NPS-USGS Water Quality Partnership Program

2017

Work Group Comments – Proposals for New Projects Commencing FY2017

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Water Quality and Periphyton Community Condition in Big Cypress National Preserve

CATEGORY: Intensive	PARK: Big Cypress National Preserve (BICY)

USGS Wetland and Aquatic Research Center & USGS Columbia Environmental Research Center

Comments:

Develop biotic index for Periphyton
More information (e.g. location of facilities impacting canals) such as Wastewater Treatment Plant discharge to canals would have provided more context as to sources of TP and wastewater COCs.
It seems like laboratory testing on the effects of various toxic contaminants on Periphyton would yield more definite results than simply monitoring water quality degradation.
Good resolution - Park will use results to make upcoming management decisions
More info and spatial information on past water column data would have been helpful
Very clear objectives
Better contrast should be made between areas of canal supplied water those areas of largely rainwater
Strong in-kind support from both from USGS for some salary and the NPS I&M network personnel
Well explained and very detailed approach, good descriptions of hypotheses and data analysis methods

Simulating pH, Dissolved Oxygen, Nutrients, and Iron Concentration by Linked Models of Sediment Solute Release and Hydrodynamics in Support of the Herring River Saltmarsh Restoration Project, Cape Cod National Seashore	
CATEGORY: Intensive	**PARK: Cape Code National Seashore (CACO)**
USGS Northeast Water Science Center	

Comments:

A good case was made for significance and severity and the usefulness to the park of the simulations. Proposal could be improved to indicate how the simulations will be checked as no data collection is indicated.
Not clear that actual ground truth WQ sampling will be done to verify significant modeling effort
No indication if or how simulations will be verified.
Results will be used immediately to guide Park activities - good resolution
Strong support

Post-Wildfire/Flood Water Quality and Aquatic Habitat Monitoring to Support ESA-Listed Humpback Chub at Grand Canyon National Park	
CATEGORY: Intensive	**PARK: Grand Canyon National Park (GRCA)**
USGS California Water Science Center	

Comments:

Excellent, simple proposal. Is there not fire money that could be devoted to this type of study?
Assessing how post-fire changes in riparian vegetation and channel morphology affect WQ
Only historic data cited is from pre-1990s. No information or discussion on how global climate change would affect water quality.
WQ component/link appears somewhat limited
Severity? - Study will be 2.5 - 4.5 years post fire
Seems light on in-kind support if this is really a high-priority issue for the park and for species risk. Reads more like a routine fisheries management study.
No mention of continuous WQ monitoring stations would have real-time NWIS link
Vertical accuracy of bed elevation for longitudinal profiles should have been provided
Not clear if results are urgently needed by Park

Occurrence, Sources, and Potential for Biodegradation of Anthropogenic Bioactive/Biocidal Chemicals in Surface Water in Great Smoky Mountains National Park	
CATEGORY: Intensive	**PARK: Great Smoky Mountains National Park (GRSM)**
USGS South Atlantic Water Science Center	

Comments:

ABC concentrations may be 1000 times higher than in the water column, but are they bioavailable? Atmospheric deposition seems only to be mentioned as a "buzz word." There is no real tie in to this process.
Did not provide a list of wastewater treatment facilities to give a sense of their significance and spatial distribution relative to sampling sites.
Budget tables on page 13 and 14 appear to be recycled from earlier proposals on this general topic with significantly out-of-date and incorrect year headings.
Well defined problem with significance to the park
Researchers are experts in field
Would have liked more information on sampling locations and QA
No clear path for resolution

Comparison of Occurrence, Sources, and Biodegradation of Anthropogenic Bioactive/Biocidal Chemicals in Park Surface Waters on the Eastern (GRSM) and Western (ROMO) Continental Divides

CATEGORY: Intensive	PARK: Great Smoky Mountains National Park & Rocky Mountain National Park (GRSM & ROMO)
STATE: South Atlantic Water Science Center & Colorado Water Science Center	

Comments:

