as 9999 for competitions where a specific number of awards was not identified or the awards have yet to be awarded. The problem in this case results from the fact that entering "N/A" in that field is not an option provided under the survey.

Note that the OSTP system did not generate PDFs for two competitions in the summary tables above (Sub-Seasonal Climate Forecast Rodeo I and Eradication of Invasive Mussels) that were functionally completed by FY 2018 and reported in the FY 2017-18 Biennial Report. Accordingly, there are no Appendices for these two competitions.

Appendices Prepared in Response to OSTP's Call for the FY2019–2020 Biennial Report: Prizes Completed (Appendix 1 through 8), and Prizes Underway (Appendix 9 through 12)

Appendix	Competition (click on name to link to PDF)	Lead Bureau/Office	Contact
1	Pathogen Monitoring Challenge — Stage 1	Reclamation	Jennifer Beardsley
2	Sediment Removal Techniques for Reservoir Sustainability	Reclamation	Jennifer Beardsley
3	Powering Electronic Instruments on a Rotating Shaft	Reclamation	Jennifer Beardsley
4	Improving Fish Exclusion from Water Diversions	Reclamation	Jennifer Beardsley
5	Lowering the Cost of Continuous Stream Flow Monitoring	Reclamation	Jennifer Beardsley
6	White Nose Syndrome	FWS	Jason Goldberg
7	Saving the Ohia — Hawaii's Sacred Tree	NISC/Hawaiian Relations	Kaiini Kaloi, Jeff Morisette
8	Developing the Next Generation of Animal Telemetry	BOEM	Jacob Levenson
9	SubSeasonal Climate Forecast Rodeo II	Reclamation	Jennifer Beardsley
10	RustBusters	Reclamation	Jennifer Beardsley
11	Streamflow Forecast Rodeo	Reclamation	Jennifer Beardsley
12	Guardians of the Reservoir	Reclamation	Jennifer Beardsley

Below is a summary of your responses

Download PDF

FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Pathogen Monitoring Challenge – Stage 1**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

Reporting information for prize competitions conducted or otherwise supported under other authorities provides visibility for the effort, and can be valuable for the overall prize competitions community, as well as the public, to see how competitions can be used to advance agency missions. Agencies are highly encouraged, but not required, to complete this survey for prize competitions conducted under authorities other than COMPETES during this reporting period.

OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey once for each prize competition or challenge that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Pathogen Monitoring Challenge – Stage 1.

Primary point of contact within your agency for Pathogen Monitoring Challenge – Stage 1 (response

required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Pathogen Monitoring Challenge – Stage 1, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/pathogen.html

Please provide a summary of Pathogen Monitoring Challenge – Stage 1 suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

The Pathogen Monitoring Challenge Stage 1 prize competition sought to identify new or improved methods for monitoring pathogens, specifically viruses, to facilitate the indirect and direct reuse of municipal wastewater as a means to alleviate water shortages and expand current water supplies. The prize competition was a “Theoretical” challenge that required solvers to submit an idea along with detailed descriptions, specifications, and data that supported how their concept met the objectives described in the challenge posting. The competition was structured so that solvers could propose solutions in three distinct areas: improved sampling and concentration methods for direct virus monitoring, improved analytical methods for virus quantification, and new surrogate methods for monitoring reverse osmosis process performance. Advancements in any of these three areas could stimulate innovation in water monitoring technologies that can lead to more effective, affordable, and reliable methods to ensure water quality and protection of public health in water reuse applications. Submissions were scored by a team of subject matter experts based on the stated criteria for each solution area, which included considerations such as virus quantification, labor requirements and operator effort, calibration protocols, and how quickly the proposed solution can provide results. The competition was posted on May 10, 2018 and was open for 90 days, with all submissions due by August 8, 2018. Submission packages were required to include a detailed description of the proposed solution, along with rationale as to how the proposed solution improves on existing technologies or approaches currently used for pathogen monitoring and detection.

Characters remaining: 254

Status FY19 - Please select the status of Pathogen Monitoring Challenge – Stage 1 during FY19 (select all that apply) (response required).

- [ ] Launched

- [x] Ongoing
- [x] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of Pathogen Monitoring Challenge – Stage 1 during FY20 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [ ] Completed
- [x] No activity occurred during FY20

Authority - Please select the authority under which Pathogen Monitoring Challenge – Stage 1 was conducted (response required).

- (●) America COMPETES Reauthorization Act of 2010
- ( ) Other authority (please specify)

- ( ) Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component: N/A

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

Does Pathogen Monitoring Challenge – Stage 1 have multiple phases (response required)?

- ○ Yes
- ● No

Please provide the following information, if available, for Pathogen Monitoring Challenge – Stage 1. Please note that dates should be entered in the following format mm/dd/yyyy.

	Submission dates		Submissions
	Open date	Close date	Number of submissions
Pathogen Monitoring Challenge – Stage 1	05/10/2018	08/09/2018	27

Please provide the following information about Pathogen Monitoring Challenge – Stage 1 (response required).

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Pathogen Monitoring Challenge – Stage 1	5	5	03/28/2019	80,000

Please indicate the type(s) of submissions sought by Pathogen Monitoring Challenge – Stage 1 (select all that apply) (response required).

- ☐ Business or commercial development plan
- ☐ Prototype device or object
- ☑ Proposal or concept
- ☐ Creative media (e.g., images, videos, podcasts, logos)
- ☐ Software or computer code
- ☐ Analysis or visualization of data
- ☐ Other (please specify)

Please provide a description of the submission(s) sought by Pathogen Monitoring Challenge – Stage 1 (max of 150 words).

The Pathogen Monitoring Challenge prize competition sought to improve pathogen detection and monitoring methods and asked solvers to provide detailed technical descriptions on how their concepts addressed one of three areas of interest described in the competition. Solvers were asked to provide rationale as to how their concept addressed each solution requirement defined in the challenge, quantitatively where possible. Solver were also asked to compare their proposed solution against existing technologies that address the competition criteria.

Characters remaining: 456

Please indicate whether the participants in Pathogen Monitoring Challenge – Stage 1 were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- ○ Participants were team-based
- ● Participants were individual members

Please provide a best estimate of the total number of individuals participating in each fiscal year.

FY19	N/A Competition complete in FY18; Some teams only have 1 team member

Please identify the intended participants of the challenge (select all that apply).

- ☑ No specific intended group
- ☐ Pre-k through 8th grade students
- ☐ 9th-12th grade students
- ☐ Undergraduate College/University/Technical students
- ☐ Master/PhD students
- ☐ Adult not affiliated with higher education
- ☐ Retiree
- ☐ Small businesses
- ☐ Large businesses

☐ Other (please specify):

Please select which of the following methods were used by the agency to publicize Pathogen Monitoring Challenge – Stage 1, mobilize potential participants, and ensure high quality submissions (select all that apply) (response required).

☐ Live event(s) prior to the competition

☑ Social media (e.g., Twitter, Facebook)

☑ Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)

☑ Email (e.g., listservs)

☑ Press release

☑ Posted on challenge.gov

☑ Publicity efforts from vendors/contractors

☐ Live video streaming announcement

☐ Other (please specify):

Please describe the method(s) used to evaluate submissions to Pathogen Monitoring Challenge – Stage 1 and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words) (response required).

The judges' panel consisted of 11 subject matter experts from Reclamation, Xylem Inc., U.S. Environmental Protection Agency, Water Research Foundation, California State Water Resources Control Board, and University of Colorado Boulder. The judges met to discuss the solutions that were submitted under this prize competition, review the evaluations performed by each judge, and make a final recommendation for the winners of the monetary award(s).

Characters remaining: 557

Please indicate the types of goals Pathogen Monitoring Challenge – Stage 1 achieved (select all that apply) (response required).

☐ Education/training

☐ Improve a process/procedure/service carried out by the sponsoring agency

☑ Build or strengthen a community

- [ ] Develop/demonstrate technology (hardware or software)
- [ ] Outreach/information dissemination
- [x] Generate innovative ideas/designs/concepts (ideation)
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [ ] Other (please specify)

Please describe the problem or opportunity Pathogen Monitoring Challenge – Stage 1 is/was designed to address (max 150 words) (response required).

While advanced water treatment technologies exist to produce high quality, potable water from wastewater, there is a need to better ensure treatment process integrity through improved pathogen detection and monitoring. Waterborne pathogens are regulated due to the risk they pose to human health, and their presence must be limited in water intended for potable use. To facilitate regulatory and public acceptance of water reuse, it is necessary to develop techniques for rapid detection of pathogens. Virus monitoring can be improved by reducing response times for direct measurements, by identifying robust surrogate monitoring techniques, or by identifying appropriate indicator organisms. Most direct pathogen detection methods have turnaround times on the order of days due to sample collection, transport, culture and analysis times. Long response times and the lack of on-site, real-time pathogen monitoring lead to cost-inefficient operations and increased treated water storage requirements.

Characters remaining: 3

Please describe how Pathogen Monitoring Challenge – Stage 1 advanced the agency's mission (max 150 words) (response required).

As western U.S. water demands grow and water supplies become scarcer, water reuse is becoming an increasingly important water management strategy. Wastewater is a drought-resistant and reliable water source that is readily available in urban centers for beneficial reuse. In particular, potable reuse, both direct and indirect, is recognized by several states (e.g., California, Texas, and Arizona) as necessary for meeting future water needs.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply) (response required).

- [x] Low risk approach and/or pay-for-performance structure
- [ ] Identify and work with new innovators
- [ ] Previous success with a prize competition

- [ ] Develop solutions in a quick timeframe
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [x] Sought diverse and/or innovative solutions
- [ ] Engage a specific community
- [ ] Less burdensome to design and execute than alternatives
- [ ] Required by executive policy or congressional legislation
- [x] Promote awareness of a specific topic or agency research area
- [x] Incentivize a larger number of submissions
- [ ] Most cost-effective approach
- [ ] Activity required diverse expertise or interdisciplinary collaboration
- [x] Target audience could not have been reached through traditional mechanisms
- [ ] Flexibility to implement project design and achieve project goals
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words) (response required).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Pathogen Monitoring Challenge – Stage 1 for each fiscal year (please select all that apply) (response required).

	FY19
Discovery and design support	☐
Federal personnel (FTE)	☑
Prize purse (monetary award)	☑
Software development	☐
Publicity/advertising/outreach/communications	☑

	FY19
Purchase of consumable materials	☐
Database development	☐
Purchase or rental of equipment	☐
Other (please specify):	☐
Data entry/analysis	☐
Transportation of participants	☐
Non-monetary award(s)	☐
Operations or administrative support	☑
Solution acceleration	☐
Web portal/app development and support	☑

Please provide a detailed description of how agency funds were used in support of Pathogen Monitoring Challenge – Stage 1 (do not include a description of the prize purse or non-monetary awards) (max 300 words) (response required).

Agency funding was used to support vendor contract, competition design, data management, judging, and administrative activities such as solver payment and post competition announcements.

Characters remaining: 1824

Provide a best estimate of the dollar amount the agency used in support of Pathogen Monitoring Challenge – Stage 1 (do not include prize purse funding or the cost of FTE staffing) (response required).

FY19: 0

Provide a best estimate of the total number of FTEs used to execute Pathogen Monitoring Challenge – Stage 1 (please note that one work year, or one FTE, is equivalent to 2,080 hours of work) (response required).

FY19: 0.005

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable) (response required).

	Total prize purse offered	Total prize purse awarded

FY19	Total prize purse offered: N/A	Total prize purse awarded: $0,000

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words) (response required).

N/A

Characters remaining: 2007

Please indicate how many partners were involved in Pathogen Monitoring Challenge – Stage 1.

- ○ 0 partners
- ○ 1 partner
- ○ 2 partners
- ● 3 partners
- ○ 4 partners
- ○ 5 partners
- ○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Pathogen Monitoring Challenge – Stage 1.

Partner 1	Xylem, Inc
Partner 2	Water Research Foundation
Partner 3	Environmental Protection Agency

Please provide the following information for each partner that was involved in Pathogen Monitoring Challenge – Stage 1.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
Xylem, Inc	○	○	○	○	●	○
Water Research Foundation	○	○	○	●	○	○
Environmental						

Environmental Protection Agency	●	○	○	Nonprofit Organization	○	○

Please indicate which FY each partner provided contributions to Pathogen Monitoring Challenge – Stage 1 (select all that apply).

	FY19
Xylem, Inc	☑
Water Research Foundation	☐
Environmental Protection Agency	☐

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19
Xylem, Inc	40,000
Water Research Foundation	N/A
Environmental Protection Agency	N/A

Please indicate the type(s) of contributions provided by each partner for Pathogen Monitoring Challenge – Stage 1 (please select all that apply).

	Xylem, Inc	Water Research Foundation	Environmental Protection Agency
Purchase of consumable materials	☐	☐	☐
Prize purse (monetary award)	☑	☐	☐
Transportation of participants	☐	☐	☐
Web portal/app development and support	☐	☐	☐
Non-monetary award(s)	☐	☐	☐
Data entry/analysis	☐	☐	☐
Operations or administrative support	☐	☐	☐
Software development	☐	☐	☐
Other	☑	☑	☑
Discovery and design support	☑	☑	☑
Database development	☐	☐	☐

	Xylem, Inc	Water Research Foundation	Environmental Protection Agency
Purchase or rental of equipment	☐	☐	☐
Solution acceleration	☐	☐	☐
Publicity/advertising/outreach/communications	☑	☑	☑

Please indicate what other resources, if any, were provided by each partner to support Pathogen Monitoring Challenge – Stage 1. If no other resources were provided, please enter "None."

Xylem, Inc	Submission evaluation
Water Research Foundation	Submission evaluation
Environmental Protection Agency	Submission evaluation

To the best of your ability, please select which practices were used to support Pathogen Monitoring Challenge – Stage 1 (select all that apply).

- ☑ My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- ☑ My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- ☑ My office or agency provides centralized training and design support for staff conducting prize competitions and challenges
- ☑ My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- ☑ My office or agency has a dedicated, central prize competition and challenge coordinator
- ☑ My office or agency has policy or guidance supporting the use of prize competitions and challenges
- ☐ My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- ☐ My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- ☑ My office or agency uses internal communication tools to support prizes competitions and challenges
- ☑ My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges
- ☐ Other (please specify):

☐ None or Unknown

Please indicate whether Pathogen Monitoring Challenge – Stage 1 was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ◉ No

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Submit

Below is a summary of your responses

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FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Sediment Removal Techniques for Reservoir Sustainability – Stage 1**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

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Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

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Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

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Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Sediment Removal Techniques for Reservoir Sustainability – Stage 1.

Primary point of contact within your agency for Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (response required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Sediment Removal Techniques for Reservoir Sustainability – Stage 1, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/sediment-removal.html; https://innocentive.wazoku.com/#/challenge/1d18b4364bf44d97a0e21a9139c3fa20?scrollTo=scrollDisco&searchIndex=12

Please provide a summary of Sediment Removal Techniques for Reservoir Sustainability – Stage 1 suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

The Sediment Removal Techniques for Reservoir Sustainability competition sought new or improved techniques for reservoir sediment removal (i.e. collection, transport, and delivery to the downstream river) in a cost-effective manner that preserves and sustains the operational objectives of the reservoir. The lifespan of reservoirs directly correlates with the ability to manage sediment. Sediment constantly enters reservoirs and slowly reduces available water storage thus affecting the ability to meet critical operational objectives such as storage for water supply or flood risk reduction. Sedimentation also impacts dam outlets, reservoir water intakes, water quality, recreation, upstream flood stage, and downstream habitat which can result in additional maintenance costs or adverse effects to the environment. This competition resulted in 40 submissions providing a wide range of theoretical solutions. Six submissions were considered worthy of a prize award in the areas of collection and transport. Four of the six solutions were determined to meet or exceed the solution requirements. The winning ideas were from solvers not affiliated with the reservoir sediment management industry. With technical input and guidance, the winning concepts have potential to reach a prototype level and be tested. The competition resulted in ideas that were either not previously considered or were novel advancements of existing or emerging technologies and was successful in raising awareness of reservoir sedimentation issues and the need for advanced technologies to sustain the aging reservoirs.

Characters remaining: 397

Status FY19 - Please select the status of Sediment Removal Techniques for Reservoir Sustainability –

Stage 1 during FY19 (select all that apply) (response required).

- [x] Launched
- [ ] Ongoing
- [x] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of Sediment Removal Techniques for Reservoir Sustainability – Stage 1 during FY20 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [ ] Completed
- [x] No activity occurred during FY20

Authority - Please select the authority under which Sediment Removal Techniques for Reservoir Sustainability – Stage 1 was conducted (response required).

- (●) America COMPETES Reauthorization Act of 2010
- ( ) Other authority (please specify)

[ ]

- ( ) Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component: N/A

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to

review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

Does Sediment Removal Techniques for Reservoir Sustainability – Stage 1 have multiple phases (response required)?

- ○ Yes
- ● No

Please provide the following information, if available, for Sediment Removal Techniques for Reservoir Sustainability – Stage 1. Please note that dates should be entered in the following format mm/dd/yyyy.

	Submission dates		Submissions
	Open date	Close date	Number of submissions
Sediment Removal Techniques for Reservoir Sustainability – Stage 1	10/10/2018	01/04/2019	40

Please provide the following information about Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (response required).

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Sediment Removal Techniques for Reservoir Sustainability – Stage 1	999999	6	07/11/2019	75,000

Please indicate the type(s) of submissions sought by Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (select all that apply) (response required).

- ☐ Prototype device or object
- ☐ Creative media (e.g., images, videos, podcasts, logos)
- ☐ Business or commercial development plan
- ☐ Software or computer code

- [x] Proposal or concept
- [ ] Analysis or visualization of data
- [ ] Other (please specify)

Please provide a description of the submission(s) sought by Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (max of 150 words).

The Sediment Removal Techniques for Reservoir Sustainability sought new methods for sediment removal that effectively minimizes the future loss of reservoir capacity due to sedimentation. For the purpose of this competition, sediment removal included 1) the collection of sediments, 2) transport of sediment through or around a reservoir, and 3) delivery of sediment to the downstream river channel. Solvers were asked to provide a new and novel solution for either sediment collection from the reservoir, transport from the reservoir past the dam, or delivery to the downstream channel. Solvers were not required to provide new and novel solution for all three of these categories.

Characters remaining: 323

Please indicate whether the participants in Sediment Removal Techniques for Reservoir Sustainability – Stage 1 were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19	40 – Some teams only have 1 team member

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students

- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Sediment Removal Techniques for Reservoir Sustainability – Stage 1, mobilize potential participants, and ensure high quality submissions (select all that apply) (response required).

- [ ] Live event(s) prior to the competition
- [x] Publicity efforts from vendors/contractors
- [x] Press release
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [x] Email (e.g., listservs)
- [ ] Live video streaming announcement
- [x] Posted on challenge.gov
- [x] Social media (e.g., Twitter, Facebook)
- [x] Other (please specify):

Agency prize webpage, pre-recorded video promoting the competition, and webinar to share additional information during the submission period

Please describe the method(s) used to evaluate submissions to Sediment Removal Techniques for Reservoir Sustainability – Stage 1 and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words) (response required).

The judges' panel consisted of Federal and non-Federal subject matter experts. Judging was conducted by blind review as all submissions were assigned a number. Each judge was asked to become familiar with all 40 solutions and review 10 specific solutions in detail. Judges scored their 10 submissions independently. A conference call near the beginning of the judging process was held to establish grading criteria and re-discuss competition criteria. Scores were used during the in-person judges' team meeting (small group and large group discussions) to collectively discuss the strengths and weaknesses of each submission and arrive at a judges' consensus opinion. The full panel of 15 judges discussed the 10 best solutions and determined the winning solutions.

Characters remaining: 239

Please indicate the types of goals Sediment Removal Techniques for Reservoir Sustainability – Stage 1 achieved (select all that apply) (response required).

