

THE JOHN WESLEY POWELL CENTER FOR ANALYSIS AND SYNTHESIS



Enhancing scientific discovery and problem-solving
through integrated research



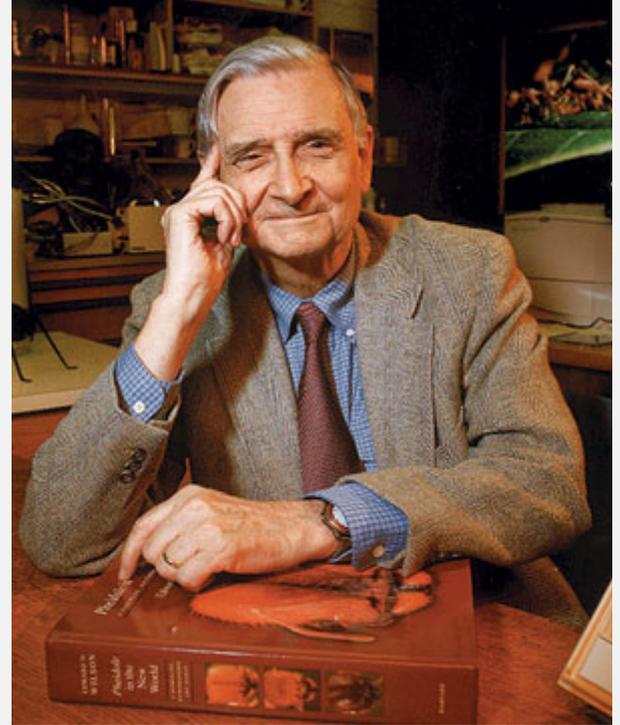
What Does the Powell Center Do?

Opportunities

- Transformative science:
develop new ideas about pressing societal issues driven by scientists
- A new way of conducting science:
interdisciplinary or trans-disciplinary analyses of complex problems
- Emergent knowledge from existing, repurposed, data
- Establishment of long-term interdisciplinary collaborations
- High profile publications

"We are drowning in information, while starving for wisdom.

The world will henceforth be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely."



E.O. Wilson, 1988

What We Offer:

- The opportunity for synthesis
- **Time** for in-depth analysis without distractions
- All-expense paid collaboration with colleagues
- Virtual in-between Powell Center meetings
- Fellows for scientific support
- Hands-on unlimited computing capabilities
- Page charges
- Bicycles!



Accounting for
Ecosystem Services



What is a Working Group?

- Working Groups are different than workshops!
- Teams of 8-15 people who collaborate intensively around one or more questions ripe for synthesis that may or may not require intensive data manipulation
- WGs typically meet several times over two or more years



Budyko Framework



Biodiversity and N Deposition



Amphibian Decline



Global Earthquakes



Modeling Mosquito Phenology

What is a Working Group *Under COVID-19?*

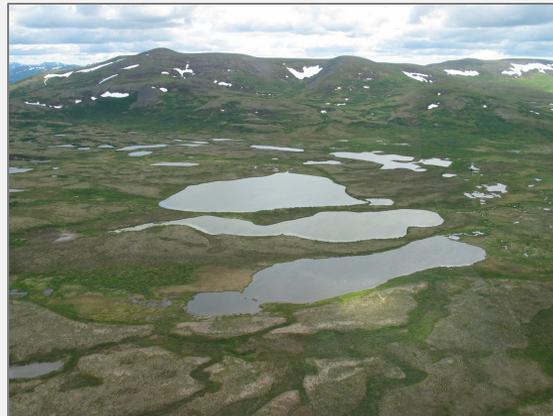
- Virtual, for now
- Our crystal ball is as fuzzy as yours for in-person interactions
- We have good tools for your virtual meetings
- A successful proposal is under no financial deadline, so we can and will schedule all in-person meetings when it becomes safe to do so.