Researchers are experts in field
If the goal is to span eastern and western continental divides, it might have been interesting to also include an additional mountain park like SEKI. Doing so would provide a continental gradient of sorts that focuses on the differences and similarities of mountain parks.
Seems like what this proposal wants to do has already been documented in the 2014 reconnaissance. Plus, it seems like the primary fix for the problem is to reduce/eliminate the direct and indirect discharges of wastewater.
The overlap of in-kind support with other study by same authors indicates that only one proposal should be approved if both score sufficiently high (GRSM only proposal)
Well defined problem with significance to the parks
Budget tables on page 15 and 16 appear to be recycled from earlier proposals on this general topic with significantly out-of-date and incorrect year headings. Does not inspire confidence that this is a customized proposal for these parks and their particular EC issues.
Transferability ranked somewhat low because it's largely been done elsewhere, so it is not a novel methodology.
Assessing ABCs on ROMO cutthroat coupled with the effects of thermal stress due to climate change would be interesting and valuable!
Researchers are experts in field
No clear path for resolution

Characterizing the Origin, Nature, and Distribution of Radioactive Constituents in Thermal Spring Water at Hot Springs National Park, Arkansas

CATEGORY: Intensive	PARK: Hot Spring National Park (HOSP)
USGS Lower Mississippi-Gulf Water Science Center	

Comments:

Results will directly aid Park with mitigation decisions.
Budget table on page 11 starts at FY18 for a FY17 start proposal?
Given the extent to which radon levels are in locations far above action and protective equipment levels the in-kind support from NPS looks low. Are there no health and safety funds to contribute to this important study?
Springs highest significance to Park
Somewhat unclear as to the degree of risk posed to human health. Project discusses exceedances of regulator limits, but doesn't state what, if any, health consequence have or are likely to occur without action.
No mention of other studies of natural radiologic conditions that could be informative in conducting this study.
All figures are labeled as Fig. 1.
No discussion of baseline radiologic levels to help differentiate proximity of spring discharge as the major local threat as opposed to radon from soils /bedrock etc.
High severity because of water use

What Role Does Sediment-Precipitated Phosphate Have in the Occurrence and Intensity of Harmful Algal Blooms in Lake Mead, Lake Mead National Recreation Area?	
CATEGORY: Intensive	**PARK: Lake Mead National Recreation Area (LAKE)**
USGS Nevada Water Science Center	

Comments:

All of the resolution actions are not controlled by the Park, but by Reclamation and city water agencies
No information provided about lake water column orthophosphate levels or its change with increased turbidity as lake levels rise (total vs dissolved forms)
Although models are useful and necessary, this particular effort seems to have a great deal of inherent uncertainty and assumptions. It could also benefit from great explanation of what will happen if the project is not funded or completed.
Seems like water temperature is the major factor in algal blooms and it is already known that sediment bound P transforms into ortho-P when the water level rise. The same information was repeated way too many times.
No discussion as to how core leachate experiments are expected to replicate/reflect upon natural conditions when lake sediments are re-wetted.
Unclear why it is expected that P or Ortho-P concentrations would be different in inundated sediments than previous results from inundated sediments

Occurrence and Potential Risk of Microplastics in Lake Mead & the Delaware River	
CATEGORY: Intensive	**PARK: Lake Mead National Recreation Area & Delaware River (DEWA, LAKE, LODE, UPDE)**
USGS Idaho Water Science Center	

Comments:

Excellent case for transferability
Proposal does not do a good job of making the case and relevance for linking LAND and Delaware River. Why is LAKE not mentioned in Significance? What is the connection between LAKE and UPDE? May be a good project but proposal needs to be better developed. This proposal doesn't appear to be ready from prime time at the national level.
An emerging contaminant issue with global implications.
Important issue concerning newly-identified contaminant
Excellent approach
Great collaboration between multiple USGS centers and multiple parks.
Very cost-effective especially given the topic and scope.
Poor resolution as defined in funding guidelines

Arsenic and Nutrients Associated with the Active Hydrothermal System at Lassen Volcanic National Park

CATEGORY: Intensive	PARK: Lassen Volcanic National Park (LAVO)
USGS California Water Science Center	

Comments:

Well defined problem of naturally-occurring resource
Limited resolution
Could not evaluate budget. Referenced table not provided. Good use of in-kind support, but urgency doesn't come through.
No indication was provided that historic data supports threat to park visitors - "numerous thermal waters and hot ground present a natural hazard" based on what data to date/cases of past injuries to park visitors?
This issue doesn't seem all that critical. If the geothermal features are sources of toxic water constituents, what can be done about it other than to cordon off the area? The migration of thermal features is not a water quality issue.
Limited severity