- [ ] Education/training
- [ ] Develop/demonstrate technology (hardware or software)
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [x] Improve a process/procedure/service carried out by the sponsoring agency
- [x] Build or strengthen a community
- [x] Generate innovative ideas/designs/concepts (ideation)
- [ ] Outreach/information dissemination
- [ ] Other (please specify)

Please describe the problem or opportunity Sediment Removal Techniques for Reservoir Sustainability – Stage 1 is/was designed to address (max 150 words) (response required).

Reservoir sedimentation has become a significant problem with the aging of water storage facilities. Sediment deposition in reservoirs limits the active life of reservoirs by reducing storage capacity for water supply or flood risk reduction. Sedimentation also impacts dam outlets, reservoir water intakes, water quality, recreation, upstream flood stage, and downstream habitat. Conventional temporary dredging has been used to remove sediment from some reservoirs, but it can be very expensive. Periodic pressure flushing with a full reservoir is another method used, but only removes a small amount of sediment around the dam outlet. Drawdown flushing can be effective through low-level outlets but sacrifices the much-needed water stored in the reservoir. Conventional dredging and flushing methods have shortcomings that reduce their applicability to large reservoirs designed for multi-year water storage, with relatively larger volumes of sediment that require removal.

Characters remaining: 25

Please describe how Sediment Removal Techniques for Reservoir Sustainability – Stage 1 advanced the agency's mission (max 150 words) (response required).

This competition sought new or improved techniques for reservoir sediment removal in a cost-effective manner that still preserves and sustains the operational objectives of reservoirs managed by the Bureau of Reclamation. Implementation of more efficient and less expensive sustainable sediment management options on a large scale would better enable Reclamation to continue to meet its water and power deliveries.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply) (response required).

- [x] Promote awareness of a specific topic or agency research area
- [ ] Engage a specific community
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Required by executive policy or congressional legislation
- [ ] Flexibility to implement project design and achieve project goals
- [ ] Previous success with a prize competition
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [x] Sought diverse and/or innovative solutions
- [x] Target audience could not have been reached through traditional mechanisms
- [ ] Most cost-effective approach
- [ ] Less burdensome to design and execute than alternatives
- [ ] Develop solutions in a quick timeframe
- [x] Incentivize a larger number of submissions
- [ ] Activity required diverse expertise or interdisciplinary collaboration
- [ ] Identify and work with new innovators
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words) (response required).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Sediment Removal Techniques for Reservoir Sustainability – Stage 1 for each fiscal year (please select all that apply) (response required).

	FY19
Web portal/app development and support	☑
Software development	☐
Prize purse (monetary award)	☑
Solution acceleration	☐
Operations or administrative support	☑
Purchase of consumable materials	☐
Data entry/analysis	☐
Non-monetary award(s)	☐
Other (please specify):	☐
Purchase or rental of equipment	☐
Publicity/advertising/outreach/communications	☑
Discovery and design support	☑
Transportation of participants	☐
Database development	☐
Federal personnel (FTE)	☑

Please provide a detailed description of how agency funds were used in support of Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (do not include a description of the prize purse or non-monetary awards) (max 300 words) (response required).

Agency funding supported vendor contract (platform and solver engagement), competition design, data management, judging, promotion and outreach, and administrative activities such as solver payment and post competition announcements.

Characters remaining: 1776

Provide a best estimate of the dollar amount the agency used in support of Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (do not include prize purse funding or the cost of FTE staffing) (response required).

FY19 22,500

Provide a best estimate of the total number of FTEs used to execute Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (please note that one work year, or one FTE, is equivalent to 2,080 hours of work) (response required).

FY19	0.3

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable) (response required).

	Total prize purse offered	Total prize purse awarded
FY19	75,000	75,000

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words) (response required).

N/A

Characters remaining: 2007

Please indicate how many partners were involved in Sediment Removal Techniques for Reservoir Sustainability – Stage 1.

- ○ 0 partners
- ○ 1 partner
- ○ 2 partners
- ○ 3 partners
- ● 4 partners
- ○ 5 partners
- ○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Sediment Removal Techniques for Reservoir Sustainability – Stage 1.

Partner 1	U.S. Army Corps of Engineers
Partner 2	Federal Energy Regulatory Commission
Partner 3	Natural Resource Conservation Service
Partner 4	American Rivers

Please provide the following information for each partner that was involved in Sediment Removal Techniques for Reservoir Sustainability – Stage 1.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
U.S. Army Corps of Engineers	●	○	○	○	○	○
Federal Energy Regulatory Commission	●	○	○	○	○	○
Natural Resource Conservation Service	●	○	○	○	○	○
American Rivers	○	○	○	●	○	○

Please indicate which FY each partner provided contributions to Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (select all that apply).

	FY19
U.S. Army Corps of Engineers	☑
Federal Energy Regulatory Commission	☑
Natural Resource Conservation Service	☑
American Rivers	☑

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19
U.S. Army Corps of Engineers	
Federal Energy Regulatory Commission	
Natural Resource Conservation Service	
American Rivers	

Please indicate the type(s) of contributions provided by each partner for Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (please select all that apply).

	U.S. Army Corps of Engineers	Federal Energy Regulatory Commission	Natural Resource Conservation Service	Americ River
Prize purse (monetary award)	☐	☐	☐	☐
Transportation of participants	☐	☐	☐	☐
Purchase of consumable materials	☐	☐	☐	☐
Web portal/app development and support	☐	☐	☐	☐
Purchase or rental of equipment	☐	☐	☐	☐
Operations or administrative support	☐	☐	☐	☐
Database development	☐	☐	☐	☐
Solution acceleration	☐	☐	☐	☐
Other	☑	☑	☑	☑
Discovery and design support	☑	☑	☑	☑
Publicity/advertising/outreach/communications	☑	☑	☑	☑
Software development	☐	☐	☐	☐
Data entry/analysis	☐	☐	☐	☐
Non-monetary award(s)	☐	☐	☐	☐

Please indicate what other resources, if any, were provided by each partner to support Sediment Removal Techniques for Reservoir Sustainability – Stage 1. If no other resources were provided, please enter "None."

U.S. Army Corps of Engineers	Submission evaluations
Federal Energy Regulatory Commission	Submission evaluations
Natural Resource Conservation Service	Submission evaluations
American Rivers	Submission evaluations

To the best of your ability, please select which practices were used to support Sediment Removal Techniques for Reservoir Sustainability – Stage 1 (select all that apply).

☐ My office or agency has identified a prize competition and challenge POC (not dedicated

full-time to prize competitions and challenges)

- [x] My office or agency has a dedicated, central prize competition and challenge coordinator
- [x] My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- [x] My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges
- [x] My office or agency has policy or guidance supporting the use of prize competitions and challenges
- [ ] My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- [x] My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- [ ] My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- [x] My office or agency uses internal communication tools to support prizes competitions and challenges
- [x] My office or agency provides centralized training and design support for staff conducting prize competitions and challenges
- [ ] Other (please specify):

- [ ] None or Unknown

Please indicate whether Sediment Removal Techniques for Reservoir Sustainability – Stage 1 was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ● No

Previous Page

Submit

Below is a summary of your responses

Download PDF

FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Powering Electronic Instruments on a Rotating Shaft**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

Reporting information for prize competitions conducted or otherwise supported under other authorities provides visibility for the effort, and can be valuable for the overall prize competitions community, as well as the public, to see how competitions can be used to advance agency missions. Agencies are highly encouraged, but not required, to complete this survey for prize competitions conducted under authorities other than COMPETES during this reporting period.

OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey once for each prize competition or challenge that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Powering Electronic Instruments on a Rotating Shaft.

Primary point of contact within your agency for Powering Electronic Instruments on a Rotating

Shaft (response required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Powering Electronic Instruments on a Rotating Shaft, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/shaft-power.html;
https://innocentive.wazoku.com/#/challenge/a17b5b0f19214298af96118837f41212?scrollTo=scrollDisco&searchIndex=12

Please provide a summary of Powering Electronic Instruments on a Rotating Shaft suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

Reclamation's hydropower generating units are expected to safely and reliably produce the power that is delivered to the western electric grid. Equipment monitoring via electronic instruments on the generator shaft provide a critical advancement toward keeping these units operational and reducing costly outages. These instruments require a continuous power source in order to keep it online and performing its key role. New power source solutions are needed to permanently install low power instruments on the generator's rotating shaft to collect continuous data pertinent to operation and performance of the machine. Reclamation and its collaborators sought novel methods and technologies to reliably provide direct current power for loads of up to twenty watts to instruments on rotating shafts. Proposed solutions were required to be applicable to rotating shafts that are 18- to 144-inch diameter, whether at rated speed (72 to 550 revolutions per minute), standstill, or when ramping up or down. Small, lightweight solutions were preferred, and could be achieved via multiple methods, including air movement, light, vibration, magnetic induction, kinetic motion, or wireless energy transfer. The competition was posted on September 6, 2018 and was open for 90 days, with all submissions due by December 8, 2018. Phase I submission packages were required to include a detailed description of the proposed solution, along with rationale as to how the proposed solution improves on existing technologies or approaches currently used. Phase II required solvers to submit a prototype for lab testing and potential testing at a Reclamation hydropower plant.

Characters remaining: 336

Status FY19 - Please select the status of Powering Electronic Instruments on a Rotating Shaft during FY19 (select all that apply) (response required).

- [ ] Launched
- [x] Ongoing
- [x] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of Powering Electronic Instruments on a Rotating Shaft during FY20 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [ ] Completed
- [x] No activity occurred during FY20

Authority - Please select the authority under which Powering Electronic Instruments on a Rotating Shaft was conducted (response required).

- (●) America COMPETES Reauthorization Act of 2010
- ( ) Other authority (please specify)

- ( ) Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency	Department of the Interior
Office or component	Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component	N/A

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

Does Powering Electronic Instruments on a Rotating Shaft have multiple phases (response required)?

- (●) Yes
- ( ) No

Please provide the total number of phases planned for Powering Electronic Instruments on a Rotating Shaft.

- (●) 2 phases
- ( ) 3 phases
- ( ) 4 phases
- ( ) 5 phases
- ( ) 6 phases

Which phase(s) did Powering Electronic Instruments on a Rotating Shaft go through during FY19-20 (select all that apply)?

- [x] Phase 1
- [x] Phase 2

Please provide the following phase specific information, if available, for Powering Electronic Instruments on a Rotating Shaft. Please note that dates should be entered in the following format mm/dd/yyyy.

	Phase dates		Submissions
	Submissions open	Submissions closed	Number of submissions
Phase 1	09/06/2018	12/08/2018	66
Phase 2	01/15/2019	04/20/2019	2

Please provide the following phase specific information about Powering Electronic Instruments on a Rotating Shaft.

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced	Total prize purse for awards given

	Award Information		Announcement Date	Prize Purse
Phase 1	Total number of awards available: 99999	Total number of awards given out: 6	Date winners were announced (mm/dd/yyyy): 08/30/2019	Total prize purse for awards given out: 50,000
Phase 2	99999	2	09/24/2019	200,000

Please indicate what submissions consisted of or included for each phase that took place in FY19-20 (select all that apply) (response required).

	Phase 1	Phase 2
Proposal or concept	☑	☐
Prototype device or object	☐	☑
Software or computer code	☐	☐
Business or commercial development plan	☐	☐
Creative media (e.g., images, videos, podcasts, logos)	☐	☐
Analysis or visualization of data	☐	☐
Other	☐	☐

Please provide a description of the submission(s) sought by Powering Electronic Instruments on a Rotating Shaft (max of 150 words).

The Bureau of Reclamation and its collaborators sought devices to provide direct current power for loads of up to 20 watts (20 W) to electronic instruments on rotating shafts. Proposed solutions must be applicable to rotating shafts that are 18- to 144-inch diameter, whether during rotation (72 to 550 rpm), standstill, before generator rotation begins or after it ends. New devices or significant improvements to existing methods and technologies, as long as the improvements offer substantial enhancement were sought. This was a two-phase Reduction-to-Practice Challenge that requires (Phase 1) written documentation, proof-of-concept data and, (Phase 2) sample/prototype delivery for experimental validation.

Characters remaining: 292

Please indicate whether the participants in Powering Electronic Instruments on a Rotating Shaft were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19: 66 – Some teams only have 1 team member

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Powering Electronic Instruments on a Rotating Shaft, mobilize potential participants, and ensure high quality submissions (select all that apply) (response required).

- [x] Posted on challenge.gov
- [x] Press release
- [x] Social media (e.g., Twitter, Facebook)
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [ ] Live video streaming announcement
- [ ] Live event(s) prior to the competition
- [x] Publicity efforts from vendors/contractors
- [x] Email (e.g., listservs)

☑ Email (e.g., listservs)

☑ Other (please specify):

Agency Prize Webpage

Please describe the method(s) used to evaluate submissions to Powering Electronic Instruments on a Rotating Shaft and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words) (response required).

Phase I: A judge's panel reviewed all Phase 1 submissions. Entries were reviewed against evaluation criteria that included power efficiency, robustness, ease of implementation, costs, and feasibility of mass productions. The evaluation panel included Federal subject matter experts internal and external to Reclamation. Phase II evaluations included laboratory testing to determine operability, safety, and validation of submission. Phase II results were evaluated by Reclamation subject matter experts.

Characters remaining: 496

Please indicate the types of goals Powering Electronic Instruments on a Rotating Shaft achieved (select all that apply) (response required).

☐ Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)

☐ Outreach/information dissemination

☐ Improve a process/procedure/service carried out by the sponsoring agency

☑ Generate innovative ideas/designs/concepts (ideation)

☐ Build or strengthen a community

☑ Develop/demonstrate technology (hardware or software)

☐ Education/training

☐ Other (please specify)

Please describe the problem or opportunity Powering Electronic Instruments on a Rotating Shaft is/was designed to address (max 150 words) (response required).

Reclamation is the second largest hydropower producer in the nation, operating 53 powerplants with a generation capacity of 14,730 megawatts and more than 40 billion kilowatt-hours of electricity produced annually. Reclamation's hydropower generating units are expected to safely and reliably produce the power that is delivered to the western electric grid. Monitoring these generating units provides a critical advancement toward keeping the units operational and reducing costly outages. Monitoring instruments require a

continuous power source in order to keep them online and performing their key role. New solutions are needed to permanently install low-power instruments on a rotating shaft in order to collect continuous data pertinent to generator operation and performance. Presently, the available power sources for electronic instruments on rotating shafts include batteries and contact solutions. A battery does not provide continuous operation and requires generator downtime to replace

Characters remaining: 0

Please describe how Powering Electronic Instruments on a Rotating Shaft advanced the agency's mission (max 150 words) (response required).

Reclamation is the second largest hydropower producer in the nation, operating 53 powerplants with a generation capacity of 14,730 megawatts and more than 40 billion kilowatt-hours of electricity produced annually. Reclamation's hydropower generating units are expected to safely and reliably produce the power that is delivered to the western electric grid. Monitoring these generating units provides a critical advancement toward keeping the units operational and reducing costly outages.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply) (response required).

- [ ] Activity required diverse expertise or interdisciplinary collaboration
- [ ] Promote awareness of a specific topic or agency research area
- [x] Flexibility to implement project design and achieve project goals
- [ ] Identify and work with new innovators
- [ ] Required by executive policy or congressional legislation
- [ ] Less burdensome to design and execute than alternatives
- [x] Sought diverse and/or innovative solutions
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [x] Target audience could not have been reached through traditional mechanisms
- [ ] Previous success with a prize competition
- [ ] Most cost-effective approach
- [ ] Engage a specific community
- [x] Incentivize a larger number of submissions
- [x] Develop solutions in a quick timeframe
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words) (response required).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Powering Electronic Instruments on a Rotating Shaft for each fiscal year (please select all that apply) (response required).

	FY19
Prize purse (monetary award)	☑
Purchase or rental of equipment	☐
Purchase of consumable materials	☐
Transportation of participants	☐
Software development	☐
Data entry/analysis	☐
Solution acceleration	☐
Web portal/app development and support	☑
Other (please specify):	☐
Non-monetary award(s)	☐
Database development	☐
Federal personnel (FTE)	☑
Discovery and design support	☑
Publicity/advertising/outreach/communications	☑
Operations or administrative support	☑

Please provide a detailed description of how agency funds were used in support of Powering Electronic Instruments on a Rotating Shaft (do not include a description of the prize purse or non-monetary awards) (max 300 words) (response required).

Agency funding supported vendor contract (platform and solver engagement), competition design, data management, judging, promotion and outreach, solver webinar to provide feedback, and administrative activities such as solver payment and post competition announcements.

Characters remaining: 1740

Provide a best estimate of the dollar amount the agency used in support of Powering Electronic Instruments on a Rotating Shaft (do not include prize purse funding or the cost of FTE staffing) (response required).

FY19	30,630

Provide a best estimate of the total number of FTEs used to execute Powering Electronic Instruments on a Rotating Shaft (please note that one work year, or one FTE, is equivalent to 2,080 hours of work) (response required).

FY19	0.21

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable) (response required).

	Total prize purse offered	Total prize purse awarded
FY19	250,000	65,250

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words) (response required).

Non-monetary incentives offered included a demonstration event with invitees from industry, non-profit organizations, and venture capital representatives. After multiple attempts to address safety concerns associated with the prototypes received, Reclamation was unable to install solutions for demonstration thus an event did not occur. Reclamation hosted a webinar with each of the final solvers to provide a summary of the lab evaluation, feedback on solutions, and respond to solver questions.

Characters remaining: 1510

Please indicate how many partners were involved in Powering Electronic Instruments on a Rotating Shaft.

○ 0

- ○ 0 partners
- ○ 1 partner
- ○ 2 partners
- ● 3 partners
- ○ 4 partners
- ○ 5 partners
- ○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Powering Electronic Instruments on a Rotating Shaft.

Partner 1	U.S. Army Corps of Engineers
Partner 2	Bonneville Power Administration
Partner 3	Department of Energy

Please provide the following information for each partner that was involved in Powering Electronic Instruments on a Rotating Shaft.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
U.S. Army Corps of Engineers	●	○	○	○	○	○
Bonneville Power Administration	●	○	○	○	○	○
Department of Energy	●	○	○	○	○	○

Please indicate which FY each partner provided contributions to Powering Electronic Instruments on a Rotating Shaft (select all that apply).

	FY19
U.S. Army Corps of Engineers	☑
Bonneville Power Administration	☑

	FY19
Department of Energy	☑

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19
U.S. Army Corps of Engineers	
Bonneville Power Administration	
Department of Energy	

Please indicate the type(s) of contributions provided by each partner for Powering Electronic Instruments on a Rotating Shaft (please select all that apply).

	U.S. Army Corps of Engineers	Bonneville Power Administration	Department of Energy
Transportation of participants	☐	☐	☐
Non-monetary award(s)	☐	☐	☐
Web portal/app development and support	☐	☐	☐
Database development	☐	☐	☐
Solution acceleration	☐	☐	☐
Software development	☐	☐	☐
Discovery and design support	☑	☑	☑
Purchase or rental of equipment	☐	☐	☐
Other	☑	☑	☑
Publicity/advertising/outreach/communications	☑	☑	☑
Prize purse (monetary award)	☐	☐	☐
Operations or administrative support	☐	☐	☐
Purchase of consumable materials	☐	☐	☐
Data entry/analysis	☐	☐	☐

Please indicate what other resources, if any, were provided by each partner to support Powering Electronic Instruments on a Rotating Shaft. If no other resources were provided, please enter "None."

U.S. Army Corps of Engineers	Phase 1 Submission Evaluations

Bonneville Power Administration	Phase 1 Submission Evaluations
Department of Energy	Phase 1 Submission Evaluations

To the best of your ability, please select which practices were used to support Powering Electronic Instruments on a Rotating Shaft (select all that apply).

