NPS-USGS Water Quality Partnership Program

2018

Work Group Comments – Proposals for New Projects Commencing FY2018

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Water quality and ecological consequences of climate change in lakes across the National Park Service	
CATEGORY: Intensive	**PARK: (ACAD, AMIS, OLYM, ROMO, SEKI, VOYA)**
USGS Office of Information, USGS Colorado Water Science Center, and USGS Kansas Water Science Center	

Comments:

I think the concept is very novel since lakes are sometimes forgotten in the discussion of climate change due to the focus on coastal environments. However, I don't see the reason for studying lakes all over the country and how that advances the purpose of the project? Are these lakes meant to be replicas to determine an overall trend, or do they represent a spectrum of different conditions?
Low problem resolution potential for most climate change projects. PI credentials impressive for modeling temperature changes, however this model will necessarily be less reliable than measured data.
Unfortunately, this is not an immediate need for park units, and the overall cost is too high for the deliverables.
Several typos mar the quality of the proposal.
The proposal doesn't give a clear indication of the data that exists or how the models actually work. Very few of the lakes will have data that go back to 1979 that have temperature or other characteristics that can be used in a depth profile, so most of this will be model generated, probably mostly from measurements at the surface of the lake. How reliable is that? Also the proposal doesn't make clear how the individual park personnel are being incorporated into the project to give local information to define the issues in their parks, so it makes the outcomes general rather than park specific, therefore it is not possible to determine whether the outcomes of this project will actually help the individual parks. It isn't really clear how much actual data these models are based on. Without some idea of what data are really available, I would be reluctant to rely on the output of these models to predict long-term climate change. Also the authors don't actually say which lakes in the parks are being modeled. If it is all lakes in the park, where is the data coming from to support all these models? The demonstrated webpage is really the only thing that is tangible for visitors to the parks. Will it be available at visitor centers? The example site is very basic and linear (you have to constantly scroll down, which I think many people won't do) and it doesn't really seem well suited to the issues here.

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	

Comments:

Management relevant study with good prospects for application of the results.
Good statement of Ho and Ha
I appreciate the fact that you list specific hypotheses that you will be testing including the null and alternative versions. It is apparent that the experimental design has been well thought out and the statistical analyses have been determined in advance such that the design takes this into account. IS the hydrological restoration occurring irrelevant of project? Have pIBI been developed elsewhere? Will the pIBI being developed here but site specific or transferable to other locations? Also, how quick can you quantitatively assess the periphyton community? The reason I ask is because to be effective for changing management actions, data from monitoring metrics should have a quick turnaround. Water quality metrics are typically used to assess aquatic condition because data can be obtained relatively quickly. For the toxicity study, will the mesocosms be set up in the field or laboratory- you mention that they will be "set up within the marsh" but then later mention data from "laboratory experiments" - it is unclear?
Figure 3 is difficult to see
There isn't really any description of how sampling will take place or how POCIS (which isn't even mentioned until after the proposal description) will be deployed or held in place in a swamp. How will they also be relocated? POCIS are also only semi-quantitative, so how will that be used in the analysis? None of this is described. Also I am a little concerned about flow-through mesocosm studies in the field in pristine areas of the wetland. I thought the whole purpose of the study was to protect these wetlands, but you are going to dose them with pesticides? Seems like this would be better done in the lab. The outcomes for the park are very vague and really boils down to talking with them and publishing a paper in a journal. Not the best means of communicating results.
Methods not adequately described in the proposal--POCIS and SOC not mentioned in the proposal at all but are in the ranking criteria
Good proposal except that the methods are incomplete.
Confusing reference list and inconsistent method of citing references throughout the document.

Water-quality control (nutrient limitation) of harmful algal blooms ("red tides") in coastal embayments of Cape Cod National Seashore	
CATEGORY: Intensive	**PARK: Cape Cod National Seashore (CACO)**
USGS New England Water Science Center	

Comments:

How will you analyze the data? What statistics will be used?
It seems that "adaptive management strategies" dependent on this information would have limited ability to solve the problem.
Many acronyms not defined. Mixing use of "Alexandrium" and "A. catenella" and "Alexandrium catenella" throughout-- confusing. What is "silicate" analysis? (p. 6)--lab code shown for "silica" (p. 7).
Excellent proposal that is technically sound and has a good problem resolution. Hard to find flaws in this proposal, other than the work will only be done at one site in the estuary. Will this be representative of the whole site?
Should specify that the nutrient samples are "in kind" by Menlo Park lab (hidden in budget table).
Info on the economic value of shellfish harvesting to CACO/area job losses would have provided more impact context
Excellent technical proposal, but "Project lead" should have taken the lead, so to speak, to make the proposal flow better and be more specific and consistent throughout.
What is the contingency plan for the observatory platform if the NE coast experiences another Hurricane Sandy?