Mapping Optimal Restoration Sites for Persistence of Greenback and Colorado River Cutthroat Trout	
CATEGORY: Intensive	**PARK: Rocky Mountain National Park (ROMO)**
USGS Colorado Water Science Center	

Comments:

Like the idea of working with park and stakeholder on identifying candidate lakes, but it doesn't say who or how those individuals will be identified.
Some concern that climate change could negate all possibilities for restoration of trout requiring cold-water habitats in this park.
Too much reliance on models with no future validation of the modeled results.
Concise well-written proposal given the scope and which demonstrated significant other contributions from NPS and USGS beyond requested funding. Application of the results by NPS and the expected products suite were especially strong.
Possible future resolution, contribution to future management actions
Very well-written proposal w/clear goals and objectives.
Well defined problem of a moderately significant resource

Early Detection and Ecological Impact Thresholds for Invasive Bigheaded Carps in Lake St. Croix - St. Croix National Scenic Riverway	
CATEGORY: Intensive	**PARK: St. Croix National Scenic Riverway (SACN)**
USGS Minnesota Water Science Center	

Comments:

Not primarily a WQ project, but an eco/bio project = lower Problem Definition score
Ties to water quality appear limited - possibly more of a biological study
Project will provide a foundation for a monitoring plan. No clear and robust solution to this problem. Also, seems to be more about developing an eDNA model than managing to reduce the effects of BHC. Is eDNA a water quality issue or simply and indicator of species presence (rhetorical question)?
No examples of plausible means to prevent spread of invasive up river should research lead to recognition of increased invasive threat
Not primarily a WQ project, but an eco/bio project = lower Problem Definition score
Endpoints of proposed activities seem less than definitive or precise to direct management action.
A modeling exercise with no field verification. Not really a water quality study.
Proposals with significance to biological species endpoints (either invasive or endangered) are welcome and invited in the WQ Partnership but in this case, the biological endpoints have little or no connection to any water quality issues.
"Theoretically describe impending impacts to native fish assemblages if…… outcome appears a bit nebulous

Water-Quality Assessment of Nutrients and Pathogenic Microorganisms in Geothermally Influenced Popular Swimming Areas within Yellowstone National Park

CATEGORY: Intensive	PARK: Yellowstone National Park & Grand Tetons National Park (YELL & GRTE)
USGS Wyoming-Montana Water Science Center	

Comments:

Excellent proposal on a serious issue.
Well-defined problem with possible immediate significant public safety risks
The Problem section noted "several deaths," but offered no information on what died - animal? Human? Seems that the potential threat from pathogens will always be present.
Argument tying in climate change seems weak on surface, needs further explanation/rationale given water is naturally heated and temperature of hot spring is already elevated.
Clear plan for public safety resolution
Cross-agency team of experts
Direct recreational human contact with geothermal heated “cold” waters (mainly in the mountain west) has been long-term and widespread. Absent data on infection in the presence of N. fowleri or other pathogens in this specific setting, it is questionable how informative any information on detection or concentration would be to management decisions.
Strong proposal.

Molecular Source Tracking of Enteric Bacteria in 303d-Listed Cedar Creek Watershed Congaree National Park

CATEGORY: Synoptic	PARK: Congaree National Park (CONG)
USGS South Atlantic Water Science Center	

Comments:

Resolution? - Park has no real recourse with external sources, which sounds likely based on background description
Would be useful to know locations and timing of high bacteria before going straight to expensive DNA tracking
Shouldn't more sewage treatment plants coming online reduce fecal coliform that result from existing septic tanks? The threat here, notwithstanding some human health concerns, seems to be on the low side. A better study would be to determine the degree to which CONG is able to assimilate fecal coliform (ie, an upstream/downstream comparison).
Method not well described - timing of samples? Analytical lab?
Methods are transferable, but results aren't.

Will Clarity and Dissolved Oxygen in Crater Lake Change in a Future Climate?