- [x] My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- [ ] My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- [x] My office or agency has policy or guidance supporting the use of prize competitions and challenges
- [x] My office or agency provides centralized training and design support for staff conducting prize competitions and challenges
- [x] My office or agency uses internal communication tools to support prizes competitions and challenges
- [x] My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- [ ] My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- [x] My office or agency has a dedicated, central prize competition and challenge coordinator
- [x] My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges
- [ ] My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- [ ] Other (please specify):

- [ ] None or Unknown

Please indicate whether Powering Electronic Instruments on a Rotating Shaft was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ● No

Previous Page

Submit

Below is a summary of your responses

Download PDF

FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Improving Fish Exclusion from Water Diversions and Intakes.**

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

Reporting information for prize competitions conducted or otherwise supported under other authorities provides visibility for the effort, and can be valuable for the overall prize competitions community, as well as the public, to see how competitions can be used to advance agency missions. Agencies are highly encouraged, but not required, to complete this survey for prize competitions conducted under authorities other than COMPETES during this reporting period.

OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey once for each prize competition or challenge that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Improving Fish Exclusion from Water Diversions and Intakes.

Primary point of contact within your agency for Improving Fish Exclusion from Water Diversions and

Intakes (response required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Improving Fish Exclusion from Water Diversions and Intakes, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/fishexclusion.html; https://innocentive.wazoku.com/#/challenge/9ed9f20c430b4689a356cfcac9789b16?scrollTo=scrollDisco&searchIndex=12

Please provide a summary of Improving Fish Exclusion from Water Diversions and Intakes suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

The Improving Fish Exclusion from Water Diversions and Intakes prize competition sought methods for excluding fish species found in freshwater rivers and/or estuaries in the United States from water diversions and intakes. Without a fish exclusion device or method, fish can be entrained into a diversion or intake which means that they are removed from their natural environment. This can result in the loss of native fishes and reduced operating capabilities of the involved infrastructure. Opportunities to reduce entrainment at diversions and intakes promote more sustainable and reliable water resource systems that can provide greater benefits for aquatic species and the public. Prize competition submissions could present new ideas for addressing fish exclusion or improvements to existing technologies. Solutions could be applied to river and canal diversions, unscreened diversion pipes, or intakes at dams. Submissions that addressed fish exclusion for one or more fish species of concern in the United States at any life stage (e.g. salmon, steelhead, sturgeon [green, pallid, shovelnose] and paddlefish, eel, lamprey [Pacific, brook, and river], Delta smelt, shad, suckers, river herring [alewife, blueback herring], bull trout) were accepted. Successful solutions were expected to have high fish protection efficiencies, low costs, and provide minimal impact to fish health and the environment. The prize competition was a theoretical challenge which required submission of a written proposal describing the fish exclusion idea in detail along with drawings, specifications, and supporting data and literature. Thirty-eight submissions were received for review by the multi-agency judging panel. Six selected winners shared a total prize award amount of $75,000 with four winners meeting all of the technical criteria and two winners meeting some of the technical criteria.

Characters remaining: 111

Status FY19 - Please select the status of Improving Fish Exclusion from Water Diversions and Intakes during FY19 (select all that apply) (response required).

- [x] Launched
- [ ] Ongoing
- [x] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of Improving Fish Exclusion from Water Diversions and Intakes during FY20 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [ ] Completed
- [x] No activity occurred during FY20

Authority - Please select the authority under which Improving Fish Exclusion from Water Diversions and Intakes was conducted (response required).

- (●) America COMPETES Reauthorization Act of 2010
- ( ) Other authority (please specify)

- ( ) Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component: N/A

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

Does Improving Fish Exclusion from Water Diversions and Intakes have multiple phases (response required)?

- ○ Yes
- ● No

Please provide the following information, if available, for Improving Fish Exclusion from Water Diversions and Intakes. Please note that dates should be entered in the following format mm/dd/yyyy.

	Submission dates		Submissions
	Open date	Close date	Number of submissions
Improving Fish Exclusion from Water Diversions and Intakes	03/06/2019	05/06/2019	38

Please provide the following information about Improving Fish Exclusion from Water Diversions and Intakes (response required).

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Improving Fish Exclusion from Water Diversions and Intakes	0	6	12/11/2019	75,000

Please indicate the type(s) of submissions sought by Improving Fish Exclusion from Water Diversions and Intakes (select all that apply) (response required).

- ☐ Business or commercial development plan
- ☐ Prototype device or object
- ☐ Analysis or visualization of data
- ☐ Proposal or white paper

- [x] Proposal or concept
- [ ] Creative media (e.g., images, videos, podcasts, logos)
- [ ] Software or computer code
- [ ] Other (please specify)

Please provide a description of the submission(s) sought by Improving Fish Exclusion from Water Diversions and Intakes (max of 150 words).

The Improving Fish Exclusion from Water Diversions and Intakes prize competition sought new ideas for gaining successful and cost-effective fish exclusion at water diversions and intakes and improvements to existing fish exclusion technologies (e.g. designs, materials, cleaning techniques). Solutions were expected to have high fish protection efficiencies, low costs, and low impact to fish health and the environment. Competitors could submit solutions deemed effective for any fish species and life stage found in freshwater rivers and/or estuaries in the United States. The theoretical competition required submission of a written proposal describing in detail how the proposed concept met the required technical criteria stated in the competition posting.

Characters remaining: 244

Please indicate whether the participants in Improving Fish Exclusion from Water Diversions and Intakes were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19	38 - Some teams only have 1 team member

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students

- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Improving Fish Exclusion from Water Diversions and Intakes, mobilize potential participants, and ensure high quality submissions (select all that apply) (response required).

- [x] Posted on challenge.gov
- [ ] Live video streaming announcement
- [x] Publicity efforts from vendors/contractors
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [x] Press release
- [x] Social media (e.g., Twitter, Facebook)
- [x] Email (e.g., listservs)
- [ ] Live event(s) prior to the competition
- [x] Other (please specify):

Reclamation Prize Webpage

Please describe the method(s) used to evaluate submissions to Improving Fish Exclusion from Water Diversions and Intakes and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words) (response required).

Submissions were evaluated based on established technical criteria stated in the competition posting (novelty, effectiveness, applicability, cost, impact to fish health and the environment). Judges provided an independent numerical score to determine the highest-ranking proposals. The judging panel met via web conference to discuss the highest-ranked proposals in detail and arrive at consensus opinion on winning submissions. The judging panel consisted of 13 Federal subject matter experts in biology and engineering internal and external to Reclamation.

Characters remaining: 446

Please indicate the types of goals Improving Fish Exclusion from Water Diversions and Intakes achieved (select all that apply) (response required).

- [x] Build or strengthen a community
- [ ] Education/training
- [ ] Develop/demonstrate technology (hardware or software)
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [ ] Improve a process/procedure/service carried out by the sponsoring agency
- [x] Outreach/information dissemination
- [x] Generate innovative ideas/designs/concepts (ideation)
- [ ] Other (please specify)

Please describe the problem or opportunity Improving Fish Exclusion from Water Diversions and Intakes is/was designed to address (max 150 words) (response required).

Alterations to the natural environment due to water resource development has impacted many aquatic species. Declines in native fish populations, both resident and migratory, in the United States have led to numerous listings of fish species as threatened or endangered under federal and/or state laws. Unscreened or ineffectively screened water diversions and pipes used to redirect water for irrigation, water supply, and hydropower intakes provide avenues for fish to move into unnatural environments. Fish entrainment into water diversions and intakes can have population-level impacts, threatening biodiversity and impeding fish recovery efforts for threatened and endangered species. While effective fish exclusion for some fish species and life history stages can be achieved, improvements are needed to increase fish protection efficiencies, target a wider range of fish species and sizes, and reduce construction, operation, and maintenance costs compared to conventional fish exclusion methods.

Characters remaining: 1

Please describe how Improving Fish Exclusion from Water Diversions and Intakes advanced the agency's mission (max 150 words) (response required).

Novel technologies or improvements to existing technologies provide water managers and technical experts with better solutions to reduce potential harm to fish species of concern while maintaining reliable delivery of water and power. Opportunities to reduce entrainment at diversions and intakes promote more sustainable and reliable water resource systems that can provide greater benefits for aquatic species and the public.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply) (response required).

- [x] Promote awareness of a specific topic or agency research area
- [ ] Flexibility to implement project design and achieve project goals
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [ ] Engage a specific community
- [x] Most cost-effective approach
- [x] Target audience could not have been reached through traditional mechanisms
- [x] Develop solutions in a quick timeframe
- [ ] Identify and work with new innovators
- [x] Incentivize a larger number of submissions
- [x] Sought diverse and/or innovative solutions
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Less burdensome to design and execute than alternatives
- [ ] Activity required diverse expertise or interdisciplinary collaboration
- [ ] Required by executive policy or congressional legislation
- [x] Previous success with a prize competition
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words) (response required).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Improving Fish Exclusion from Water Diversions and Intakes for each fiscal year (please select all that apply) (response required).

	FY19
Purchase of consumable materials	☐
Non-monetary award(s)	☐
Publicity/advertising/outreach/communications	☑
Operations or administrative support	☑
Database development	☐
Federal personnel (FTE)	☑
Web portal/app development and support	☑
Prize purse (monetary award)	☑
Other (please specify):	☐
Transportation of participants	☐
Purchase or rental of equipment	☐
Solution acceleration	☐
Data entry/analysis	☐
Software development	☐
Discovery and design support	☑

Please provide a detailed description of how agency funds were used in support of Improving Fish Exclusion from Water Diversions and Intakes (do not include a description of the prize purse or non-monetary awards) (max 300 words) (response required).

Agency funding supported vendor contract (platform and solver engagement), competition design, data management, judging, promotion and outreach, and administrative activities such as solver payment and post competition announcements.

Characters remaining: 1777

Provide a best estimate of the dollar amount the agency used in support of Improving Fish Exclusion from Water Diversions and Intakes (do not include prize purse funding or the cost of FTE staffing) (response required).

FY19	15,300

Provide a best estimate of the total number of FTEs used to execute Improving Fish Exclusion from Water Diversions and Intakes (please note that one work year, or one FTE, is equivalent to 2,080 hours of work) (response required).

FY19	0.2

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable) (response required).

	Total prize purse offered	Total prize purse awarded
FY19	75,000	75,000

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words) (response required).

N/A

Characters remaining: 2007

Please indicate how many partners were involved in Improving Fish Exclusion from Water Diversions and Intakes.

- ○ 0 partners
- ○ 1 partner
- ○ 2 partners
- ○ 3 partners
- ○ 4 partners
- ○ 5 partners
- ● >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Improving Fish Exclusion from Water Diversions and Intakes.

Partner 1	U.S. Department of Energy's Water Power Technologies Office
Partner 2	U.S. Geological Survey
Partner 3	NOAA Fisheries
Partner 4	U.S. Fish and Wildlife Service
Partner 5	U.S. Army Corps of Engineers

Please provide the following information for each partner that was involved in Improving Fish Exclusion from Water Diversions and Intakes.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
U.S. Department of Energy's Water Power Technologies Office	●	○	○	○	○	○
U.S. Geological Survey	●	○	○	○	○	○
NOAA Fisheries	●	○	○	○	○	○
U.S. Fish and Wildlife Service	●	○	○	○	○	○
U.S. Army Corps of Engineers	●	○	○	○	○	○

Please indicate which FY each partner provided contributions to Improving Fish Exclusion from Water Diversions and Intakes (select all that apply).

	FY19
U.S. Department of Energy's Water Power Technologies Office	☑
U.S. Geological Survey	☑
NOAA Fisheries	☑
U.S. Fish and Wildlife Service	☑
U.S. Army Corps of Engineers	☑

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19
U.S. Department of	

	FY19
U.S. Department of Energy's Water Power Technologies Office	
U.S. Geological Survey	
NOAA Fisheries	
U.S. Fish and Wildlife Service	
U.S. Army Corps of Engineers	

Please indicate the type(s) of contributions provided by each partner for Improving Fish Exclusion from Wa Diversions and Intakes (please select all that apply).

	U.S. Department of Energy's Water Power Technologies Office	U.S. Geological Survey	NOAA Fisheries	U.S. Fish and Wildlife Service	E
Purchase or rental of equipment	☐	☐	☐	☐	
Database development	☐	☐	☐	☐	
Software development	☐	☐	☐	☐	
Non-monetary award(s)	☐	☐	☐	☐	
Discovery and design support	☑	☑	☑	☑	
Operations or administrative support	☐	☐	☐	☐	
Purchase of consumable materials	☐	☐	☐	☐	
Web portal/app development and support	☐	☐	☐	☐	
Other	☑	☑	☑	☑	
Solution acceleration	☐	☐	☐	☐	
Publicity/advertising/outreach/communications	☑	☑	☑	☑	
Transportation of participants	☐	☐	☐	☐	
Prize purse (monetary award)	☐	☐	☐	☐	
Data entry/analysis	☐	☐	☐	☐	

Please indicate what other resources, if any, were provided by each partner to support Improving Fish Exclusion from Water Diversions and Intakes. If no other resources were provided, please enter "None."

U.S. Department of Energy's Water Power	

Technologies Office	Submission evaluation
U.S. Geological Survey	Submission evaluation
NOAA Fisheries	Submission evaluation
U.S. Fish and Wildlife Service	Submission evaluation
U.S. Army Corps of Engineers	Submission evaluation

To the best of your ability, please select which practices were used to support Improving Fish Exclusion from Water Diversions and Intakes (select all that apply).

- [x] My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- [x] My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- [ ] My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- [x] My office or agency has a dedicated, central prize competition and challenge coordinator
- [ ] My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- [ ] My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- [x] My office or agency provides centralized training and design support for staff conducting prize competitions and challenges
- [x] My office or agency uses internal communication tools to support prizes competitions and challenges
- [x] My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges
- [x] My office or agency has policy or guidance supporting the use of prize competitions and challenges
- [ ] Other (please specify):

- [ ] None or Unknown

Please indicate whether Improving Fish Exclusion from Water Diversions and Intakes was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ◉ No

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Below is a summary of your responses

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FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Lowering the Cost of Continuous Stream Flow Monitoring**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

Reporting information for prize competitions conducted or otherwise supported under other authorities provides visibility for the effort, and can be valuable for the overall prize competitions community, as well as the public, to see how competitions can be used to advance agency missions. Agencies are highly encouraged, but not required, to complete this survey for prize competitions conducted under authorities other than COMPETES during this reporting period.

OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey once for each prize competition or challenge that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Lowering the Cost of Continuous Stream Flow Monitoring.

Primary point of contact within your agency for Lowering the Cost of Continuous Stream Flow

Monitoring (response required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Lowering the Cost of Continuous Stream Flow Monitoring, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/streamflow.html; https://innocentive.wazoku.com/#/challenge/82ea95f2d429421bad145d3752d16c16?scrollTo=scrollDisco&searchIndex=7

Please provide a summary of Lowering the Cost of Continuous Stream Flow Monitoring suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

Water resources planning, management, and research rely extensively on accurate and reliable streamflow data. Long-term streamflow records, for example, are critical to the design of water supply and flood control projects, as well as infrastructure in and adjacent to stream channels. Similarly, water managers rely on real-time streamflow data to support water supply and flood control operations, including forecast and early warning systems for droughts and floods. Long-term and real-time streamflow data also support a broad range of water resources and environmental research. The Bureau of Reclamation (Reclamation) and U.S. Geological Survey (USGS) sought new and innovative methods to significantly reduce the cost of continuous streamflow monitoring compared to current methods. The challenge sought white paper submissions detailing the proposed method for continuous streamflow monitoring, including a thorough description of the physical principles underlying the proposed method, all equipment and operation and maintenance (O&M) procedures required to implement the method, and estimated costs. Methods proposed in submissions were required to be applicable to continuous monitoring of the volumetric flow rate of water in open channels, including natural channels (e.g., streams and rivers) and engineered channels (e.g., aqueducts, canals, and drainage channels). Methods should be applicable across wide range of flow rates, channel sizes, and channel geometries, and the accuracy and reliability of methods should be comparable or better than current methods. The competition was posted on February 22, 2019 and was open for 45 days, with all submissions due by April 8, 2019. Submission packages were required to include a detailed description of the proposed solution, along with rationale as to how the proposed solution improves on existing technologies or approaches currently used for continuous streamflow monitoring.

Characters remaining: 50

Status FY19 - Please select the status of Lowering the Cost of Continuous Stream Flow Monitoring during FY19 (select all that apply) (response required).

- [x] Launched
- [ ] Ongoing
- [x] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of Lowering the Cost of Continuous Stream Flow Monitoring during FY20 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [ ] Completed
- [x] No activity occurred during FY20

Authority - Please select the authority under which Lowering the Cost of Continuous Stream Flow Monitoring was conducted (response required).

- (●) America COMPETES Reauthorization Act of 2010
- ( ) Other authority (please specify)

- ( ) Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency	Department of the Interior
Office or component	Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component	N/A

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

Does Lowering the Cost of Continuous Stream Flow Monitoring have multiple phases (response required)?

- ○ Yes
- ● No

Please provide the following information, if available, for Lowering the Cost of Continuous Stream Flow Monitoring. Please note that dates should be entered in the following format mm/dd/yyyy.

	Submission dates		Submissions
	Open date	Close date	Number of submissions
Lowering the Cost of Continuous Stream Flow Monitoring	02/22/2019	04/08/2019	40

Please provide the following information about Lowering the Cost of Continuous Stream Flow Monitoring (response required).

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Lowering the Cost of Continuous Stream Flow Monitoring	5	5	01/21/2020	75,000

Please indicate the type(s) of submissions sought by Lowering the Cost of Continuous Stream Flow Monitoring (select all that apply) (response required).

- ☐ Creative media (e.g., images, videos, podcasts, logos)
- ☐ Software or computer code

- [x] Proposal or concept
- [ ] Prototype device or object
- [ ] Analysis or visualization of data
- [ ] Business or commercial development plan
- [ ] Other (please specify)

Please provide a description of the submission(s) sought by Lowering the Cost of Continuous Stream Flow Monitoring (max of 150 words).

The Lowering the Cost of Continuous Streamflow Monitoring prize competition sought innovative ideas to significantly reduce the cost of continuous streamflow monitoring compared to current methods while also increasing the availability of streamflow data. Accurate and reliable records from continuous streamflow monitoring stations are vital to water resources planning, design, management and research. The methods proposed had to be applicable to continuous monitoring of the volumetric flow rate of water in open channels, including natural channels (e.g., streams and rivers) and engineered channels (e.g., aqueducts, canals and drainage channels). In addition, the methods had to be applicable across a wide range of flow rates, channel sizes and channel geometries.

Characters remaining: 233

Please indicate whether the participants in Lowering the Cost of Continuous Stream Flow Monitoring were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19	40 - Some teams only have 1 team member

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students

- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Lowering the Cost of Continuous Stream Flow Monitoring, mobilize potential participants, and ensure high quality submissions (select all that apply) (response required).

- [x] Social media (e.g., Twitter, Facebook)
- [x] Email (e.g., listservs)
- [ ] Live event(s) prior to the competition
- [x] Press release
- [x] Publicity efforts from vendors/contractors
- [x] Posted on challenge.gov
- [ ] Live video streaming announcement
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [x] Other (please specify):

Agency prize webpage

Please describe the method(s) used to evaluate submissions to Lowering the Cost of Continuous Stream Flow Monitoring and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words) (response required).

A Judging Panel of subject matter experts evaluated the submissions and decide which Solvers are selected for an award. The Judging Panel was composed of Federal scientists, engineers, and other technical experts, internal and external to Reclamation.

Characters remaining: 753

Please indicate the types of goals Lowering the Cost of Continuous Stream Flow Monitoring achieved (select all that apply) (response required).

- [x] Improve a process/procedure/service carried out by the sponsoring agency
- [x] Generate innovative ideas/designs/concepts (ideation)
- [ ] Outreach/information dissemination
- [ ] Build or strengthen a community
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [ ] Education/training
- [ ] Develop/demonstrate technology (hardware or software)
- [ ] Other (please specify)

Please describe the problem or opportunity Lowering the Cost of Continuous Stream Flow Monitoring is/was designed to address (max 150 words) (response required).