The science we look for

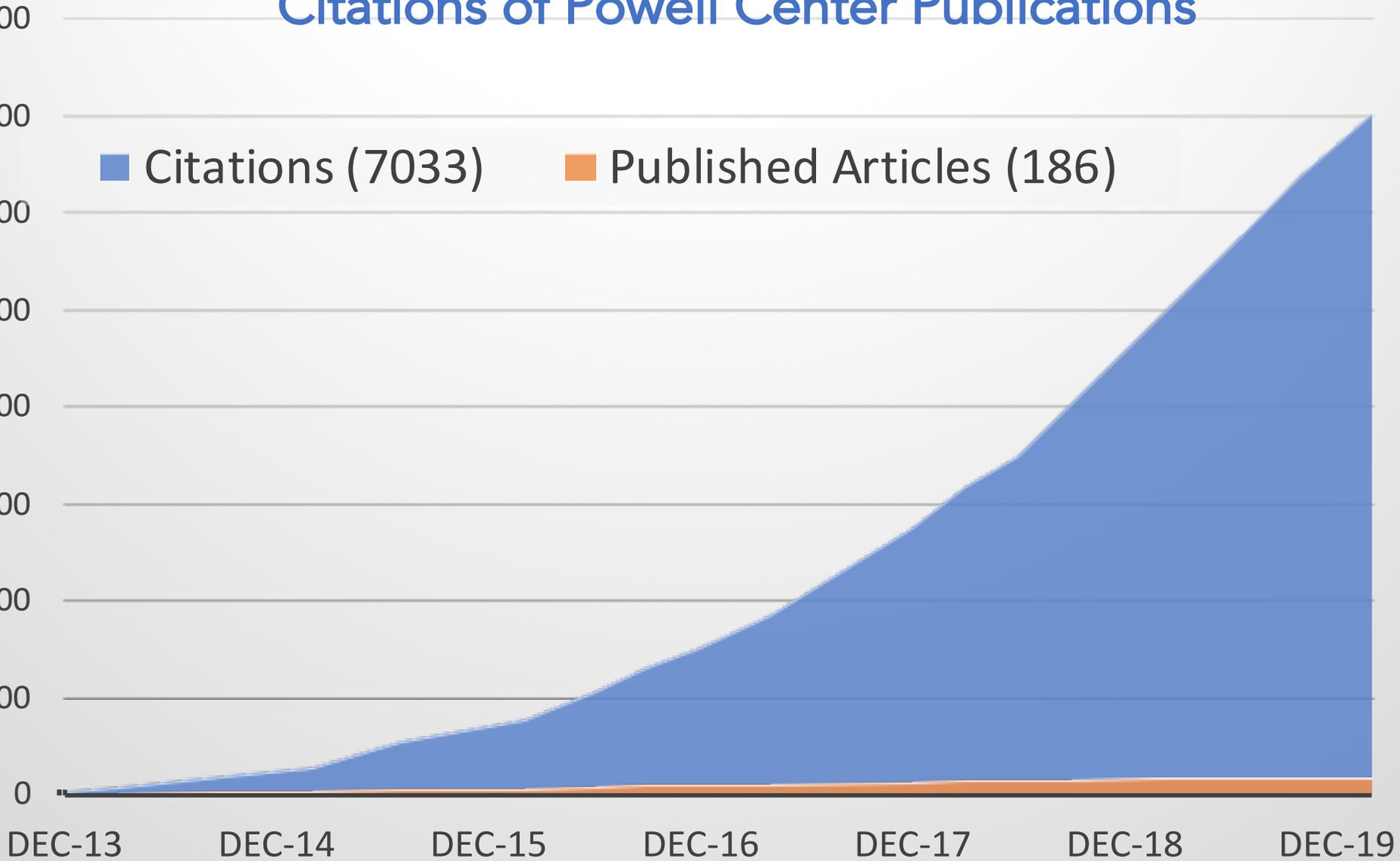
- ❖ Big important ideas
 - May require large, complicated, and heterogeneous data sets
 - Or not – conceptual advancement is equally valued, (but harder to sell)
- ❖ Regional, national, global implications
- ❖ Clear, logical arguments
- ❖ Well-stated goals, objectives, methods, timeline
- ❖ Proof of expertise
- ❖ Potential for high impact