CATEGORY: Synoptic	PARK: Crater Lake National Park (CRLA)
USGS Oregon Water Science Center	

Comments:

Produced video as described is a major plus for this project.
Well defined problem with high significance to the park
Well-written proposal
No definitive resolution, info for managers and public
Despite the large scale transfer of heat by ocean currents from tropics (low latitudes) to polar areas (high latitudes) are there suspected inferences that can be made about the more dynamic oceans and their stratification effects from climate change?
This is a somewhat iconic project for the NPS that links one of the oldest parks to climate change. The proposal does call for some level of interpretive materials (video) as a product which is a good "resolution" for this otherwise unsolvable problem. Also, I would rank problem resolution on the low side, in this case, that should not diminish the project's overall value. One item of note, the narrative lists in-kind support at 69% yet the budget table lists it at 46%. The former appears to be an error.
Could this educational outreach example (video) be adopted by other parks to demonstrate to and educate the public on climate change (would be a very positive result if advanced in that manner)
Well defined methods, builds on previous work

Trace Elements and Metallurgical Slag Transported to Lake Roosevelt National Recreation Area by the Upper Columbia River	
CATEGORY: Synoptic	**PARK: Lake Roosevelt National Recreation Area (LARO)**
USGS Washington Water Science Center	

Comments:

Well defined problem of significance to the park
The data collection as described should be supported by other parties. The products beyond various forms of data release were lacking.
No indication why USGS NASQAN Program stopped their sampling
Well defined methods
Should be other sources of funding given a PRP situation
A table illustrating current water quality for dissolved metals would have been helpful
The proposal leaves the reader wondering why this work is not being addressed and funded under the existing NRDA case. It also provides no direct evidence of cost sharing or funds being leveraged.

Effects of Imidacloprid Treatment of Hemlocks on Aquatic Ecosystems: Is the Cure Worse than the Disease?	
CATEGORY: Synoptic	**PARK: New River Gorge National River, Gauley River National Recreation Area, and Bluestone National Scenic River (NERI, GARI, BLUE)**
USGS West Virginia Cooperative Fish & Wildlife Research Unit	

Comments:

What is the target concentration of concern? Have any noticeable decline in salamander populations been observed in the past 10 years of imidacloprid use? What is an "unacceptable impact" to macro fauna? How can the long-term impacts be examined if there are no baseline data?
A much needed project in the east. Good use of funds and very transferable to other parks with hemlocks.
10 years of pesticide use, long term effects unknown but may be likely
No USGS final report?
Excellent description of methods - BUT concern about using new masters student and heavy WVU involvement - possible loss of control over project timeline
Good resolution - modification of current pesticide program
Excellent in-kind contributions, products and scientific merit.
Excellent cost sharing
Information and reporting of results appears to be somewhat scattered and not pulled together in one all-encompassing report or publication. May make results of less utility.

Application of a Lagrangian Sampling Design to Determine the Travel Time and Dispersion Characteristics of Contaminants of Emerging Concern between the Nogales International Wastewater Treatment Plant and Tumacácori National Historical Park	
CATEGORY: Synoptic	**PARK: Tumacácori National Historical Park (TUMA)**
USGS Arizona Water Science Center	

Comments:

This may be a very worthy project, particularly for a small park with a big water quality problem, but the proposal leaves the reader with many questions. Where is the park, what is its purpose, how much of a priority is this issue to the park, etc. Further, the issue of CEC is often tough to resolve, and this proposal doesn't really address resolution head on.
Fig. 1 does not show NIWTP. How can discharge variability change chemical processes? Only 8 sampling locations are shown on fig. 5 - 9-10 are cited in the text. Is the U of A laboratory certified by the USGS? Will these data be able to be loaded into NWIS? There are no degradants on the analytical list (Table 1) so how can the degradation mechanisms and fate of degradation products be understood?

Water-Quality Sampling for Select Nutrients, Gasoline Hydrocarbons, Caffeine, and Glyphosate within Wind Cave National Park at Select Monitoring Sites	
CATEGORY: Synoptic	**PARK: Wind Cave National Park (WICA)**
USGS South Dakota Water Science Center	

Comments:

The cliffhanger with this proposal stems from the mention of water quality sampling in 2015 that was inconclusive. Why was it inconclusive?
Well defined problem and methods
Products include a data report and conference presentation(s). Seems light on interpretation given the study objectives.
Are there any other potential contamination sources to the cave? There may be other sources for glyphosate than just what is used in the park.
Severity - BMPs put in place 10+ years ago (not really stated when), storm-based contamination, why looking at now and not a year or less after BMPs put in place?
Resolution not well defined
High significance to park
A map illustrating parking lot locations and sewer lines relative to cave subsurface area and sampling locations would have been helpful
Timeline too short - sampling in 3rd quarter of year 2, with report finished in 4th quarter or year 2 - not realistic