Despite the importance of streamflow data, the existing network of continuous streamflow monitoring stations (also referred to as stream gages) in the United States has generally declined over the past several decades. The primary driver of this decline is the cost of installing, operating, and maintaining stream gages. Between 2000 and 2009, additional funding was made available to reactivate approximately half of the deactivated gages; however, the cost of installing, operating, and maintaining stream gages remains a significant challenge to Federal, Tribal, State, and local water agencies. This prize competition sought new methods or technologies to significantly reduce the equipment and/or labor costs of continuous streamflow monitoring. Solutions were to be applicable to continuous monitoring of the volumetric flow rate of water in open channels, including natural channels (e.g., streams and rivers) and engineered channels (e.g., aqueducts, canals, and drainage channels).

Characters remaining: 11

Please describe how Lowering the Cost of Continuous Stream Flow Monitoring advanced the agency's mission (max 150 words) (response required).

Water resources planning, management, and research rely extensively on accurate and reliable streamflow data. Long-term streamflow records, for example, are critical to the design of water supply and flood control projects, as well as infrastructure in and adjacent to stream channels. Similarly, water managers rely on real-time streamflow data to support water supply and flood control operations, including forecast and early warning systems for droughts and floods. Long-term and real-time streamflow data also support a broad range of water resources and environmental research.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply) (response required).

- [x] Previous success with a prize competition
- [ ] Flexibility to implement project design and achieve project goals
- [ ] Required by executive policy or congressional legislation
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Less burdensome to design and execute than alternatives
- [x] Incentivize a larger number of submissions
- [x] Target audience could not have been reached through traditional mechanisms
- [x] Sought diverse and/or innovative solutions
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [ ] Develop solutions in a quick timeframe
- [ ] Activity required diverse expertise or interdisciplinary collaboration
- [ ] Most cost-effective approach
- [ ] Promote awareness of a specific topic or agency research area
- [ ] Identify and work with new innovators
- [ ] Engage a specific community
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words) (response required).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Lowering the Cost of Continuous Stream Flow Monitoring for each fiscal year (please select all that apply) (response required).

	FY19
Solution acceleration	☐
Web portal/app development and support	☑
Operations or administrative support	☑
Discovery and design support	☑
Purchase or rental of equipment	☐
Publicity/advertising/outreach/communications	☑
Database development	☐
Federal personnel (FTE)	☑
Other (please specify):	☐
Data entry/analysis	☐
Software development	☐
Prize purse (monetary award)	☑
Non-monetary award(s)	☐
Purchase of consumable materials	☐
Transportation of participants	☐

Please provide a detailed description of how agency funds were used in support of Lowering the Cost of Continuous Stream Flow Monitoring (do not include a description of the prize purse or non-monetary awards) (max 300 words) (response required).

Agency funding was used to support vendor contract, competition design, data management, judging, and administrative activities such as solver payment and post competition

Characters remaining: 1838

Provide a best estimate of the dollar amount the agency used in support of Lowering the Cost of Continuous Stream Flow Monitoring (do not include prize purse funding or the cost of FTE staffing) (response required).

FY19	15,300

Provide a best estimate of the total number of FTEs used to execute Lowering the Cost of Continuous Stream Flow Monitoring (please note that one work year, or one FTE, is equivalent to 2,080 hours of work) (response required).

FY19	0.17

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable) (response required).

	Total prize purse offered	Total prize purse awarded
FY19	75,000	75,000

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words) (response required).

N/A

Characters remaining: 2007

Please indicate how many partners were involved in Lowering the Cost of Continuous Stream Flow Monitoring.

- ○ 0 partners
- ◉ 1 partner
- ○ 2 partners
- ○ 3 partners
- ○ 4 partners
- ○ 5 partners
- ○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Lowering the Cost of Continuous Stream Flow Monitoring.

Partner 1	U.S. Geological Survey

Please provide the following information for each partner that was involved in Lowering the Cost of Continuous Stream Flow Monitoring.

							Nonprofit Organization
	Federal	State or					

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
U.S. Geological Survey	●	○	○	○	○	○

Please indicate which FY each partner provided contributions to Lowering the Cost of Continuous Stream Flow Monitoring (select all that apply).

	FY19
U.S. Geological Survey	☑

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19
U.S. Geological Survey	

Please indicate the type(s) of contributions provided by each partner for Lowering the Cost of Continuous Stream Flow Monitoring (please select all that apply).

	U.S. Geological Survey
Purchase or rental of equipment	☐
Transportation of participants	☐
Purchase of consumable materials	☐
Solution acceleration	☐
Software development	☐
Discovery and design support	☑
Web portal/app development and support	☐
Database development	☐
Other	☑
Non-monetary award(s)	☐
Data entry/analysis	☐
Publicity/advertising/outreach/communications	☑
Operations or administrative support	☐
Prize purse (monetary award)	☐

Please indicate what other resources, if any, were provided by each partner to support Lowering the Cost of Continuous Stream Flow Monitoring. If no other resources were provided, please enter "None."

U.S. Geological Survey	Submission evaluations

To the best of your ability, please select which practices were used to support Lowering the Cost of Continuous Stream Flow Monitoring (select all that apply).

- [x] My office or agency has policy or guidance supporting the use of prize competitions and challenges
- [x] My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- [x] My office or agency uses internal communication tools to support prizes competitions and challenges
- [x] My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges
- [ ] My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- [x] My office or agency provides centralized training and design support for staff conducting prize competitions and challenges
- [x] My office or agency has a dedicated, central prize competition and challenge coordinator
- [ ] My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- [ ] My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- [x] My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- [ ] Other (please specify):

- [ ] None or Unknown

Please indicate whether Lowering the Cost of Continuous Stream Flow Monitoring was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ● No

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FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **White-Nose Syndrome - Fight the Fungus, Save Our Bats**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

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Welcome! This is the data collection survey for the following initiative: White-Nose Syndrome - Fight the Fungus, Save Our Bats.

Primary point of contact within your agency for White-Nose Syndrome - Fight the Fungus, Save Our

Bats (response required).

First name	Jason
Last name	Goldberg
Email address	Jason_Goldberg@fws.gov
Phone number	703-358-1866

Link - Please provide a URL to the homepage for White-Nose Syndrome - Fight the Fungus, Save Our Bats, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.whitenosesyndrome.org/static-page/white-nose-syndrome-challenge

Please provide a summary of White-Nose Syndrome - Fight the Fungus, Save Our Batssuitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

Hibernating bats in North America are in trouble. An invasive fungus, Pseudogymnoascus destructans, that causes a disease called white-nose syndrome is spreading across the continent and killing millions of bats. Bats eat insects and are integral to thriving ecosystems. With the loss of millions of bats because of this deadly fungus, many millions more forest and agriculture insect pests are left to feed on trees and crops, ultimately affecting the balance of nature and even human health. There is no known cure for white-nose syndrome, but scientists from all over the world are working together to study the disease, how it spreads and infects bats and what we can do to control it. Much of this work has been done under the umbrella of the United States' National Response to White-nose Syndrome, a broad, multi-agency effort led by the U.S. Fish and Wildlife Service. The White-nose Syndrome Prize Challenge seeks ideas that may lead to a permanent solution to this crisis of wildlife health by eliminating, weakening, or disarming the fungus that causes it. The White-nose Syndrome Challenge sought ideas that can permanently eliminate, disarm, or weaken P. destructans in the wild without harming other beneficial species or the environment. Ideas recognized through this Challenge will be the focus of future collaborations to establish an appropriate research and development plan to bring the envisioned tools to fruition. Experts in relevant fields, including members of winning teams, if appropriate, will come together to identify critical research and technology needs to develop the solution. After that, qualified scientists, designers and engineers will have an opportunity to apply to do this work and develop prospective tools for use. Once ready, we hope the tool(s)will be used throughout the country to improve survival of bats susceptible to white-nose syndrome.

Characters remaining: 107

Status FY19 - Please select the status of White-Nose Syndrome - Fight the Fungus, Save Our Bats during FY19 (select all that apply) (response required).

- [x] Launched
- [ ] Ongoing
- [ ] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of White-Nose Syndrome - Fight the Fungus, Save Our Bats during FY20 (select all that apply) (response required).

- [ ] Launched
- [x] Ongoing
- [ ] Completed
- [ ] No activity occurred during FY20

Authority - Please select the authority under which White-Nose Syndrome - Fight the Fungus, Save Our Bats was conducted (response required).

- (●) America COMPETES Reauthorization Act of 2010
- ( ) Other authority (please specify)
- ( ) Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: United States Fish and Wildlife Service

If you selected "other" as an office or component please enter the name here.

Office or component: N/A

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you

may need to execute at your agency prior to final submission to STPI.

Does White-Nose Syndrome - Fight the Fungus, Save Our Bats have multiple phases (response required)?

- ○ Yes
- ◉ No

Please provide the following information, if available, for White-Nose Syndrome - Fight the Fungus, Save Our Bats. Please note that dates should be entered in the following format mm/dd/yyyy.

	Submission dates		Submissions
	Open date	Close date	Number of submissions
White-Nose Syndrome - Fight the Fungus, Save Our Bats	10/24/2019	12/31/2019	47

Please provide the following information about White-Nose Syndrome - Fight the Fungus, Save Our Bats (response required).

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
White-Nose Syndrome - Fight the Fungus, Save Our Bats	5	1	11/10/2020	20000

Please indicate the type(s) of submissions sought by White-Nose Syndrome - Fight the Fungus, Save Our Bats (select all that apply) (response required).

- ☐ Software or computer code
- ☑ Proposal or concept
- ☐ Prototype device or object
- ☐ Analysis or visualization of data
- ☐ Business or commercial development plan

- [ ] Creative media (e.g., images, videos, podcasts, logos)
- [ ] Other (please specify)

Please provide a description of the submission(s) sought by White-Nose Syndrome - Fight the Fungus, Save Our Bats (max of 150 words).

We invited ideas that can lead to solutions to reduce the effects of the fungus that causes White-nose Syndrome without harming other beneficial species or the environment and that can be used in the field in the near future.

Characters remaining: 779

Please indicate whether the participants in White-Nose Syndrome - Fight the Fungus, Save Our Bats were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19	47
FY20	

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses

☐ Large businesses

☐ Other (please specify):

Please select which of the following methods were used by the agency to publicize White-Nose Syndrome - Fight the Fungus, Save Our Bats, mobilize potential participants, and ensure high quality submissions (select all that apply) (response required).

☑ Press release

☐ Live event(s) prior to the competition

☐ Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)

☑ Posted on challenge.gov

☑ Email (e.g., listservs)

☐ Publicity efforts from vendors/contractors

☐ Live video streaming announcement

☑ Social media (e.g., Twitter, Facebook)

☑ Other (please specify):

Webinars to discuss the Challenge

Please describe the method(s) used to evaluate submissions to White-Nose Syndrome - Fight the Fungus, Save Our Bats and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words) (response required).

The Service implemented a judging plan to ensure objectivity. Contact information from all submissions was removed to ensure anonymous review. Judges with scientific expertise in issues we anticipated would be part of submissions were recruited from federal agencies, nongovernmental organizations, and academia. The agency had criteria, published in our announcement, that we used to evaluate all submissions.

Characters remaining: 592

Please indicate the types of goals White-Nose Syndrome - Fight the Fungus, Save Our Bats achieved (select all that apply) (response required).

☐ Outreach/information dissemination

☐ Build or strengthen a community

☐ Launch or scale up the use of an enterprise/promote commercialization (including

- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [ ] Improve a process/procedure/service carried out by the sponsoring agency
- [x] Generate innovative ideas/designs/concepts (ideation)
- [ ] Education/training
- [ ] Develop/demonstrate technology (hardware or software)
- [x] Other (please specify)

Improve wildlife conservation.

Please describe the problem or opportunity White-Nose Syndrome - Fight the Fungus, Save Our Bats is/was designed to address (max 150 words) (response required).

The White-nose Syndrome Challenge sought ideas that can permanently eliminate, disarm, or weaken P. destructans, an invasive fungus that causes white-nose syndrome in bats in the wild. Bats eat insects and are integral to thriving ecosystems. With the loss of millions of bats because of this deadly fungus, many millions more forest and agriculture insect pests are left to feed on trees and crops, ultimately affecting the balance of nature and even human health.

Characters remaining: 540

Please describe how White-Nose Syndrome - Fight the Fungus, Save Our Bats advanced the agency's mission (max 150 words) (response required).

The challenge directly relates to the mission of the U.S. Fish and Wildlife Service, which is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply) (response required).

- [x] Activity required diverse expertise or interdisciplinary collaboration
- [ ] Identify and work with new innovators
- [ ] Low risk approach and/or pay-for-performance structure
- [ ] Most cost-effective approach
- [ ] Less burdensome to design and execute than alternatives
- [ ] Develop solutions in a quick timeframe
- [ ] Previous success with a prize competition

- [ ] Required by executive policy or congressional legislation
- [ ] Flexibility to implement project design and achieve project goals
- [x] Promote awareness of a specific topic or agency research area
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [ ] Engage a specific community
- [ ] Incentivize a larger number of submissions
- [x] Sought diverse and/or innovative solutions
- [ ] Target audience could not have been reached through traditional mechanisms
- [x] Other (please specify):

The Challenge offered a novel opportunity to explore options to achieve the goals of the White-nose Syndrome National Plan.

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words) (response required).

The Wildlife and Sport Fish Restoration Program is implementing five new prize challenges under the Theodore Roosevelt Genius Prize competitions established under the John D. Dingell, Jr., Conservation, Management, and Recreation Act, March 12, 2019 (Pub. L. 116–9).

Characters remaining: 1073

Please indicate how agency funds were used in support of White-Nose Syndrome - Fight the Fungus, Save Our Bats for each fiscal year (please select all that apply) (response required).

	FY19	FY20
Purchase or rental of equipment	☐	☐
Federal personnel (FTE)	☑	☑
Non-monetary award(s)	☐	☐
Prize purse (monetary award)	☐	☐
Publicity/advertising/outreach/communications	☐	☐
Operations or administrative support	☐	☐
Data entry/analysis	☐	☐
Web portal/app development and support	☐	☐
Other (please specify):	☐	☐

The prize purse will be awarded in FY21

	FY19	FY20
Solution acceleration	☐	☐
Discovery and design support	☐	☐
Database development	☐	☐
Software development	☐	☐
Transportation of participants	☐	☐
Purchase of consumable materials	☐	☐

Please provide a detailed description of how agency funds were used in support of White-Nose Syndrome - Fight the Fungus, Save Our Bats (do not include a description of the prize purse or non-monetary awards) (max 300 words) (response required).

Agency funds were used to develop, coordinate, and administer the challenge.

Characters remaining: 1934

Provide a best estimate of the dollar amount the agency used in support of White-Nose Syndrome - Fight the Fungus, Save Our Bats (do not include prize purse funding or the cost of FTE staffing) (response required).

FY19	0
FY20	0

Provide a best estimate of the total number of FTEs used to execute White-Nose Syndrome - Fight the Fungus, Save Our Bats (please note that one work year, or one FTE, is equivalent to 2,080 hours of work) (response required).

FY19	0.29
FY20	0.19

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable) (response required).

	Total prize purse offered	Total prize purse awarded
FY19	100000	N/A
FY20	N/A	N/A

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words) (response required).

The U.S. Fish and Wildlife Service will work with partners to determine how to best carry out the idea for bat conservation. The agency may further develop ideas recognized through this Challenge, working with other partners as appropriate. Winners, including honorable mentions, may be invited to participate in a follow-up collaboration to establish an appropriate Research and Development plan for bringing the envisioned tools to fruition. Follow-up research could subsequently be funded by the Bats for the Future Fund or another grant program, or the U.S. Fish and Wildlife Service may choose to implement it directly.

Characters remaining: 1386

Please indicate how many partners were involved in White-Nose Syndrome - Fight the Fungus, Save Our Bats.

- ○ 0 partners
- ○ 1 partner
- ○ 2 partners
- ○ 3 partners
- ○ 4 partners
- ○ 5 partners
- ● >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in White-Nose Syndrome - Fight the Fungus, Save Our Bats.

Partner 1	Academic institutions (judge)
Partner 2	Federal agencies (judge)
Partner 3	International governmental agency (judge)
Partner 4	Non-governmental organization (judge)
Partner 5	

Please provide the following information for each partner that was involved in White-Nose Syndrome - Fight the Fungus, Save Our Bats.

Nonprofit Organization

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Academic Organization (excluding Academic Institutions)	Private Industry	Other
Academic institutions (judge)	○	○	●	○	○	○
Federal agencies (judge)	●	○	○	○	○	○
International governmental agency (judge)	○	○	○	○	○	●
Non-governmental organization (judge)	○	○	○	●	○	○

Please indicate which FY each partner provided contributions to White-Nose Syndrome - Fight the Fungus, Save Our Bats (select all that apply).

	FY19	FY20
Academic institutions (judge)	☑	☐
Federal agencies (judge)	☑	☐
International governmental agency (judge)	☑	☐
Non-governmental organization (judge)	☑	☐

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19	FY20
Academic institutions (judge)	0	0
Federal agencies (judge)	0	0
International governmental agency (judge)	0	0
Non-governmental organization (judge)	0	0

Please indicate the type(s) of contributions provided by each partner for White-Nose Syndrome - Fight

the Fungus, Save Our Bats (please select all that apply).

	Academic institutions (judge)	Federal agencies (judge)	International governmental agency (judge)	Non-governmental organization (judge)
Prize purse (monetary award)	☐	☐	☐	☐
Non-monetary award(s)	☐	☐	☐	☐
Purchase of consumable materials	☐	☐	☐	☐
Purchase or rental of equipment	☐	☐	☐	☐
Transportation of participants	☐	☐	☐	☐
Publicity/advertising/outreach/communications	☐	☐	☐	☐
Web portal/app development and support	☐	☐	☐	☐
Database development	☐	☐	☐	☐
Software development	☐	☐	☐	☐
Data entry/analysis	☐	☐	☐	☐
Discovery and design support	☐	☐	☐	☐
Operations or administrative support	☐	☐	☐	☐
Solution acceleration	☐	☐	☐	☐
Other	☑	☑	☑	☑

	Partner 5
Prize purse (monetary award)	☐
Non-monetary award(s)	☐
Purchase of consumable materials	☐
Purchase or rental of equipment	☐
Transportation of participants	☐
Publicity/advertising/outreach/communications	☐
Web portal/app development and support	☐
Database development	☐
Software development	☐
Data entry/analysis	☐
Discovery and design support	☐
Operations or administrative support	☐

	Partner 5
Solution acceleration	☐
Other	☑

Please indicate what other resources, if any, were provided by each partner to support White-Nose Syndrome - Fight the Fungus, Save Our Bats. If no other resources were provided, please enter "None."

Academic institutions (judge)	Assisted with judging solutions
Federal agencies (judge)	Assisted with judging solutions
International governmental agency (judge)	Assisted with judging solutions
Non-governmental organization (judge)	Assisted with judging solutions

To the best of your ability, please select which practices were used to support White-Nose Syndrome - Fight the Fungus, Save Our Bats (select all that apply).

- ☐ My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- ☐ My office or agency has policy or guidance supporting the use of prize competitions and challenges
- ☐ My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- ☐ My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges
- ☐ My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- ☐ My office or agency provides centralized training and design support for staff conducting prize competitions and challenges
- ☐ My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- ☐ My office or agency has a dedicated, central prize competition and challenge coordinator
- ☐ My office or agency uses internal communication tools to support prizes competitions and challenges
- ☐ My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- ☐ Other (please specify):

- ☑ None or Unknown

Please indicate whether White-Nose Syndrome - Fight the Fungus, Save Our Bats was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ● No

Previous Page

Submit

Below is a summary of your responses

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FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Saving the '?hi?a**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

Reporting information for prize competitions conducted or otherwise supported under other authorities provides visibility for the effort, and can be valuable for the overall prize competitions community, as well as the public, to see how competitions can be used to advance agency missions. Agencies are highly encouraged, but not required, to complete this survey for prize competitions conducted under authorities other than COMPETES during this reporting period.

OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey **once for each prize competition or challenge** that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported

individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Saving the '?hi?a.

Primary point of contact within your agency for Saving the '?hi?a (response required).