What We Expect:

- Full intellectual engagement of all participants
- Collegiality, constructive discussions
- High profile publications
- Many publications
- Open access to your metadata at end of Working Group



Citations of Powell Center Publications

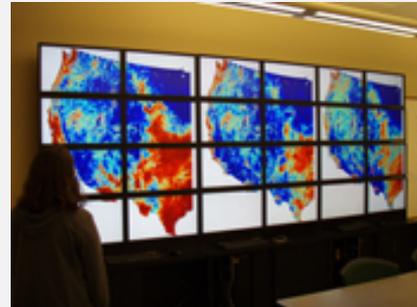


What we don't ever support

- ❖ New data collection/field work
- ❖ Case studies
- ❖ Completion of ongoing work that ran out of funding
- ❖ Groups that already work together to do more of what they already do

IT support

- ❖ Virtual and phone conferencing
- ❖ myUSGS, GoogleDocs common space for your Working Group
- ❖ ScienceBase data cataloging/data management
- ❖ Metadata support
- ❖ Temporary onsite data downloads and storage
- ❖ Database setup and administration
- ❖ Website development
- ❖ Geospatial support
- ❖ Automate Workflow Services (e.g Kepler or VisCalc)
- ❖ Modeling services (coding/compiling)
- ❖ Supercomputing capabilities



USGS has Supercomputers?

The USGS Advanced Research Computing team provides DOI access to its in-house supercomputers – Yeti, Tallgrass, and Denali – allowing scientists to move beyond desktop computing



USGS Yeti Supercomputer

	Yeti	Tallgrass	Denali
Designed for	Most Workloads	ML/Analytics	Large Jobs
CPU Cores	3728	720	9280
GPUs	Yes	Yes	No
Performance	100 Tflop/s	173.8 Tflop/s	660 Tflop/s
	Available Now	Available Now	Nov 2019

Should your results have resource management application?

- ▣ Absolutely!! Actionable science is critical in these times of global change
- ▣ BUT...
- ▣ Proposals must stand on their scientific base, and are evaluated on the quality of the ideas, ability to perform and synthesis and publish in leading journals.

Who can apply?

- ❖ Proposals may have up to 4 Principal Investigators
- ❖ One or more PIs MUST be a USGS scientist (not necessary for CZ Collaborative proposals)
- ❖ We welcome academics, other agency scientists, international scientists
- ❖ Students and post-docs are especially welcome
- ❖ Working Groups are expected to be diverse in age, gender, discipline, and ethnicity