Spatial Reconnaissance of Risk of Current Use Pesticides for Rare Mussels in Congaree National Park	
CATEGORY: Technical Assistance	**PARK: Congaree National Park (CONG)**
USGS South Atlantic Water Science Center	

Comments:

Valuable proposal.
Refers to DDD/DDE data in Table and graphs, but no data are presented. What other compounds were the tissue samples analyzed for and were they detected? What is the significance of the bifenthrin detections, i.e., what is the LD50 or the concentration that causes harm to these organisms? What other stressors can affect the mussel populations?
Since the park-wide presence of recognized endocrine disrupting chemicals including several pharmaceuticals and pesticides has already been documented, the "compelling" case for a more comprehensive spatial assessment of surface-water locations in the park was not made. It was not clear why additional data is needed and how these data would help resolve the problem.
Severity of problem is unclear - only 1 mollusk species mentioned that is present in park and is only being petitioned for listing (though park letter says 15 species)
Map (Fig 1) showing sampling sites is too small to read and it doesn't appear that any sampling sites are marked.

Water-Quality Sampling for Major Ions and Selected Metals and Biotic Sampling for Selected Metals, Lake Mead National Recreation Area	
CATEGORY: Technical Assistance	**PARK: Lake Mead National Recreation Area (LAKE)**
USGS Nevada Water Science Center	

Comments:

Only provides fish advisory data for one month of one year with the data available after the fact. How useful is that? How are these results "immediately transferable?"
No real resolution
Not clear on need for study/significance/severity - Gold King Mine spill given as example, but the metals from this spill didn't make it through Lake Powell, which is far upstream of Lake Mead

Establishing an Updated, Modern GIS-Based Map Product for Groundwater and Surface-Water Hazards and Spill-Response Mitigation in, and Adjacent to, Mammoth Cave National Park	
CATEGORY: Technical Assistance	**Park: Mammoth Cave National Park (MACA)**
USGS Indiana-Kentucky Water Science Center	

Comments:

Well-written proposal that clearly demonstrated the significance and severity of chemical spill hazard risks to the water resources of the park and the benefit of the work and project products. Very cost-effective.
Not a WQ-specific project, is GIS-specific
The maps in the proposal are difficult to read and did not help illustrate the text descriptions of this work.

Impacts of Shallow Groundwater Contamination to Goodell Creek, North Cascades National Park	
CATEGORY: Technical Assistance	**PARK: North Cascades National Park (NOCA)**
USGS Washington Water Science Center	

Comments:

Results from this study would be used immediately by park and other agencies, good resolution and severity
Concerned that work plan runs into 2nd year, which is unfunded
No real transferability - site specific
Concise, straightforward and cost-effective proposal to address immediate questions park has on potential GW contamination from fill material.

Calculating the Nitrogen Footprints of Rocky Mountain National Park and Shenandoah National Park	
CATEGORY: Technical Assistance	**PARK: Rocky Mountain National Park & Shenandoah National Park (ROMO, SHEN)**
USGS Virginia & West Virginia Water Science Center	

Comments:

Possibly a little more oriented toward air emissions than water quality so may want to consider support from ARD
Severity of threat and problem resolution are weak - decades long issue that has a large contribution from outside of parks, resolution mostly showing a "good-faith effort"
Severity seems to be a weak point in this project. What's the resource-based consequences of not funding this project?
Unclear the significance of N produced within parks compared to N produced outside of parks
Too much reliance on modeling results with not even minimal field validation/verification. Will the model results be compared to atmospheric deposition values?
High scientific merit in this worthwhile, novel and thoughtful approach but it struggles with the significance, severity and resolution given the reality of large outside the park N inputs.

Vulnerability of Voyageurs National Park Lakes to Zebra and Quagga Mussel Infestation	
CATEGORY: Technical Assistance	**PARK: Voyageurs National Park (VOYA)**
USGS Minnesota Water Science Center	

Comments:

Without viable measures to actually eliminate the spread of Quagga and Zebra mussel infestations
Lakes not yet infested - project will ID likelihood of infestation
It seems this study at best could only result in a delaying tactic of the inevitable
Clear method
Need more information to suggest otherwise to ensure expenditure is best use of resources
Clear method