First name	Kaiini
Last name	Kaloi
Email address	kkaloi@ios.doi.gov
Phone number	2022087462

Link - Please provide a URL to the homepage for Saving the '?hi?a, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://conservationx.com/challenge/invasives/ohia

Please provide a summary of Saving the '?hi?a suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

Two newly discovered invasive fungal pathogens are killing hundreds of thousands of ʻŌhiʻa trees (Metrosideros polymorpha) on Hawaii island. This mortality is known as Rapid ʻŌhiʻa Death (ROD) and strikes at the heart of not only the Native Hawaiian people who revere the tree as part of their family, but to everyone who has ever been touched by wondrous beauty of the Hawaiian islands. The importance of ʻŌhiʻa cannot be overstated, it is the keystone native tree species, and provides food and habitat for a myriad of species found nowhere else on Earth. Initially thought to be Ceratocystis fimbriata, researchers have confirmed that these two new pathogens are not just new to Hawaii, but also new to science, and are now called Ceratocystis lukuohia and Ceratosistis huliohia. The Saving the ʻŌhiʻa challenge was presented as an open challenge to solicit ideas and projects as potential solutions and encourage collaboration on the ROD issue.

Characters remaining: 1052

Status FY19 - Please select the status of Saving the '?hi?a during FY19 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [x] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of Saving the '?hi?a during FY20 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [x] Completed
- [x] No activity occurred during FY20

Authority - Please select the authority under which Saving the '?hi?a was conducted (response required).

- (●) America COMPETES Reauthorization Act of 2010
- ( ) Other authority (please specify)

○ Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: Office of the Secretary

If you selected "other" as an office or component please enter the name here.

Office or component: Office of Native Hawaiian Relations

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

Does Saving the '?hi?a have multiple phases (response required)?

○ Yes

● No

Please provide the following information, if available, for Saving the '?hi?a. Please note that dates should be entered in the following format mm/dd/yyyy.

	Submission dates		Submissions
	Open date	Close date	Number of submissions
Saving the '?hi?a	08/27/2018	02/01/2019	62

Please provide the following information about Saving the '?hi?a (response required).

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Saving the '?hi?a	3	3	07/10/2019	70,000

Please indicate the type(s) of submissions sought by Saving the '?hi?a (select all that apply) (response required).

- [x] Proposal or concept
- [ ] Software or computer code
- [ ] Business or commercial development plan
- [ ] Creative media (e.g., images, videos, podcasts, logos)
- [x] Analysis or visualization of data
- [x] Prototype device or object
- [ ] Other (please specify)

Please provide a description of the submission(s) sought by Saving the '?hi?a (max of 150 words).

The Challenge is to create low-cost solutions to detect (and predict) the invasion pathways and the spread of the fungus in the environment, as well as solutions that would help contain or reduce the spread without harming other beneficial species. Three categories for solutions in the challenge: 1. Field-based Detection Of Rapid ʻŌhiʻa Death In Asymptomatic Trees 2. Detection Of The Fungus At The Landscape Level 3. Environmental Pathway Identification, Including Predictive Assessment

Characters remaining: 515

Please indicate whether the participants in Saving the '?hi?a were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19	56
FY20	56

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students

- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Saving the '?hi?a, mobilize potential participants, and ensure high quality submissions (select all that apply) (response required).

- [x] Posted on challenge.gov
- [x] Publicity efforts from vendors/contractors
- [x] Live event(s) prior to the competition
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [x] Press release
- [x] Email (e.g., listservs)
- [x] Social media (e.g., Twitter, Facebook)
- [ ] Live video streaming announcement
- [ ] Other (please specify):

Please describe the method(s) used to evaluate submissions to Saving the '?hi?a and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words) (response required).

Judges were cross agency and external. Judging occurred in four phases. Phase 1, Initial scan of applications for eligibility Phase 2, First Application review period: Virtual Judging Panel Discussion Phase 3, Virtual Pitch Sessions Phase 4, Final selection of winner(s):

Characters remaining: 732

Please indicate the types of goals Saving the '?hi?a achieved (select all that apply) (response required).

- [x] Build or strengthen a community
- [x] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)

- [x] Develop/demonstrate technology (hardware or software)
- [x] Education/training
- [x] Outreach/information dissemination
- [ ] Improve a process/procedure/service carried out by the sponsoring agency
- [x] Generate innovative ideas/designs/concepts (ideation)
- [ ] Other (please specify)

Please describe the problem or opportunity Saving the '?hi?a is/was designed to address (max 150 words) (response required).

Two newly discovered invasive fungal pathogens Ceratocystis lukuohia and Ceratocystis huliohia (formerly Ceratocystis fimbriata), are killing hundreds of thousands of ʻŌhiʻa (Metrosideros polymorpha) on Hawaiʻi Island. First observed in 2010, these fungi are responsible for Rapid ʻŌhiʻa Death (ROD). ROD can affect individual trees and entire forests, but is only known on Hawaiʻi Island, where currently, over 100,000 acres of forests are affected. While there is widespread support for research and management to halt the spread of ROD, many unanswered questions remain. For example, we do not fully understand how trees become infected, or how the disease spreads through forests. Understanding the spread of ROD is critical, yet the difficulty of detecting the fungus presents a significant barrier.

Characters remaining: 201

Please describe how Saving the '?hi?a advanced the agency's mission (max 150 words) (response required).

The Ohia Challenge advanced the agency's missions goals to: 1. Creating a Conservation Stewardship Legacy Second Only to Teddy Roosevelt (by protecting National Park and US Wildlife Refuge resources that were attacked by ROD) 2. Restoring Trust with Local Communities (The local communities saw that we were addressing an issue that would drastically affect their water supply and potentially cause billions of dollars in damages to the economy) 3. Preservation of Native Hawaiian Natural and Cultural Resources (The trees being attacked by the invasive fungus are sacred to the Native Hawaiian Community)

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply) (response required).

- [ ] Develop solutions in a quick timeframe
- [x] Most cost-effective approach
- [ ] Required by executive policy or congressional legislation
- [ ] Previous success with a prize competition
- [x] Incentivize a larger number of submissions
- [ ] Flexibility to implement project design and achieve project goals
- [ ] Engage a specific community

- [x] Promote awareness of a specific topic or agency research area
- [x] Activity required diverse expertise or interdisciplinary collaboration
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Less burdensome to design and execute than alternatives
- [x] Sought diverse and/or innovative solutions
- [x] Identify and work with new innovators
- [ ] Target audience could not have been reached through traditional mechanisms
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words) (response required).

N/A

Characters remaining: 1337

Please indicate how agency funds were used in support of Saving the '?hi?a for each fiscal year (please select all that apply) (response required).

	FY19	FY20
Software development	☐	☐
Transportation of participants	☐	☐
Solution acceleration	☐	☐
Non-monetary award(s)	☐	☐
Operations or administrative support	☐	☐
Publicity/advertising/outreach/communications	☑	☐
Discovery and design support	☑	☐
Data entry/analysis	☐	☐
Other (please specify):	☐	☐
Web portal/app development and support	☑	☐
Purchase of consumable materials	☐	☐
Purchase or rental of equipment	☐	☐
Database development	☐	☐
Federal personnel (FTE)	☐	☐
Prize purse (monetary award)	☑	☐

FY19 FY20

Please provide a detailed description of how agency funds were used in support of Saving the '?hi?a (do not include a description of the prize purse or non-monetary awards) (max 300 words) (response required).

The non-prize purse funds allocated for the challenge were utilized to hire a contractor to assist with the administration of the Challenge. This included such things as: social media and traditional media activities; live event assistance; coordination between bureaus and agencies; messaging; and overall guidance on the challenge grant model.

Characters remaining: 1664

Provide a best estimate of the dollar amount the agency used in support of Saving the '?hi?a (do not include prize purse funding or the cost of FTE staffing) (response required).

FY19	$30,000
FY20	0

Provide a best estimate of the total number of FTEs used to execute Saving the '?hi?a (please note that one work year, or one FTE, is equivalent to 2,080 hours of work) (response required).

FY19	200
FY20	0

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable) (response required).

	Total prize purse offered	Total prize purse awarded
FY19	$70000	$70000
FY20	0	0

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words) (response required).

2 Honorable Mentions

Characters remaining: 1990

Please indicate how many partners were involved in Saving the '?hi?a.

- ○ 0 partners

- ○ 1 partner
- ● 2 partners
- ○ 3 partners
- ○ 4 partners
- ○ 5 partners
- ○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Saving the '?hi?a.

Partner 1	Hawaii Volcanoes National Park
Partner 2	Conservation X Labs

Please provide the following information for each partner that was involved in Saving the '?hi?a.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
Hawaii Volcanoes National Park	●	○	○	○	○	○
Conservation X Labs	○	○	○	○	○	●

Please indicate which FY each partner provided contributions to Saving the '?hi?a (select all that apply).

	FY19	FY20
Hawaii Volcanoes National Park	☑	☐
Conservation X Labs	☑	☐

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19	FY20
Hawaii Volcanoes National Park	0	
Conservation X Labs	$10,000	

Please indicate the type(s) of contributions provided by each partner for Saving the '?hi?a (please select all that apply).

	Hawaii Volcanoes National Park	Conservation X Labs
Non-monetary award(s)	☐	☐
Purchase of consumable materials	☐	☐
Operations or administrative support	☑	☑
Discovery and design support	☑	☑
Database development	☐	☐
Data entry/analysis	☑	☑
Software development	☐	☐
Solution acceleration	☐	☑
Other	☐	☐
Prize purse (monetary award)	☐	☐
Web portal/app development and support	☐	☑
Publicity/advertising/outreach/communications	☑	☑
Purchase or rental of equipment	☐	☐
Transportation of participants	☐	☐

To the best of your ability, please select which practices were used to support Saving the '?hi?a (select all that apply).

- ☐ My office or agency has policy or guidance supporting the use of prize competitions and challenges
- ☐ My office or agency has a dedicated, central prize competition and challenge coordinator
- ☑ My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
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- ☐ My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- ☐ Other (please specify):

- ☐ None or Unknown

Please indicate whether Saving the '?hi?a was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ◉ No

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Submit

Q1.
FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Developing the Next Generation of Animal Telemetry**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

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Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey **once for each prize competition or challenge** that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Q2. Welcome! This is the data collection survey for the following initiative: Developing the Next Generation of Animal Telemetry.

Q3. Primary point of contact within your agency for Developing the Next Generation of Animal Telemetry (response required).

First name	Jacob
Last name	Levenson
Email address	Jacob.Levenson@boem.gov
Phone number	(703) 787-1710

Q4. Link - Please provide a URL to the homepage for Developing the Next Generation of Animal Telemetry, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.herox.com/animaltracking/community

Q5. Please provide a summary of Developing the Next Generation of Animal Telemetry suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

Developing the Next Generation of Animal Telemetry is a collaboration between BOEM and the National Aeronautics and Space Administration's (NASA) Advanced Exploration Systems Program. Space-based transceivers aboard CubeSats could provide a low-cost and higher quality method for ocean monitoring using animal telemetry in U.S. federal waters that would be very useful to BOEM and other resource management agencies. NASA is interested in advancing this technology for the potential use of CubeSats for remote surface tracking capabilities on future missions at the Moon, Mars, or other deep space destinations.

Q6. Status FY19 - Please select the status of Developing the Next Generation of Animal Telemetry during FY19 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [x] Completed
- [ ] No activity occurred during FY19

Q7. Status FY20 - Please select the status of Developing the Next Generation of Animal Telemetry during FY20 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [x] Completed
- [ ] No activity occurred during FY20

Q8. Authority - Please select the authority under which Developing the Next Generation of Animal Telemetry was conducted (response required).

- ( ) America COMPETES Reauthorization Act of 2010
- (•) Other authority (please specify) Outer Continential Shelf Lands Act
- ( ) Unknown

Q9. Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior ▼

Office or component: Bureau of Ocean Energy Management ▼

Q10. If you selected "other" as an office or component please enter the name here.

Office or component: Office of Envionmental Programs

Q11. Does Developing the Next Generation of Animal Telemetry have multiple phases?

- ( ) Yes
- (•) No

Q12. Please provide the total number of phases planned for Developing the Next Generation of Animal Telemetry.

This question was not displayed to the respondent.

Q13. Which phase(s) did Developing the Next Generation of Animal Telemetry go through during FY19-20 (select all that apply)?

This question was not displayed to the respondent.

Q14. Please provide the following phase specific information, if available, for Developing the Next Generation of Animal Telemetry. Please note that dates should be entered in the following format mm/dd/yyyy.

This question was not displayed to the respondent.

Q15. Please provide the following phase specific information about Developing the Next Generation of Animal Telemetry.

This question was not displayed to the respondent.

Q16. Please provide the following information, if available, for Developing the Next Generation of Animal Telemetry. Please note that dates should be entered in the following format mm/dd/yyyy.

	Submission dates		Submissions
	Open date	Close date	Number of submissions
Developing the Next Generation of Animal Telemetry	09/15/2018	12/15/2018	38

Q17. Please provide the following information about Developing the Next Generation of Animal Telemetry.

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Developing the Next Generation of Animal Telemetry	2	2	12/20/2018	30,000

Q18. Please indicate what submissions consisted of or included for each phase that took place in FY19-20 (select all that apply).

This question was not displayed to the respondent.

Q19. Please indicate the type(s) of submissions sought by Developing the Next Generation of Animal Telemetry (select all that apply).

- [x] Proposal or concept
- [ ] Prototype device or object
- [ ] Software or computer code
- [ ] Business or commercial development plan
- [ ] Creative media (e.g., images, videos, podcasts, logos)
- [ ] Analysis or visualization of data
- [ ] Other (please specify) _____

Q20. Please provide a description of the submission(s) sought by Developing the Next Generation of Animal Telemetry (max of 150 words).

Submissions were focused on an ideation challenge to describe an open-source system for animal telemetry data using smallsats.

Q21. Please indicate whether the participants in Developing the Next Generation of Animal Telemetry were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Q22. Please provide a best estimate of the total number of individuals participating in each fiscal year.

This question was not displayed to the respondent.

Q23. Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19	38
FY20	0

Q24. Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Q25. Please select which of the following methods were used by the agency to publicize Developing the Next Generation of Animal Telemetry, mobilize potential participants, and ensure high quality submissions (select

all that apply).

- [x] Social media (e.g., Twitter, Facebook)
- [x] Email (e.g., listservs)
- [x] Press release
- [ ] Live event(s) prior to the competition
- [ ] Live video streaming announcement
- [ ] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [x] Publicity efforts from vendors/contractors
- [x] Posted on challenge.gov
- [ ] Other (please specify):

Q26. Please describe the method(s) used to evaluate submissions to Developing the Next Generation of Animal Telemetry and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words).

The elements, questions, and point system used to evaluate submissions are shown in the table below. As stated above, the evaluators were comprised of experts from BOEM, NASA, ONR, and NOAA. Advances the state of marine animal tracking on the U.S. OCS In order of priority, solutions should improve one or more of the following above and beyond the capabilities of the Argos system: 1. Spatial and Temporal Coverage 2. Data Packet Size 3. Spatial Accuracy Solutions that propose a complete system for improving coverage, accuracy and data size will be favored. 40 Feasibility Are the subsystems currently commercially available? How long would software and hardware development take for integration? (shorter is better) 40 Novelty and Innovativeness Is the proposed solution unique, and stretches the bounds of science and engineering, and inspire a spirit of innovation? 20

Q27. Please indicate the types of goals Developing the Next Generation of Animal Telemetry achieved (select all that apply).

- [x] Improve a process/procedure/service carried out by the sponsoring agency
- [x] Generate innovative ideas/designs/concepts (ideation)
- [x] Develop/demonstrate technology (hardware or software)
- [ ] Education/training
- [ ] Outreach/information dissemination
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [ ] Build or strengthen a community
- [ ] Other (please specify)

Q28. Please describe the problem or opportunity Developing the Next Generation of Animal Telemetry is/was designed to address (max 150 words).

To address limited data bandwidth through the use of open-source smallsats by increasing data throughput and geospatial accuracy.

Q29. Please describe how Developing the Next Generation of Animal Telemetry advanced the agency's mission (max 150 words).

Several proposals provided dramatic improvements to the concept involved in developing a new system for animal telemetry by improving geospatial accuracy and antenna design.

Q30. Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply).

- [x] Activity required diverse expertise or interdisciplinary collaboration
- [x] Sought diverse and/or innovative solutions
- [x] Incentivize a larger number of submissions
- [ ] Flexibility to implement project design and achieve project goals
- [x] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [ ] Develop solutions in a quick timeframe
- [x] Most cost-effective approach
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Less burdensome to design and execute than alternatives
- [x] Identify and work with new innovators
- [x] Engage a specific community
- [x] Target audience could not have been reached through traditional mechanisms
- [ ] Promote awareness of a specific topic or agency research area
- [ ] Previous success with a prize competition
- [ ] Required by executive policy or congressional legislation
- [ ] Other (please specify):

Q31. Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words).

n/a

Q32. Please indicate how agency funds were used in support of Developing the Next Generation of Animal Telemetry for each fiscal year (please select all that apply).

	FY19	FY20
Prize purse (monetary award)	☑	☐
Non-monetary award(s)	☐	☐
Federal personnel (FTE)	☑	☐
Purchase of consumable materials	☐	☐
Purchase or rental of equipment	☐	☐
Transportation of participants	☐	☐
Publicity/advertising/outreach/communications	☑	☐
Web portal/app development and support	☐	☐
Database development	☐	☐
Software development	☐	☐
Data entry/analysis	☐	☐
Discovery and design support	☐	☐
Operations or administrative support	☐	☐
Solution acceleration	☐	☐
Other (please specify):	☐	☐

Q33. Please provide a detailed description of how agency funds were used in support of Developing the Next Generation of Animal Telemetry (do not include a description of the prize purse or non-monetary awards) (max 300 words).

FTE resources included administrative, scientific and engineering support for developing the challenge, as well as financial/contract management. Funding was paid via an Interagency Agreement. Prize amount was $30,000

Q34.

Provide a best estimate of the dollar amount the agency used in support of Developing the Next Generation of Animal Telemetry (do not include prize purse funding or the cost of FTE staffing).

FY19	$60,000
FY20	

Q35. Provide a best estimate of the total number of FTEs used to execute Developing the Next Generation of Animal Telemetry (please note that one work year, or one FTE, is equivalent to 2,080 hours of work).

FY19	1
FY20	

Q36. Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable).

	Total prize purse offered	Total prize purse awarded
FY19	2	$30,000
FY20		

Q37. Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words).

N/A

Q38. Please indicate how many partners were involved in Developing the Next Generation of Animal Telemetry.

- ○ 0 partners
- ○ 1 partner
- ○ 2 partners
- ◉ 3 partners
- ○ 4 partners
- ○ 5 partners
- ○

>5 partners (If selected, we will contact you for information on additional partners)

Q39. Please provide the name for each partner that was involved in Developing the Next Generation of Animal Telemetry.

Partner 1	NASA
Partner 2	NOAA
Partner 3	Office of Naval Research
Partner 4	
Partner 5	

Q40. Please provide the following information for each partner that was involved in Developing the Next Generation of Animal Telemetry.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
NASA	◉	○	○	○	○	○
NOAA	◉	○	○	○	○	○
Office of Naval Research	◉	○	○	○	○	○

Q41. Please indicate which FY each partner provided contributions to Developing the Next Generation of Animal Telemetry (select all that apply).

	FY19	FY20
NASA	☑	☐
NOAA	☑	☐
Office of Naval Research	☑	☐

Q42. Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19	FY20
NASA	$40,000	
NOAA	$10,000	
Office of Naval Research	$5,000	

Q43. Please indicate the type(s) of contributions provided by each partner for Developing the Next Generation of Animal Telemetry (please select all that apply).