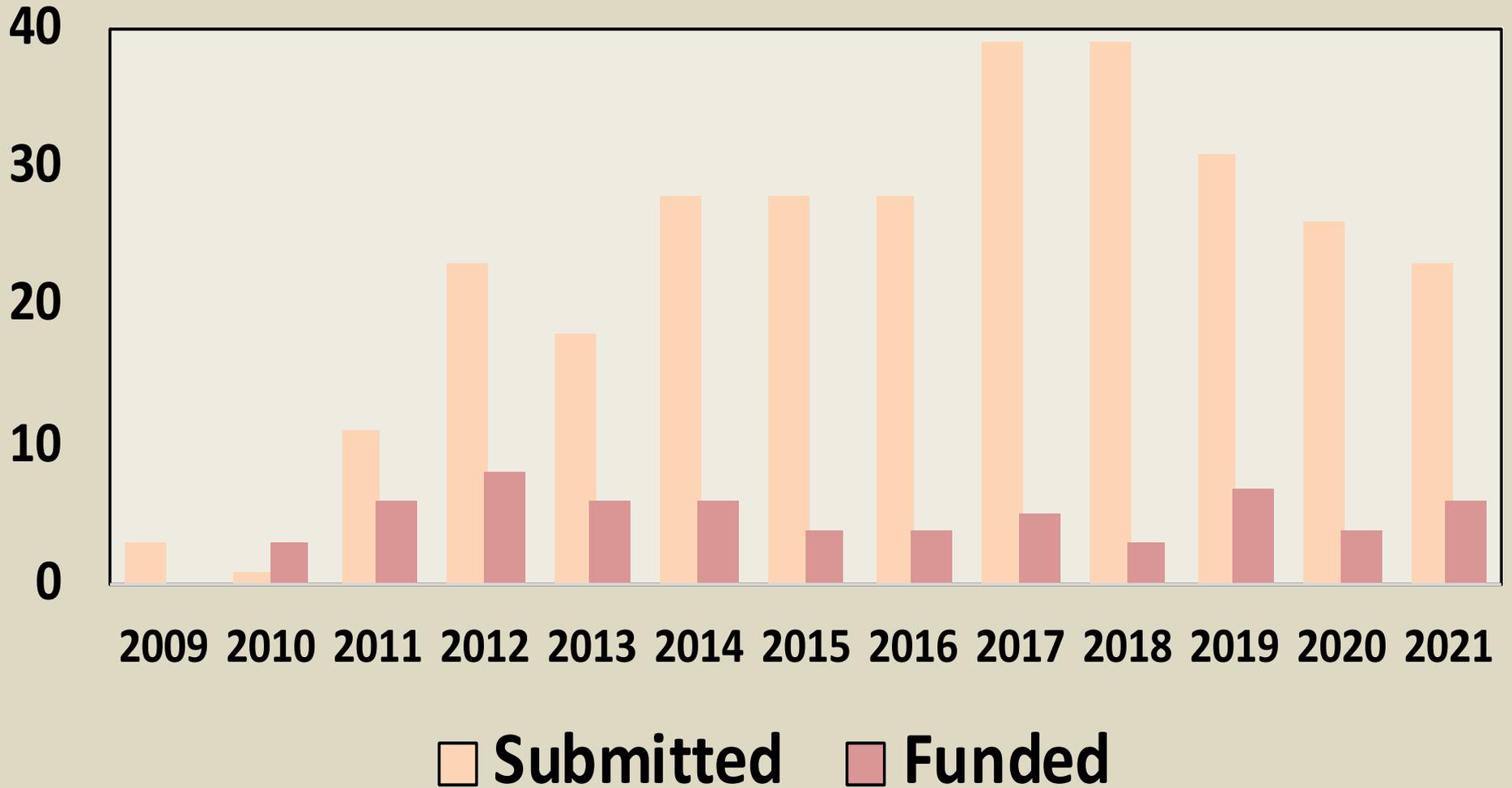


A Note About Diversity:

We are looking for a team that reflects depth and breadth in expertise, career stage, gender, and ethnicity, not simply a count of under-represented populations. How will your group achieve the broader impacts of increasing diversity over time in STEM fields?