	Partner 1	Partner 2	Partner 3	Partner 4	Partner 5
Prize purse (monetary award)	☐	☐	☐	☐	☐
Non-monetary award(s)	☐	☐	☐	☐	☐
Purchase of consumable materials	☐	☐	☐	☐	☐
Purchase or rental of equipment	☐	☐	☐	☐	☐
Transportation of participants	☐	☐	☐	☐	☐
Publicity/advertising/outreach/communications	☐	☐	☐	☐	☐
Web portal/app development and support	☐	☐	☐	☐	☐
Database development	☐	☐	☐	☐	☐
Software development	☐	☐	☐	☐	☐
Data entry/analysis	☐	☐	☐	☐	☐
Discovery and design support	☐	☐	☐	☐	☐
Operations or administrative support	☐	☐	☐	☐	☐
Solution acceleration	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

Q44. Please indicate what other resources, if any, were provided by each partner to support Developing the Next Generation of Animal Telemetry. If no other resources were provided, please enter "None."

This question was not displayed to the respondent.

Q45. To the best of your ability, please select which practices were used to support Developing the Next Generation of Animal Telemetry (select all that apply).

- ☐ My office or agency has policy or guidance supporting the use of prize competitions and challenges
- ☐ My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- ☐ My office or agency uses internal communication tools to support prizes competitions and challenges
- ☐ My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- ☐ My office or agency has a dedicated, central prize competition and challenge coordinator
- ☐ My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- ☐ My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- ☐ My office or agency provides centralized training and design support for staff conducting prize competitions and challenges
- ☐ My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- ☐ My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges

- [ ] Other (please specify):
- [x] None or Unknown

Q46. Please indicate whether Developing the Next Generation of Animal Telemetry was designed and implemented in response to a national health crisis or emergency.

- ( ) Yes
- (•) No

Q47. Please indicate whether this activity was implemented as part of a coordinated response to said national health crisis or emergency.

This question was not displayed to the respondent.

Q48. Please describe briefly how this activity supported the larger, coordinated effort. (max 200 words).

This question was not displayed to the respondent.

Q49. This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

Q50. Does Developing the Next Generation of Animal Telemetry have multiple phases (response required)?

This question was not displayed to the respondent.

Q51. Please provide the total number of phases planned for Developing the Next Generation of Animal Telemetry.

This question was not displayed to the respondent.

Q52. Which phase(s) did Developing the Next Generation of Animal Telemetry go through during FY19-20 (select all that apply)?

This question was not displayed to the respondent.

Q53. Please provide the following phase specific information, if available, for Developing the Next Generation of Animal Telemetry. Please note that dates should be entered in the following format mm/dd/yyyy.

This question was not displayed to the respondent.

Q54. Please provide the following phase specific information about Developing the Next Generation of Animal Telemetry.

This question was not displayed to the respondent.

Q55. Please provide the following information, if available, for Developing the Next Generation of Animal Telemetry. Please note that dates should be entered in the following format mm/dd/yyyy.

This question was not displayed to the respondent.

Q56. Please provide the following information about Developing the Next Generation of Animal Telemetry (response required).

This question was not displayed to the respondent.

Q57. Please indicate what submissions consisted of or included for each phase that took place in FY19-20 (select all that apply) (response required).

This question was not displayed to the respondent.

Q58. Please indicate the type(s) of submissions sought by Developing the Next Generation of Animal Telemetry (select all that apply) (response required).

This question was not displayed to the respondent.

Q59. Please provide a description of the submission(s) sought by Developing the Next Generation of Animal Telemetry (max of 150 words).

This question was not displayed to the respondent.

Q60. Please indicate whether the participants in Developing the Next Generation of Animal Telemetry were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

This question was not displayed to the respondent.

Q61. Please provide a best estimate of the total number of individuals participating in each fiscal year.

This question was not displayed to the respondent.

Q62. Please indicate the best estimate of the total number of teams participating in each fiscal year.

This question was not displayed to the respondent.

Q63. Please identify the intended participants of the challenge (select all that apply).

This question was not displayed to the respondent.

Q64. Please select which of the following methods were used by the agency to publicize Developing the Next Generation of Animal Telemetry, mobilize potential participants, and ensure high quality submissions (select all that apply) (response required).

This question was not displayed to the respondent.

Q65. Please describe the method(s) used to evaluate submissions to Developing the Next Generation of Animal Telemetry and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words) (response required).

This question was not displayed to the respondent.

Q66. Please indicate the types of goals Developing the Next Generation of Animal Telemetry achieved (select all that apply) (response required).

This question was not displayed to the respondent.

Q67. Please describe the problem or opportunity Developing the Next Generation of Animal Telemetry is/was designed to address (max 150 words) (response required).

This question was not displayed to the respondent.

Q68. Please describe how Developing the Next Generation of Animal Telemetry advanced the agency's mission (max 150 words) (response required).

This question was not displayed to the respondent.

Q69. Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply) (response required).

This question was not displayed to the respondent.

Q70. Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words) (response required).

This question was not displayed to the respondent.

Q71. Please indicate how agency funds were used in support of Developing the Next Generation of Animal Telemetry for each fiscal year (please select all that apply) (response required).

This question was not displayed to the respondent.

Q72. Please provide a detailed description of how agency funds were used in support of Developing the Next Generation of Animal Telemetry (do not include a description of the prize purse or non-monetary awards) (max 300 words) (response required).

This question was not displayed to the respondent.

Q73.
Provide a best estimate of the dollar amount the agency used in support of Developing the Next Generation of Animal Telemetry (do not include prize purse funding or the cost of FTE staffing) (response required).

This question was not displayed to the respondent.

Q74. Provide a best estimate of the total number of FTEs used to execute Developing the Next Generation of Animal Telemetry (please note that one work year, or one FTE, is equivalent to 2,080 hours of work) (response required).

This question was not displayed to the respondent.

Q75. Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable) (response required).

This question was not displayed to the respondent.

Q76. Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words) (response required).

This question was not displayed to the respondent.

Q77. Please indicate how many partners were involved in Developing the Next Generation of Animal Telemetry.

This question was not displayed to the respondent.

Q78. Please provide the name for each partner that was involved in Developing the Next Generation of Animal Telemetry.

This question was not displayed to the respondent.

Q79. Please provide the following information for each partner that was involved in Developing the Next Generation of Animal Telemetry.

This question was not displayed to the respondent.

Q80. Please indicate which FY each partner provided contributions to Developing the Next Generation of Animal Telemetry (select all that apply).

This question was not displayed to the respondent.

Q81. Provide a best estimate of monetary value of each partner’s contribution by FY.

This question was not displayed to the respondent.

Q82. Please indicate the type(s) of contributions provided by each partner for Developing the Next Generation of Animal Telemetry (please select all that apply).

This question was not displayed to the respondent.

Q83. Please indicate what other resources, if any, were provided by each partner to support Developing the Next Generation of Animal Telemetry. If no other resources were provided, please enter "None."

This question was not displayed to the respondent.

Q84. To the best of your ability, please select which practices were used to support Developing the Next Generation of Animal Telemetry (select all that apply).

This question was not displayed to the respondent.

Q85. Please indicate whether Developing the Next Generation of Animal Telemetry was designed and implemented in response to a national health crisis or emergency.

This question was not displayed to the respondent.

Q86. Please indicate whether this activity was implemented as part of a coordinated response to said national health crisis or emergency.

This question was not displayed to the respondent.

Q87. Please describe briefly how this activity supported the larger, coordinated effort. (max 200 words).

This question was not displayed to the respondent.

Embedded Data

Finished: 1

Notes: new activity reported via email

POC: Manager

RecipientEmail: Jacob.Levenson@boem.gov

RecipientFirstName: Jacob Levenson

ResponseID: R_sjvMjutYNwr6cTL

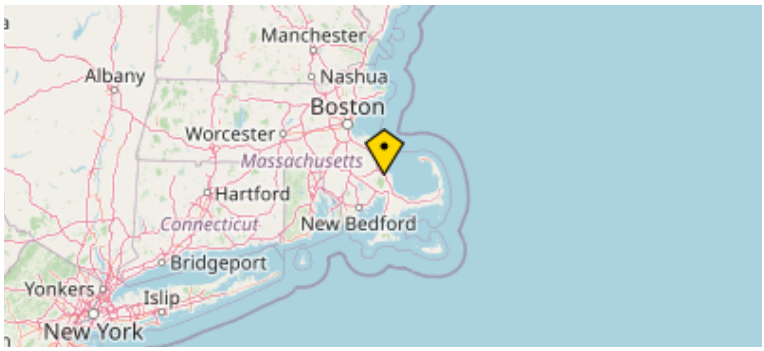
Title: Developing the Next Generation of Animal Telemetry

Type_of_activity: prize competition

Location Data

Location: (41.913696289062, -70.639297485352)

Source: GeoIP Estimation



Below is a summary of your responses

Download PDF

FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Sub-seasonal Climate Forecast Rodeo II**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

Reporting information for prize competitions conducted or otherwise supported under other authorities provides visibility for the effort, and can be valuable for the overall prize competitions community, as well as the public, to see how competitions can be used to advance agency missions. Agencies are highly encouraged, but not required, to complete this survey for prize competitions conducted under authorities other than COMPETES during this reporting period.

OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey once for each prize competition or challenge that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Sub-seasonal Climate Forecast Rodeo II.

Primary point of contact within your agency for Sub-seasonal Climate Forecast Rodeo II (response

required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Sub-seasonal Climate Forecast Rodeo II, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/forecastrodeo.html;
https://www.topcoder.com/lp/rodeo2

Please provide a summary of Sub-seasonal Climate Forecast Rodeo II suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

Recognizing the success of Rodeo 1 and need for continued innovation on sub-seasonal prediction, a second competition, the Sub-Seasonal Climate Forecast Rodeo 2 prize competition, was developed targeting new potential solvers. Rodeo 2 sought to continue advancing the skill of sub-seasonal forecasting of precipitation and temperature. Solvers were permitted to leverage existing forecasts in their solution but must be able to demonstrate appreciable value added by the solution relative to any input or foundational framework. Specifically, the competition desired solutions that can outperform a current operational forecast at a 1x1 degree gridded resolution for the western United States at two forecast outlooks: weeks 3-4 and weeks 5-6 for temperature and precipitation. Skill was evaluated using spatial anomaly correlation between forecasts and observations over a year, during which solvers submitted real-time forecasts every two weeks. To be eligible for prizes, solvers were required to satisfy three criteria: (1) over the year-long real-time portion of the competition, have an average spatial anomaly correlation score greater than the benchmark forecasts (2) provide a 10-year hind cast (warm-up competition) that outperforms the benchmark forecast, also evaluated using spatial anomaly correlation, and (3) submit documentation that satisfactorily describes the forecast method. The competition was posted on June 27, 2019. The warm-up portion of the competition concluded on August 25, 2019. The year-long real-time portion of the competition spanned from October 1, 2019 to September 28, 2020. Final scoring of submissions will occur in November 2020. An online leaderboard hosted by the National Integrated Drought Information System (NIDIS) tracked and displayed Solvers' performance for the duration of the competition period.

Characters remaining: 142

Status FY19 - Please select the status of Sub-seasonal Climate Forecast Rodeo II during FY19 (select all that apply) (response required).

- [x] Launched
- [x] Ongoing
- [ ] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of Sub-seasonal Climate Forecast Rodeo II during FY20 (select all that apply) (response required).

- [ ] Launched
- [x] Ongoing
- [x] Completed
- [ ] No activity occurred during FY20

Authority - Please select the authority under which Sub-seasonal Climate Forecast Rodeo II was conducted (response required).

- ○ America COMPETES Reauthorization Act of 2010
- ● Other authority (please specify)

Procurement

- ○ Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component: N/A

Does Sub-seasonal Climate Forecast Rodeo II have multiple phases?

- [x] Yes
- [ ] No

Please provide the total number of phases planned for Sub-seasonal Climate Forecast Rodeo II.

- [x] 2 phases
- [ ] 3 phases
- [ ] 4 phases
- [ ] 5 phases
- [ ] 6 phases

Which phase(s) did Sub-seasonal Climate Forecast Rodeo II go through during FY19-20 (select all that apply)?

- [x] Phase 1
- [x] Phase 2

Please provide the following phase specific information, if available, for Sub-seasonal Climate Forecast Rodeo II. Please note that dates should be entered in the following format mm/dd/yyyy.

	Phase dates		Submissions
	Submissions open	Submissions closed	Number of submissions
Phase 1	07/19/2019	08/25/2019	61
Phase 2	10/01/2019	09/28/2020	4706

Please provide the following phase specific information about Sub-seasonal Climate Forecast Rodeo II.

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Phase 1	40	40	09/06/2019	80,000
Phase 2	690	999999	11/30/2020	720,000

Please indicate what submissions consisted of or included for each phase that took place in FY19-20 (select all that apply).

	Phase 1	Phase 2
Proposal or concept	☐	☐
Prototype device or object	☐	☐
Software or computer code	☑	☑
Business or commercial development plan	☐	☐
Creative media (e.g., images, videos, podcasts, logos)	☐	☐
Analysis or visualization of data	☐	☐
Other	☐	☐

Please provide a description of the submission(s) sought by Sub-seasonal Climate Forecast Rodeo II (max of 150 words).

The Rodeo II – Sub-Seasonal Climate Forecasting challenge sought predictive algorithms based on historical weather data via a warm-up competition then through recurring data science challenges over a full year sought predictive algorithms for sub-seasonal forecasts every two weeks refining solutions on live weather data. The year-long sub-seasonal forecasting encompassed the lead times of 3 to 6 weeks into the future, which lay between those of weather forecasting (i.e. up to 3 weeks, where initial ocean and atmospheric conditions matter most) and seasonal to longer-lead climate forecasting (i.e. beyond 6 weeks, where slowly varying earth system conditions matter most, such as sea surface temperatures, soil moisture, snow pack).

Characters remaining: 266

Please indicate whether the participants in Sub-seasonal Climate Forecast Rodeo II were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- ◉ Participants were team-based
- ○ Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19	61
FY20	4705 - Some teams only have 1 team member

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Sub-seasonal Climate Forecast Rodeo II, mobilize potential participants, and ensure high quality submissions (select all that apply).

- [x] Publicity efforts from vendors/contractors
- [x] Email (e.g., listservs)
- [ ] Live event(s) prior to the competition
- [x] Social media (e.g., Twitter, Facebook)
- [x] Posted on challenge.gov
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [ ] Live video streaming announcement
- [x] Press release
- [x] Other (please specify):

Agency prize webpage

Please describe the method(s) used to evaluate submissions to Sub-seasonal Climate Forecast Rodeo II and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words).

A panel of judges was not utilized for this competition. Phase 1, the warm-up marathon match, consisted of four concurrent matches where solvers created predictive algorithms on historical weather data. Submitted solutions were matched against ground truth data and executed using target prediction data that were not provided to solvers. Phase 2, the year-long real-time competition, forecasts in four concurrent matches were submitted every two weeks. Algorithms were scored on how closely the solution predicted weather data matched the actual, measured values for each time period in each temperature and precipitation category. Competitors competed against each other for prizes awarded based on their performance in the matches. For bonus quarterly and overall prizes, scores from the matches were calculated as the average of values over the respective periods. To be eligible for quarterly and overall prizes, solvers had to beat benchmark forecasts and meet submission requirements.

Characters remaining: 8

Please indicate the types of goals Sub-seasonal Climate Forecast Rodeo II achieved (select all that apply).

- [ ] Improve a process/procedure/service carried out by the sponsoring agency
- [ ] Outreach/information dissemination
- [ ] Generate innovative ideas/designs/concepts (ideation)
- [x] Develop/demonstrate technology (hardware or software)
- [x] Build or strengthen a community
- [ ] Education/training
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [ ] Other (please specify)

Please describe the problem or opportunity Sub-seasonal Climate Forecast Rodeo II is/was designed to address (max 150 words).

Water managers can benefit from more skillful information on weather and climate conditions at the sub-seasonal outlook (lead-times ranging from 3 to 6 weeks and beyond). Lacking skillful sub-seasonal information limits water managers' ability prepare for shifts in hydrologic regimes, such as the onset of drought or wet weather extremes. The challenge

with sub-seasonal prediction is that it encompasses the time frame where initial state information (e.g., coupled land-atmosphere processes) becomes less important and slowly varying long-term states (e.g., sea surface temperatures, soil moisture, snow pack) become more important to prediction skill.

Characters remaining: 350

Please describe how Sub-seasonal Climate Forecast Rodeo II advanced the agency's mission (max 150 words).

Techniques that outperform current forecast practices are expected to offer valuable insight as to how operational forecasts at the sub-seasonal timescale may be improved. This in turn will offer a variety of sectors—not just water management—much needed information to better manage resources and prepare for extreme events. A few examples include advanced emergency preparedness, public health, tourism, enhanced water order scheduling, and wildfire management.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply).

- [x] Target audience could not have been reached through traditional mechanisms
- [x] Promote awareness of a specific topic or agency research area
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [x] Previous success with a prize competition
- [ ] Less burdensome to design and execute than alternatives
- [x] Incentivize a larger number of submissions
- [ ] Engage a specific community
- [ ] Identify and work with new innovators
- [ ] Flexibility to implement project design and achieve project goals
- [ ] Most cost-effective approach
- [x] Develop solutions in a quick timeframe
- [ ] Activity required diverse expertise or interdisciplinary collaboration
- [ ] Required by executive policy or congressional legislation
- [x] Sought diverse and/or innovative solutions
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Sub-seasonal Climate Forecast Rodeo II for each fiscal year (please select all that apply).

	FY19	FY20
Purchase of consumable materials	☑	☑
Operations or administrative support	☑	☑
Software development	☐	☐
Federal personnel (FTE)	☑	☑
Transportation of participants	☐	☐
Solution acceleration	☐	☐
Publicity/advertising/outreach/communications	☑	☑
Non-monetary award(s)	☐	☐
Other (please specify):	☐	☐
Data entry/analysis	☐	☐
Web portal/app development and support	☑	☑
Discovery and design support	☑	☐
Database development	☐	☐
Prize purse (monetary award)	☐	☐
Purchase or rental of equipment	☐	☐

Please provide a detailed description of how agency funds were used in support of Sub-seasonal Climate Forecast Rodeo II (do not include a description of the prize purse or non-monetary awards) (max 300 words).

Agency funds were used to develop an internal webpage and secure a contractor to administer the competition including the development of a platform to manage solver

engagement, submissions, and scoring.

Characters remaining: 1808

Provide a best estimate of the dollar amount the agency used in support of Sub-seasonal Climate Forecast Rodeo II (do not include prize purse funding or the cost of FTE staffing).

FY19	200,000
FY20	189,800

Provide a best estimate of the total number of FTEs used to execute Sub-seasonal Climate Forecast Rodeo II (please note that one work year, or one FTE, is equivalent to 2,080 hours of work).

FY19	0.06
FY20	0.04

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable).

	Total prize purse offered	Total prize purse awarded
FY19	80,000	80,000
FY20	720,000	225,453

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words).

N/A

Characters remaining: 2007

Please indicate how many partners were involved in Sub-seasonal Climate Forecast Rodeo II.

- ○ 0 partners
- ◉ 1 partner
- ○ 2 partners
- ○ 3 partners
- ○ 4 partners
- ○ 5 partners

○ 5 partners

○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Sub-seasonal Climate Forecast Rodeo II.

Partner 1	National Oceanic and Atmospheric Administration National Integrated Drought Information System

Please provide the following information for each partner that was involved in Sub-seasonal Climate Forecast Rodeo II.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
National Oceanic and Atmospheric Administration National Integrated Drought Information System	●	○	○	○	○	○

Please indicate which FY each partner provided contributions to Sub-seasonal Climate Forecast Rodeo II (select all that apply).

	FY19	FY20
National Oceanic and Atmospheric Administration National Integrated Drought Information System	☑	☑

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19	FY20
National Oceanic and Atmospheric Administration National Integrated Drought Information		

System	FY19	FY20

Please indicate the type(s) of contributions provided by each partner for Sub-seasonal Climate Forecast Rodeo II (please select all that apply).

Software development

Publicity/advertising/outreach/communications

Discovery and design support

Purchase of consumable materials

Transportation of participants

Web portal/app development and support

Prize purse (monetary award)

Operations or administrative support

Other

Data entry/analysis

Database development

Non-monetary award(s)

Purchase or rental of equipment

Solution acceleration

To the best of your ability, please select which practices were used to support Sub-seasonal Climate Forecast Rodeo II (select all that apply).

- [x] My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- [ ] My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- [ ] My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- [x] My office or agency has policy or guidance supporting the use of prize competitions and challenges
- [x] My office or agency uses internal communication tools to support prizes competitions and challenges
- [x] My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges
- [x] My office or agency provides centralized training and design support for staff conducting prize competitions and challenges

- [ ] My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- [x] My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- [x] My office or agency has a dedicated, central prize competition and challenge coordinator
- [ ] Other (please specify):
- [ ] None or Unknown

Please indicate whether Sub-seasonal Climate Forecast Rodeo II was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ● No

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

Previous Page Submit

Below is a summary of your responses

Download PDF

FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Rust Busters**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

Reporting information for prize competitions conducted or otherwise supported under other authorities provides visibility for the effort, and can be valuable for the overall prize competitions community, as well as the public, to see how competitions can be used to advance agency missions. Agencies are highly encouraged, but not required, to complete this survey for prize competitions conducted under authorities other than COMPETES during this reporting period.

OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey once for each prize competition or challenge that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Rust Busters.

Primary point of contact within your agency for Rust Busters (response required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Rust Busters, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/corrosion.html;
https://www.herox.com/RustBusters

Please provide a summary of Rust Busters suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

Water infrastructure in the United States is critical to the domestic economy, commerce, and resource management. Hydraulic steel structures (HSS) require regular maintenance and upkeep. Existing methods to protect HSS are disfavored or no longer used due to environmental and safety concerns. Newer methods often have higher costs, shorter service life, and reduced efficacy. To address rising maintenance costs and to advance the state of the art for corrosion control, the Bureau of Reclamation (Reclamation), in collaboration with the U.S. Army Corps of Engineers (USACE), sponsored the Rust Busters Challenge. This Challenge seeks new methods for corrosion control outside of the conventional approaches that can be applied to existing structures in situ or advances existing technologies, would significantly improve service life, reduce costs (through innovative application methods or use of new materials), or improve performance range (through additional features such as health monitoring or self-healing). Rust Busters offers the opportunity for the most compelling corrosion control approaches to be evaluated and field-tested by the Challenge sponsors. In Phase 1, participants submitted papers detailing their proposed approach to corrosion control, its scientific rationale, and supporting data. 5 of the most compelling submissions were selected as Phase 1 winners and invited to participate in Phase 2. Each Phase 1 winner received up to $50,000 to help support Phase 2 efforts. During Phase 2, participants will demonstrate their technologies using test coupons, steel samples, supplied by Reclamation. Test coupons and/or prototypes will be evaluated by Reclamation, and up to 3 final winners will share the final prize of $100,000. Rust Busters has a total prize purse of $350,000 ($250,000 in Phase 1 and $100,000 in Phase 2) and offers a rare opportunity for Phase 2 participants to receive lab- and field-test data for their technologies.

Characters remaining: 34

Status FY19 - Please select the status of Rust Busters during FY19 (select all that apply) (response required).

- [x] Launched
- [x] Ongoing
- [ ] Completed
- [ ] No activity occurred during FY19

Status FY20 - Please select the status of Rust Busters during FY20 (select all that apply) (response required).

- [ ] Launched
- [x] Ongoing
- [ ] Completed
- [ ] No activity occurred during FY20

Authority - Please select the authority under which Rust Busters was conducted (response required).

- ○ America COMPETES Reauthorization Act of 2010
- ● Other authority (please specify)

Procurement

- ○ Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component: N/A

Does Rust Busters have multiple phases?

- ● Yes
- ○ No

- [ ] No

Please provide the total number of phases planned for Rust Busters.

- [x] 2 phases
- [ ] 3 phases
- [ ] 4 phases
- [ ] 5 phases
- [ ] 6 phases

Which phase(s) did Rust Busters go through during FY19-20 (select all that apply)?

- [x] Phase 1
- [ ] Phase 2

Please provide the following phase specific information, if available, for Rust Busters. Please note that dates should be entered in the following format mm/dd/yyyy.

	Phase dates		Submissions
	Submissions open	Submissions closed	Number of submissions
Phase 1	08/22/2019	01/16/2020	35

Please provide the following phase specific information about Rust Busters.

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Phase 1	5	5	03/03/2020	250,000

Please indicate what submissions consisted of or included for each phase that took place in FY19-20 (select all that apply).

	Phase 1
Proposal or concept	[x]
Prototype device or	[ ]

	Phase 1
object	
Software or computer code	☐
Business or commercial development plan	☐
Creative media (e.g., images, videos, podcasts, logos)	☐
Analysis or visualization of data	☐
Other	☐

Please provide a description of the submission(s) sought by Rust Busters (max of 150 words).

The Rust Buster Challenge seeks to identify and develop new methods for corrosion control. The challenge is interested in completely new approaches that are outside of conventional thought processes for corrosion control that can be applied to existing structures in situ. There is also interest in advancing existing technologies that can significantly improve service life, reduce costs (through innovative application methods or use of new materials), or improve performance range (through additional features such as health monitoring or self-healing).

Characters remaining: 449

Please indicate whether the participants in Rust Busters were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY19	35– Some teams only have 1 team member
FY20	5

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students

- [ ] Pre-K through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Rust Busters, mobilize potential participants, and ensure high quality submissions (select all that apply).

- [ ] Live event(s) prior to the competition
- [x] Publicity efforts from vendors/contractors
- [ ] Live video streaming announcement
- [x] Social media (e.g., Twitter, Facebook)
- [x] Press release
- [x] Posted on challenge.gov
- [x] Email (e.g., listservs)
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [x] Other (please specify):

Agency prize webpage

Please describe the method(s) used to evaluate submissions to Rust Busters and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words).

Phase I: An Evaluation Panel reviewed all Phase 1 submissions and selected 5 of the most compelling entries as Phase 1 winners. Entries were reviewed against evaluation criteria that included general criteria, corrosion performance, durability, life cycle cost, feasibility and innovation. The evaluation panel included Federal subject matter experts internal and external to Reclamation, private sector, and academia. Phase II evaluations include laboratory and field testing to address corrosion protection, durability and service life, and

feasibility. Phase II results will be evaluated by the same panel that reviewed Phase 1 submissions and will be augmented with feedback from laboratory and field personnel.

Characters remaining: 283

Please indicate the types of goals Rust Busters achieved (select all that apply).

- [ ] Outreach/information dissemination
- [x] Generate innovative ideas/designs/concepts (ideation)
- [x] Develop/demonstrate technology (hardware or software)
- [ ] Build or strengthen a community
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [ ] Education/training
- [ ] Improve a process/procedure/service carried out by the sponsoring agency
- [ ] Other (please specify)

Please describe the problem or opportunity Rust Busters is/was designed to address (max 150 words).

In order to address rising maintenance costs and to advance the state of the art for corrosion control, the Bureau of Reclamation (Reclamation), in collaboration with the U.S. Army Corps of Engineers (USACE), sponsored Rust Busters Challenge. This Challenge seeks to identify and develop new methods for corrosion control. The Challenge sponsors are vitally interested in completely new approaches that are outside of conventional thought processes for corrosion control that can be applied to existing structures in situ. There is also interest in advancing existing technologies that can significantly improve service life, reduce costs (through innovative application methods or use of new materials), or improve performance range (through additional features such as health monitoring or self-healing).

Characters remaining: 199

Please describe how Rust Busters advanced the agency's mission (max 150 words).

Water infrastructure in the United States is critical to the domestic economy, commerce, and resource management. There are thousands of existing hydraulic steel structures (HSS) that require regular maintenance and upkeep. Original methods to protect HSS are disfavored or no longer used due to environmental and safety concerns. Newer approaches to corrosion control suffer from higher costs, shorter service life, and reduced efficacy. Improved technologies or methods will support Reclamation in its mission to economically operate and maintain our water and power facilities.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply).

- [ ] Flexibility to implement project design and achieve project goals
- [x] Identify and work with new innovators
- [ ] Most cost-effective approach
- [x] Target audience could not have been reached through traditional mechanisms
- [x] Develop solutions in a quick timeframe
- [x] Promote awareness of a specific topic or agency research area
- [ ] Activity required diverse expertise or interdisciplinary collaboration
- [x] Sought diverse and/or innovative solutions
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Required by executive policy or congressional legislation
- [ ] Engage a specific community
- [x] Incentivize a larger number of submissions
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [x] Previous success with a prize competition
- [ ] Less burdensome to design and execute than alternatives
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Rust Busters for each fiscal year (please select all that apply).

	FY19	FY20
Database development	☐	☐

	FY19	FY20
Web portal/app development and support	☑	☑
Operations or administrative support	☑	☑
Data entry/analysis	☐	☐
Federal personnel (FTE)	☑	☑
Purchase or rental of equipment	☐	☐
Solution acceleration	☐	☐
Prize purse (monetary award)	☐	☑
Other (please specify):	☐	☐
Discovery and design support	☑	☑
Software development	☐	☐
Non-monetary award(s)	☐	☑
Purchase of consumable materials	☐	☑
Publicity/advertising/outreach/communications	☑	☑
Transportation of participants	☐	☐

Please provide a detailed description of how agency funds were used in support of Rust Busters (do not include a description of the prize purse or non-monetary awards) (max 300 words).

Agency funds were used to: • develop an agency prize webpage • competition design and on-going operational activities throughout the competition • secure a contractor to administer the competition including the development of a platform to manage solver engagement, submissions, and manage scoring • procure, prepare, and ship steel samples for competitors to apply their solution prototypes complete laboratory and field evaluation and testing of solver prototypes • data collection and evaluation

Characters remaining: 1509

Provide a best estimate of the dollar amount the agency used in support of Rust Busters (do not include prize purse funding or the cost of FTE staffing).

FY19	102,200
FY20	60,000

Provide a best estimate of the total number of FTEs used to execute Rust Busters (please note that one work year, or one FTE, is equivalent to 2,080 hours of work).

FY19	0.2

FY20	0.25

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable).

	Total prize purse offered	Total prize purse awarded
FY19	250,000	N/A
FY20	100,000	250,000

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words).

Phase 2 participants will be eligible to win a Best Lab Performance recognition for the best overall laboratory testing performance. In additional to the Best Lab Performance recognition, the winner's results will be presented by Reclamation at a corrosion conference. Overall winners of the competition will also have their work presented by Reclamation at a leading corrosion conference and may have the opportunity to further develop and test their approaches with an existing Reclamation or Corps of Engineers project. All participants in Phase 2 will receive testing and evaluation results for their respective submissions.

Characters remaining: 1379

Please indicate how many partners were involved in Rust Busters.

- ○ 0 partners
- ● 1 partner
- ○ 2 partners
- ○ 3 partners
- ○ 4 partners
- ○ 5 partners
- ○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Rust Busters.

Partner 1	U.S. Army Corps of Engineers

Please provide the following information for each partner that was involved in Rust Busters.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
U.S. Army Corps of Engineers	●	○	○	○	○	○

Please indicate which FY each partner provided contributions to Rust Busters (select all that apply).

	FY19	FY20
U.S. Army Corps of Engineers	☑	☑

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY19	FY20
U.S. Army Corps of Engineers		

Please indicate the type(s) of contributions provided by each partner for Rust Busters (please select all that apply).

Publicity/advertising/outreach/communications
Purchase or rental of equipment
Operations or administrative support
Non-monetary award(s)
Transportation of participants
Software development
Discovery and design support
Solution acceleration
Other
Prize purse (monetary award)
Web portal/app development and support
Data entry/analysis
Purchase of consumable materials
Database development

To the best of your ability, please select which practices were used to support Rust Busters (select all that apply).

- [x] My office or agency provides centralized training and design support for staff conducting prize competitions and challenges
- [ ] My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
- [x] My office or agency uses internal communication tools to support prizes competitions and challenges
- [x] My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges
- [x] My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges
- [ ] My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- [x] My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges
- [ ] My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- [x] My office or agency has policy or guidance supporting the use of prize competitions and challenges
- [x] My office or agency has a dedicated, central prize competition and challenge coordinator
- [ ] Other (please specify):

- [ ] None or Unknown

Please indicate whether Rust Busters was designed and implemented in response to a national health crisis or emergency.

- ○ Yes
- ● No

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

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Submit

Below is a summary of your responses

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FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Streamflow Forecast Rodeo**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

Reporting information for prize competitions conducted or otherwise supported under other authorities provides visibility for the effort, and can be valuable for the overall prize competitions community, as well as the public, to see how competitions can be used to advance agency missions. Agencies are highly encouraged, but not required, to complete this survey for prize competitions conducted under authorities other than COMPETES during this reporting period.

OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey once for each prize competition or challenge that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

Please note that this survey employs display logic and the questions presented will be determined by the answer choices you select.

If you have any questions or are experiencing technical issues please contact STPI at: prizes@ida.org

Definitions: The following terms are defined as follows:

Participant—an individual or other entity (e.g., a team) that participated in a prize competition. Does not include other contributors like activity leaders, managers, or reviewers.

Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Streamflow Forecast Rodeo.

Primary point of contact within your agency for Streamflow Forecast Rodeo (response required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Streamflow Forecast Rodeo, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/streamflowrodeo.html;
https://www.topcoder.com/community/streamflow

Please provide a summary of Streamflow Forecast Rodeo suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

Streamflow forecasting is integral to water management, and with higher skill forecasts water managers are better equipped to operate facilities for high flows, mitigate impacts of drought, and achieve other improved outcomes like hydropower generation. The Streamflow Forecast Rodeo seeks to improve the skill of short-term streamflow forecasts (10 days) via a year-long competition. It is intended for solvers to develop and implement their methods for locations across the western United States to ideally outperform state-of-practice streamflow forecasts. With this approach, Reclamation aims to spur innovation using data science communities and Artificial Intelligence (AI)/Machine Learning (ML) methods toward enhancing streamflow forecasts. Prior to the start, teams were provided the opportunity to participate in a “pre-season” to build and refine their forecasting systems. This helped generate interest in the real-time competition and better position teams to compete with the state-of-practice forecasts. The year-long real-time competition kicked off in late September 2020 and will run through September 2021. A successful challenge outcome will be short-term streamflow forecasts (10 days) with skill scores higher than the state of practice methods. Participants are competing against benchmark, state-of-practice forecasts.

Characters remaining: 654

Status FY19 - Please select the status of Streamflow Forecast Rodeo during FY19 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [ ] Completed
- [x] No activity occurred during FY19

Status FY20 - Please select the status of Streamflow Forecast Rodeo during FY20 (select all that apply) (response required).

- [x] Launched
- [x] Ongoing
- [ ] Completed
- [ ] No activity occurred during FY20

Authority - Please select the authority under which Streamflow Forecast Rodeo was conducted (response required).

- ○ America COMPETES Reauthorization Act of 2010
- ● Other authority (please specify)

Procurement

- ○ Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component: N/A

Does Streamflow Forecast Rodeo have multiple phases?

- ● Yes
- ○ No

Please provide the total number of phases planned for Streamflow Forecast Rodeo.

- [x] 2 phases
- [ ] 3 phases
- [ ] 4 phases
- [ ] 5 phases
- [ ] 6 phases

Which phase(s) did Streamflow Forecast Rodeo go through during FY19-20 (select all that apply)?

- [x] Phase 1
- [ ] Phase 2

Please provide the following phase specific information, if available, for Streamflow Forecast Rodeo. Please note that dates should be entered in the following format mm/dd/yyyy.

	Phase dates		Submissions
	Submissions open	Submissions closed	Number of submissions
Phase 1	08/28/2020	09/27/2020	55

Please provide the following phase specific information about Streamflow Forecast Rodeo.

	Award Information		Announcement Date	Prize Purse
	Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out
Phase 1	15	9999	10/31/2020	34,000

Please indicate what submissions consisted of or included for each phase that took place in FY19-20 (select all that apply).

	Phase 1
Proposal or concept	☐
Prototype device or object	☐
Software or computer code	☑
Business or commercial	☐

commercial development plan	Phase 1
Creative media (e.g., images, videos, podcasts, logos)	☐
Analysis or visualization of data	☐
Other	☐

Please provide a description of the submission(s) sought by Streamflow Forecast Rodeo (max of 150 words).

The Streamflow Forecast Rodeo seeks to improve the skill of short-term streamflow forecasts (10 days) via a year-long competition. It is intended for solvers to develop and implement their methods for locations across the western United States to ideally outperform state-of-practice streamflow forecasts. With this approach, Reclamation aims to spur innovation using data science communities and Artificial Intelligence (AI)/Machine Learning (ML) methods toward enhancing streamflow forecasts.

Characters remaining: 511

Please indicate whether the participants in Streamflow Forecast Rodeo were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY20	55 - Some teams only have 1 team member

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education

- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Streamflow Forecast Rodeo, mobilize potential participants, and ensure high quality submissions (select all that apply).

- [x] Publicity efforts from vendors/contractors
- [x] Email (e.g., listservs)
- [x] Social media (e.g., Twitter, Facebook)
- [ ] Live video streaming announcement
- [x] Press release
- [x] Posted on challenge.gov
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [ ] Live event(s) prior to the competition
- [x] Other (please specify):

Agency prize webpage

Please describe the method(s) used to evaluate submissions to Streamflow Forecast Rodeo and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words).

A panel of judges is not being utilized for this competition. Phase 1: The warm-up marathon match, included solvers predicting a 10-day streamflow forecast in 6-hour intervals for specific locations where solvers created predictive algorithms on historical streamflow data. Submitted solutions were matched against ground truth data and executed using target prediction data that were not provided to solvers. Phase 2: 12 monthly challenges will occur over the year-long real-time competition. Solvers will predict a 10-day streamflow forecast in 6-hour intervals for specific locations. Algorithms are scored on how closely the predicted streamflow matches the actual measured values. Solutions are evaluated on live data. The top 10 solvers in each monthly challenge will receive cash prizes. To win quarterly and overall prizes, solvers scores much be higher than the benchmark forecast.

Characters remaining: 101

Please indicate the types of goals Streamflow Forecast Rodeo achieved (select all that apply).

- [x] Develop/demonstrate technology (hardware or software)
- [ ] Generate innovative ideas/designs/concepts (ideation)
- [x] Build or strengthen a community
- [ ] Outreach/information dissemination
- [ ] Improve a process/procedure/service carried out by the sponsoring agency
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [ ] Education/training
- [ ] Other (please specify)

Please describe the problem or opportunity Streamflow Forecast Rodeo is/was designed to address (max 150 words).

Streamflow forecasting is integral to water management, and with higher skill forecasts water managers are better equipped to operate facilities for high flows, mitigate impacts of drought, and achieve other improved outcomes like hydropower generation. This challenge seeks to improve the skill of short-term streamflow forecasts (10 days) via a year-long competition. It is intended for solvers to develop and implement their methods for locations across the western United States to ideally outperform state-of-practice streamflow forecasts. With this approach, Reclamation aims to spur innovation using data science communities and Artificial Intelligence (AI)/Machine Learning (ML) methods toward enhancing streamflow forecasts.

Characters remaining: 271

Please describe how Streamflow Forecast Rodeo advanced the agency's mission (max 150 words).

Techniques that outperform current forecast practices are expected to offer valuable insight as to how operational forecasts may be improved. This in turn can provide water managers much needed information to better operate water and power facilities, manage resources, and prepare for extreme events.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply).

- [x] Promote awareness of a specific topic or agency research area
- [x] Target audience could not have been reached through traditional mechanisms

- [x] Sought diverse and/or innovative solutions
- [ ] Most cost-effective approach
- [ ] Less burdensome to design and execute than alternatives
- [ ] Engage a specific community
- [ ] Required by executive policy or congressional legislation
- [x] Low risk approach and/or pay-for-performance structure
- [x] Develop solutions in a quick timeframe
- [x] Incentivize a larger number of submissions
- [ ] Activity required diverse expertise or interdisciplinary collaboration
- [ ] Permitted cost and resource sharing with Federal and/or non-Federal partners
- [x] Previous success with a prize competition
- [ ] Flexibility to implement project design and achieve project goals
- [ ] Identify and work with new innovators
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Streamflow Forecast Rodeo for each fiscal year (please select all that apply).