Proposals



Success rate 0.20 ± 0.09

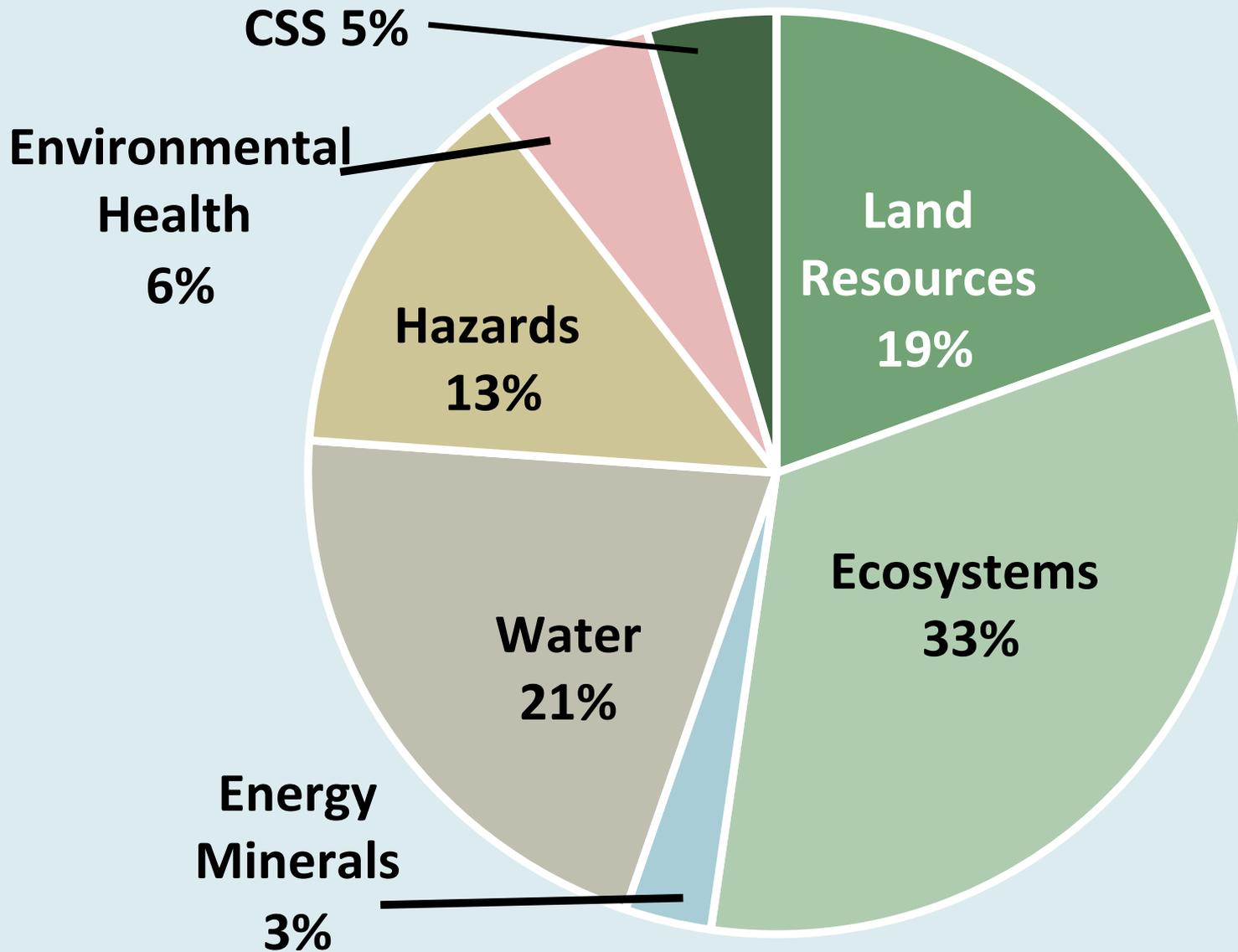
Participation 2009-2019

□

AFFILIATION	PARTICIPANTS	% of TOTAL
USGS	354	29
INTERNATIONAL	167	14
OTHER GOV	186	15
ACADEMIA	455	37
INDUSTRY	16	1
NGO	39	3
TOTAL	1217	100

Working Groups by USGS Theme

2009-2020, n=63



Powell Center Review process

- ❖ Science Advisory Board currently made up of ~10 scientists from USGS, NSF, other agencies
 - ❖ Broad range of expertise
- ❖ Each proposal reviewed by at least 4 SAB members
- ❖ Proposals discussed and ranked – top proposals funded, but sometimes require clarifying addenda
- ❖ Constructive review comments returned for unsuccessful proposals



CZ Collaborative/Powell Center Review process

- ❖ CZ-Hub's science advisory board, augmented by ad hoc experts.
- ❖ Three proposals can be funded, one each starting in 2021, 2021, 2023
- ❖ Constructive review comments returned for unsuccessful proposals