	FY20
Operations or administrative support	☑
Software development	☐
Non-monetary award(s)	☐
Federal personnel (FTE)	☑
Prize purse (monetary award)	☑

	FY20
Discovery and design support	☑
Publicity/advertising/outreach/communications	☑
Data entry/analysis	☐
Other (please specify):	☐
Transportation of participants	☐
Database development	☐
Purchase or rental of equipment	☐
Web portal/app development and support	☑
Solution acceleration	☐
Purchase of consumable materials	☐

Please provide a detailed description of how agency funds were used in support of Streamflow Forecast Rodeo (do not include a description of the prize purse or non-monetary awards) (max 300 words).

Agency funds were used to develop an internal webpage and secure a contractor to administer the competition including the development of a platform to manage solver engagement, submissions, and scoring.

Characters remaining: 1808

Provide a best estimate of the dollar amount the agency used in support of Streamflow Forecast Rodeo (do not include prize purse funding or the cost of FTE staffing).

FY20	221,000

Provide a best estimate of the total number of FTEs used to execute Streamflow Forecast Rodeo (please note that one work year, or one FTE, is equivalent to 2,080 hours of work).

FY20	0.04

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable).

	Total prize purse offered	Total prize purse awarded
FY20	34,000	N/A

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words).

N/A

Characters remaining: 2007

Please indicate how many partners were involved in Streamflow Forecast Rodeo.

- ○ 0 partners
- ○ 1 partner
- ○ 2 partners
- ○ 3 partners
- ○ 4 partners
- ● 5 partners
- ○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Streamflow Forecast Rodeo.

Partner 1	CEATI International's Hydropower Operations and Planning Interest Group
Partner 2	Tennessee Valley Authority
Partner 3	Hydro-Quebec
Partner 4	Department of Energy's Water Power Technologies Office
Partner 5	RTI International

Please provide the following information for each partner that was involved in Streamflow Forecast Rodeo.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
CEATI International's Hydropower Operations and Planning Interest	○	○	○	○	○	●

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
Planning Interest Group						
Tennessee Valley Authority	●	○	○	○	○	○
Hydro-Quebec	○	○	○	○	○	●
Department of Energy's Water Power Technologies Office	●	○	○	○	○	○
RTI International	○	○	○	○	●	○

Please indicate which FY each partner provided contributions to Streamflow Forecast Rodeo (select all that apply).

	FY20
CEATI International's Hydropower Operations and Planning Interest Group	☑
Tennessee Valley Authority	☑
Hydro-Quebec	☑
Department of Energy's Water Power Technologies Office	☑
RTI International	☑

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY20
CEATI International's Hydropower Operations and Planning Interest Group	
Tennessee Valley Authority	
Hydro-Quebec	
Department of Energy's Water	

Power Technologies Office	FY20
RTI International	

Please indicate the type(s) of contributions provided by each partner for Streamflow Forecast Rodeo (please select all that apply).

Transportation of participants

Prize purse (monetary award)

Data entry/analysis

Purchase or rental of equipment

Discovery and design support

Web portal/app development and support

Database development

Non-monetary award(s)

Other

Solution acceleration

Purchase of consumable materials

Software development

Publicity/advertising/outreach/communications

Operations or administrative support

To the best of your ability, please select which practices were used to support Streamflow Forecast Rodeo (select all that apply).

- [x] My office or agency uses internal communication tools to support prizes competitions and challenges
- [x] My office or agency has a dedicated, central prize competition and challenge coordinator
- [ ] My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges
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- [ ] My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)
- [ ] My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency
- [x] My office or agency provides centralized training and design support for staff conducting

☑ My office or agency provides centralized training and design support for staff conducting prize competitions and challenges

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☑ My office or agency has policy or guidance supporting the use of prize competitions and challenges

☑ My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges

☐ Other (please specify):

☐ None or Unknown

Please indicate whether Streamflow Forecast Rodeo was designed and implemented in response to a national health crisis or emergency.

○ Yes

● No

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

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Submit

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FY2019–20 Reporting on Federal Prize Competitions

This survey is associated with **Guardians of the Reservoir**.

Submission details: By no later than **November 20, 2020**, please report to the White House Office of Science and Technology Policy (OSTP) all prize competitions your agency carried out (i.e., launched, ongoing, or completed) during Fiscal Years 2019 and 2020 under Section 24 (15 U.S.C. 3719) of the Stevenson-Wydler Technology Innovation Act of 1980 (commonly referred to as the COMPETES authority). Please note that the Implementation of Federal Prize and Citizen Science Authority Fiscal Years 2019-20 Report will be submitted to Congress and made publicly available.

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OSTP is leading the data collection for the final consolidated report. The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) is a Federally funded research and development center (FFRDC) created by Congress to provide the OSTP with technical support and analysis. STPI is working with OSTP to support this data collection and analysis effort.

Required Reporting Information: Only information on activities entered via this online survey tool will appear in the biennial report.

Please complete the following survey once for each prize competition or challenge that is *launched, ongoing, or completed* under Section 24 during this reporting period. Prize competitions run under the broader umbrella of Grand Challenge programs supporting a variety of activities should be reported individually. For prize competitions in which multiple Federal agencies are involved, reporting should be completed only once by the lead agency.

If applicable, please remember to contact your agency lead or coordinator as they will be the first step in this review and clearance process at your agency. If you are unsure who your agency lead or coordinator may be, please contact STPI at prizes@ida.org.

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Definitions: The following terms are defined as follows:

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Full-Time Equivalent (FTE)—refers to the total amount of effort put forth by employees of the sponsoring Federal agency; one FTE represents the hours worked by one employee on a full-time basis over one year. The concept provides a means of allocating the effort of an employee among different responsibilities and summing the efforts of multiple employees, both part-time and full-time, who spend part of their time working on the project. On an annual basis, an FTE is considered to be 2,080 hours (8 hours per day x 5 work days per week x 52 weeks per year = 2,080 hours per year). In this context, FTE is intended to convert the total number of hours contributed by all employees to a standard scale, which may not be the equal to the total number of full-time agency employees who contributed to the activity if it was only a part of their total responsibilities.

Welcome! This is the data collection survey for the following initiative: Guardians of the Reservoir.

Primary point of contact within your agency for Guardians of the Reservoir (response required).

First name	Jennifer
Last name	Beardsley
Email address	jbeardsley@usbr.gov
Phone number	303-445-2127

Link - Please provide a URL to the homepage for Guardians of the Reservoir, if available. You may enter more than one, if appropriate. If no URL exists, please answer "N/A."

https://www.usbr.gov/research/challenges/sediment-removal.html;
https://www.herox.com/GuardiansoftheReservoir

Please provide a summary of Guardians of the Reservoir suitable for broad, public dissemination. This summary may be included in the formal report to Congress as, for example, a case study (max 300 words) (response required).

The lifespan of reservoirs relies on our ability to effectively and continually manage sediment. Sediment enters reservoirs each year, particularly when rivers are experiencing floods or runoff conditions. Sediment accumulation reduces available water storage which affects the ability to meet critical operational objectives along with environmental, cultural and recreational needs. The Bureau of Reclamation, in collaboration with the U.S. Army Corps of Engineers, launched a three-phase competition spanning nearly two years seeking solutions that develop more cost-effective sediment removal methods for reservoirs. This competition builds upon the successes of the “Sediment Removal Techniques for Reservoir Sustainability” competition and looks to continue progress in the development of new processes and technologies that collect and/or transport sediment from reservoirs at a rate that sustains their current capacity. This challenge offers technical support and testing opportunities to the most compelling ideas. This competition aims to jumpstart interests and activities to improve sediment removal strategies and stimulate interest in the industry for potential partnerships to further develop innovative solutions.

Characters remaining: 767

Status FY19 - Please select the status of Guardians of the Reservoir during FY19 (select all that apply) (response required).

- [ ] Launched
- [ ] Ongoing
- [ ] Completed
- [x] No activity occurred during FY19

Status FY20 - Please select the status of Guardians of the Reservoir during FY20 (select all that apply) (response required).

- [x] Launched
- [x] Ongoing
- [ ] Completed
- [ ] No activity occurred during FY20

Authority - Please select the authority under which Guardians of the Reservoir was conducted (response required).

- ○ America COMPETES Reauthorization Act of 2010
- ● Other authority (please specify)

Procurement

- ○ Unknown

Provide name of sponsoring agency and office (if your office or component is not listed please select "other") (response required).

Agency: Department of the Interior

Office or component: Bureau of Reclamation

If you selected "other" as an office or component please enter the name here.

Office or component: N/A

Does Guardians of the Reservoir have multiple phases?

- ● Yes
- ○ No

Please provide the total number of phases planned for Guardians of the Reservoir.

- ○ 2 phases
- ● 3 phases

- [ ] 4 phases
- [ ] 5 phases
- [ ] 6 phases

Which phase(s) did Guardians of the Reservoir go through during FY19-20 (select all that apply)?

- [ ] Phase 1
- [ ] Phase 2
- [ ] Phase 3

Please provide the following phase specific information, if available, for Guardians of the Reservoir.
Please note that dates should be entered in the following format mm/dd/yyyy.

Phase dates		Submissions
Submissions open	Submissions closed	Number of submissions

Please provide the following phase specific information about Guardians of the Reservoir.

Award Information		Announcement Date	Prize Purse
Total number of awards available	Total number of awards given out	Date winners were announced (mm/dd/yyyy)	Total prize purse for awards given out

Please indicate what submissions consisted of or included for each phase that took place in FY19-20 (select all that apply).

- [ ] Proposal or concept
- [ ] Prototype device or object
- [ ] Software or computer code
- [ ] Business or commercial development plan
- [ ] Creative media (e.g., images, videos, podcasts, logos)
- [ ] Analysis or visualization of data
- [ ] Other

Please provide a description of the submission(s) sought by Guardians of the Reservoir (max of 150

words).

The goal of this challenge is to develop and demonstrate new processes and technologies that will collect and transport sediment from reservoirs at a rate that sustains their current capacity. Reclamation's primary interest is in technology that will move sediment downstream at the average annual rate at which it would otherwise accumulate, but approaches that can help in regaining lost reservoir capacity are of interest if they can do so in addition to meeting environmental and other performance criteria. Over the three phases of the competition, it is anticipated the technology will progress from a concept and plan on paper to a technology demonstration.

Characters remaining: 339

Please indicate whether the participants in Guardians of the Reservoir were team-based or individual members. If some submissions come from teams and others from individuals, please indicate that participants were team-based with some teams having only one team member.

- (●) Participants were team-based
- ( ) Participants were individual members

Please indicate the best estimate of the total number of teams participating in each fiscal year.

FY20	TBD - Some teams only have 1 team member

Please identify the intended participants of the challenge (select all that apply).

- [x] No specific intended group
- [ ] Pre-k through 8th grade students
- [ ] 9th-12th grade students
- [ ] Undergraduate College/University/Technical students
- [ ] Master/PhD students
- [ ] Adult not affiliated with higher education
- [ ] Retiree
- [ ] Small businesses
- [ ] Large businesses
- [ ] Other (please specify):

Please select which of the following methods were used by the agency to publicize Guardians of the Reservoir, mobilize potential participants, and ensure high quality submissions (select all that apply).

- [ ] Live event(s) prior to the competition
- [x] Posted on challenge.gov
- [ ] Live video streaming announcement
- [x] Social media (e.g., Twitter, Facebook)
- [x] Press release
- [x] Partnership with outside organizations (e.g., private companies, non-profit organizations, other Federal agencies)
- [x] Email (e.g., listservs)
- [x] Publicity efforts from vendors/contractors
- [x] Other (please specify):

Reclamation webpage

Please describe the method(s) used to evaluate submissions to Guardians of the Reservoir and to select winners. If appropriate, please indicate whether judges were internal-to-agency, cross-agency, external, or a mix (max 150 words).

Evaluation panels will be used for all phases of the competition include a mix Federal and non-Federal subject matter experts and experts from private industry. Evaluation panels provide feedback to the contractor responsible for selecting the final winners for each phase.

Characters remaining: 731

Please indicate the types of goals Guardians of the Reservoir achieved (select all that apply).

- [x] Improve a process/procedure/service carried out by the sponsoring agency
- [ ] Outreach/information dissemination
- [ ] Launch or scale up the use of an enterprise/promote commercialization (including technology transfer)
- [x] Develop/demonstrate technology (hardware or software)
- [x] Build or strengthen a community
- [ ] Generate innovative ideas/designs/concepts (ideation)
- [ ] Education/training
- [ ] Other (please specify)

☑ Other (please specify)

Please describe the problem or opportunity Guardians of the Reservoir is/was designed to address (max 150 words).

Reservoirs are bodies of stored fresh water that typically form behind dams. They are a critical water source, supplying farms with irrigation and providing potable water to people and homes. Increasingly, they are also an important component of outdoor, water-based recreation. The goal of this challenge is to develop and demonstrate new processes and technologies that will collect and transport sediment from reservoirs at a rate that sustains their current capacity. Reclamation's primary interest is in technology that will move sediment downstream at the average annual rate at which it would otherwise accumulate, but approaches that can help in regaining lost reservoir capacity are of interest if they can do so in addition to meeting environmental and other performance criteria.

Characters remaining: 211

Please describe how Guardians of the Reservoir advanced the agency's mission (max 150 words).

Reservoir sedimentation has become a significant problem with the aging of water storage facilities. Sediment deposition in reservoirs limits the active life of reservoirs by reducing reservoir storage capacity for water supply or flood risk reduction. Sedimentation also impacts dam outlets, reservoir water intakes, water quality, recreation, upstream flood stage, and downstream habitat. Most reservoirs are older than 50 years and many are older than 100 years. The sediment-design life (typically 100 years) will be reached when the sediment level at the dam is higher than the outlet and the outlet is prone to plugging. New or improved techniques for reservoir sediment removal and transport of the removed sediment in a cost-effective manner is necessary for sustaining Reclamation's mission to carry-out its critical operational objectives for reservoirs along with meeting environmental, cultural, and recreational needs.

Please indicate why a prize competition was the method chosen to achieve the activity's goals (select all that apply).

- ☐ Most cost-effective approach
- ☑ Incentivize a larger number of submissions
- ☑ Target audience could not have been reached through traditional mechanisms
- ☑ Less burdensome to design and execute than alternatives
- ☐ Activity required diverse expertise or interdisciplinary collaboration
- ☐ Flexibility to implement project design and achieve project goals
- ☐ Permitted cost and resource sharing with Federal and/or non-Federal partners
- ☑ Promote awareness of a specific topic or agency research area

- [x] Promote awareness of a specific topic or agency research area
- [ ] Required by executive policy or congressional legislation
- [x] Develop solutions in a quick timeframe
- [x] Sought diverse and/or innovative solutions
- [ ] Engage a specific community
- [x] Previous success with a prize competition
- [x] Identify and work with new innovators
- [x] Low risk approach and/or pay-for-performance structure
- [ ] Other (please specify):

Please comment on future agency plans for prize competitions for the next two fiscal years (FY21 and FY22) (If activities are not yet planned please respond with "N/A") (max ~200 words).

Reclamation continues to identify topics and plan for future competitions to address infrastructure, water availability, and environment challenges where advancement or resolution of issues can contribute to Reclamation carrying out its mission more effectively or efficiently. Competitions currently being planned are focused on canal safety, reducing seepage in canals, testing of hydropower protection systems, vegetation control, fish predation, precipitation measurement, and snow-water equivalent estimates.

Characters remaining: 826

Please indicate how agency funds were used in support of Guardians of the Reservoir for each fiscal year (please select all that apply).

	FY20
Non-monetary award(s)	☐
Discovery and design support	☑
Publicity/advertising/outreach/communications	☑
Web portal/app development and support	☑
Transportation of participants	☐
Solution acceleration	☐
Operations or administrative support	☑
Prize purse (monetary award)	☐
Other (please specify):	☐
Purchase of consumable materials	☐

	FY20
Federal personnel (FTE)	☑
Purchase or rental of equipment	☐
Data entry/analysis	☐
Software development	☐
Database development	☐

Please provide a detailed description of how agency funds were used in support of Guardians of the Reservoir (do not include a description of the prize purse or non-monetary awards) (max 300 words).

Agency funding supports vendor contract (platform and solver engagement), competition design, data management, judging, promotion and outreach, and administrative activities such as solver payment and post competition announcements.

Characters remaining: 1778

Provide a best estimate of the dollar amount the agency used in support of Guardians of the Reservoir (do not include prize purse funding or the cost of FTE staffing).

FY20	109,250

Provide a best estimate of the total number of FTEs used to execute Guardians of the Reservoir (please note that one work year, or one FTE, is equivalent to 2,080 hours of work).

FY20	0.17

Please provide the total amount of prize purse offered and awarded for each fiscal year (please write in "N/A" if not applicable).

	Total prize purse offered	Total prize purse awarded
FY20	550,000	N/A

Describe the non-monetary incentives that were offered to participants. Please write in "N/A" if no non-monetary incentives were offered (max 300 words).

All participants in Phase 2 will receive subject matter expert engagement and up to 20 hours of technical support. Phase III participants receive an opportunity to engage with experts and potential commercial interests during the demonstration of their technologies. Phase III participants will also receive the testing and evaluation results for their respective submissions.

Characters remaining: 1632

Please indicate how many partners were involved in Guardians of the Reservoir.

- ○ 0 partners
- ● 1 partner
- ○ 2 partners
- ○ 3 partners
- ○ 4 partners
- ○ 5 partners
- ○ >5 partners (If selected, we will contact you for information on additional partners)

Please provide the name for each partner that was involved in Guardians of the Reservoir.

Partner 1	U.S. Army Corps of Engineers

Please provide the following information for each partner that was involved in Guardians of the Reservoir.

	Federal Agency or Office	State or Local Government	Academic Institution	Nonprofit Organization (excluding Academic Institutions)	Private Industry	Other
U.S. Army Corps of Engineers	●	○	○	○	○	○

Please indicate which FY each partner provided contributions to Guardians of the Reservoir (select all that apply).

	FY20
U.S. Army Corps of Engineers	☑

Provide a best estimate of monetary value of each partner's contribution by FY.

	FY20
U.S. Army Corps of	

Engineers

FY20

Please indicate the type(s) of contributions provided by each partner for Guardians of the Reservoir (please select all that apply).

Discovery and design support
Data entry/analysis
Solution acceleration
Prize purse (monetary award)
Transportation of participants
Non-monetary award(s)
Database development
Purchase or rental of equipment
Other
Purchase of consumable materials
Operations or administrative support
Publicity/advertising/outreach/communications
Software development
Web portal/app development and support

To the best of your ability, please select which practices were used to support Guardians of the Reservoir (select all that apply).

☐ My office or agency has identified a prize competition and challenge POC (not dedicated full-time to prize competitions and challenges)

☑ My office or agency has a dedicated, central prize competition and challenge coordinator

☑ My office or agency carries out coordinated external communications or maintains a webpage for prizes competitions and challenges

☑ My office or agency has policy or guidance supporting the use of prize competitions and challenges

☐ My office or agency has a distributed network or community of prize competition and challenge managers and/or POCs within the agency

☑ My office or agency uses contract vehicle(s) to procure products and/or services for prize competitions and challenges

☑ My office or agency uses internal communication tools to support prizes competitions and challenges

☐ My office or agency has developed or is in the process of developing centers for

☐ My office or agency has developed or is in the process of developing centers for interagency challenges in specific topics related to prize competitions and challenges

☑ My office or agency provides centralized training and design support for staff conducting prize competitions and challenges

☑ My office or agency has a distributed network or community of project managers and/or resource people within the agency with expertise in prize competitions and challenges

☐ Other (please specify):

☐ None or Unknown

Please indicate whether Guardians of the Reservoir was designed and implemented in response to a national health crisis or emergency.

○ Yes

◉ No

This is the end of the survey. By clicking the "next page" button below you will have an opportunity to review your responses and print or save/export a PDF of your responses for any approval process you may need to execute at your agency prior to final submission to STPI.

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