The finances of successful proposals

The goods	How much?	Does this money come to me?	For how long?
Travel for Working Group	As much as it takes	NO – you never see this money	About two years
Funding for Fellow	\$100,000 (includes all indirect costs)	CESU agreements transfer \$ to universities; \$ can transfer to USGS Centers	\$100K is for life of Working Group
IT Support	As much as it takes	NO – you never see this money	Life of the Working Group
Page charges	\$1800	NO- you never see this money	Life of the working Group
Salary	None, unless you are WSC	Salary for WSC participant on site in Fort Collins	Usually two weeks over life of Working Group

Other agency support

- ❖ All proposals go through Powell Center review and are ranked by the Science Advisory Board
- ❖ NSF is a formal sponsor and supports some, but not all, proposals
 - ❖ If they support a proposal they work through Powell Center to provide support.
 - ❖ USFS, EPA, Smithsonian, NOAA, CoE, FWS, others have given in-kind support

<https://www.usgs.gov/centers/powell-ctr>

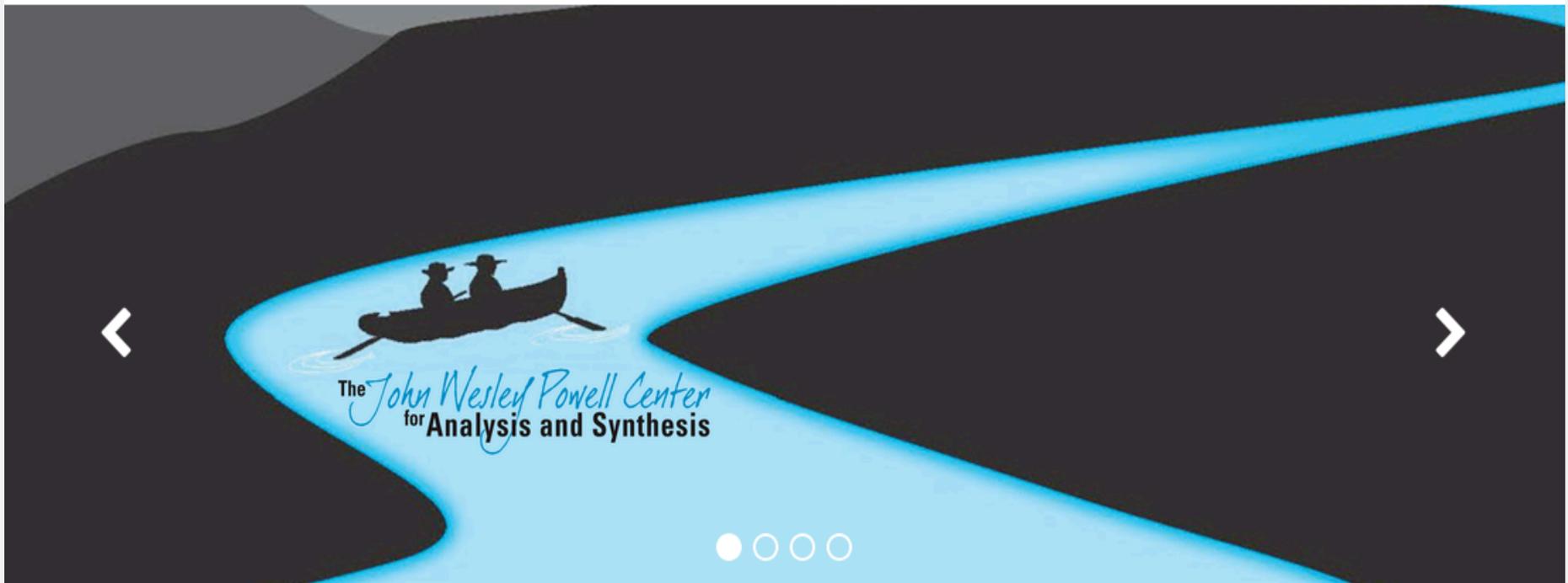


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PROPOSAL DEADLINES



January 31 for Powell Center



February 26 for CZ Collaboratives