Change in Anthropogenic-Bioactive-Chemical Exposure and Effects on Colorado River Fish Populations Within and Upstream of CANY Before and After Moab, Utah WWTF Upgrade	
CATEGORY: Intensive	**PARK: Canyonlands National Park**
USGS Colorado Water Science Center	

Comments:

Some brief discussion of key remediation elements conducted at GRKO and expected effects on stream turbidity (e.g. sediment removal in/adjacent to stream) would have been informative in gaging the effects on the monitoring efforts and results, the nature of the remediation and its effects on SSC & turbidity over the course of the remediation activity (i.e. more context).
Excellent project: technically sound, wide application, high resource significance
All figures are too small to be useful.
There are a few issues with this proposal in my view. The main difficulty I have with this proposal is that although this is scientifically interest and an interesting follow-on from the previous study, there isn't any indication that the new study will provide any resolution or change in the parks or how the WWTP will be operated. How will this study actually help the parks? If some materials could have been created to show the evolution of the water quality over time after the WWTP was upgraded, that would have at least been something the Parks could have used, But that doesn't seem to be indicated here. This makes a nice scientific study, but it doesn't really help the Parks solve a problem. The previous study already solved the problem, by upgrading the facilities.
Repeated reference in reference list

Mapping Critical Loads for Nitrogen Deposition in High-elevation National Parks of the Western United States	
CATEGORY: Intensive	**PARK: GLAC, GRSA, LAVO, ROMO, SEKI, YELL, YOSE**
USGS Colorado Water Science Center	

Comments:

Limited opportunities for problem resolution, weak direct linkages to focal biota
Good proposal, but it isn't clear how the resolution can be applied to the parks. Obviously, reducing N inputs would be great, but this proposal can't address this and it isn't clear what could. Therefore, problem resolution isn't as good as it could be.
Why do stream gaging and gaging equipment vary over the three years?
Why not use a range of published nutrient retention rates instead of running injection experiments?
The in-kind contributions are a bit of a stretch.
Since you won't be able to characterize every stream, won't the experiments just provide an estimate anyway?

Application of Hydroacoustics to Provide Continuous Real-Time Information on Metallic Contaminants in the Clark Fork during Superfund Remediation Activities at the Grant-Kohrs Ranch National Historic Site near Deer Lodge, Montana	
CATEGORY: Intensive	**PARK: Grant-Kohrs Ranch National Historic Site (GRKO)**
USGS Wyoming-Montana Water Science Center	

Comments:

Unique use of surrogate data for looking at trace element contamination in the Park.
Vague description of SSCs.
Excellent figures, especially Fig. 1.
Would be good if more notable NPS support for data collection or visitor center input was shown in the proposal.
Cost effective proposal, but it's not clear that there is a need for such high temporal resolution sampling.
Not until Table 3 do we see that the SCCs are Cd, Cu, Fe, Pb, Mn, Zn, and As. But Fig. 4 shows regressions only for Cu. Pb, and Zn. What are the relations for the other metals and the metalloid (As)?
It is not clear why so much detail is needed during remediation activities.

Occurrence of the Pathogen Naegleria fowleri in National Park Hot Springs: Environmental factors, Visitor Safety, and Management Actions	
CATEGORY: Intensive	**PARK: GRTE, LAKE, YELL**
USGS Wyoming-Montana Water Science Center	

Comments:

Very few negatives (if any) for this proposal
Have there been documented impacts of this pathogen to wildlife and is that a potential concern for NPS managers?
Excellent proposal that is important to all the parks included and likely for other parks with hot springs.
Management policies already prohibit soaking in these pools.
It is unclear how an expensive research program will help solve a law enforcement problem.
If signage and law enforcement are ineffective, and given that that there is currently adequate information to give to visitors about risks from these waters, I find it unlikely that additional data will change human behavior and mitigate risks and resource damage from bathers.
I would argue that the proposal does NOT support "climate variability and change" as stated in #5 Ranking Criteria.
Figure 3 is very hard to see.
Excellent budget.
The parks already have tools to manage visitor behavior.
Is it only found in hot springs- I thought the disease was typically contracted through sports like water skiing- why focus on hot springs instead including also lake ecosystems?
Involvement of the parks and CDC is a big plus.
This is a major issue as if someone does die from this, it will make big headlines and call into question why this wasn't looked at earlier.

Characterizing the Origin, Nature, and Distribution of Radioactive Constituents in Thermal Spring Water at Hot Springs National Park, Arkansas	
CATEGORY: Intensive	**PARK: Hot Springs National Park (HOSP)**
USGS Lower Mississippi Gulf Water Science Center	

Comments:

This sounds like a must-have inventory for the park to limit dangerous exposure to employees and visitors from the primary park resource.
Not clear how you will differentiate anthropogenic vs. natural radioactivity.
It isn't mentioned how quickly samples will be analyzed. Some of the radionuclides to be analyzed have very short half-lives. Will analyses be completed in a short period of time to ensure good results? This was not mentioned (see articles by Zoltan Szabo NJ WSC on this issue for radium).
The resolution of the problem if it is determined to be really an issue, is likely already known. This would include all the types of remedial steps taken for radon in houses (vapor barriers, ventilation systems, etc). This isn't really mentioned in the outcomes section, yet is an important resolution to the problem in the buildings where people work. It also seems there should be some relatively consistent and annual at least measurements for radon if the water is used as a drinking water supply. Why is this not mentioned?
A few too many typos in proposal
There is mention of continuous temperature equipment being used as in-kind services, but there is no mention of how this will be used in the project. Therefore it seems hardly useful.
The project says that it will be able to determine temporal variability in the radionuclide concentrations, but only two sampling periods with a smaller number of samples being done at high flows. This doesn't seem adequate to determine temporal variability.

Spill Vulnerability Assessment for the St. Croix National Scenic Riverway	
CATEGORY: Intensive	**PARK: St. Croix National Scenic Riverway (SACN)**
USGS Minnesota Water Science Center	

Comments:

Is the Spill response plan finished or still in development?
Does a material like oil travel in the same way as a soluble tracer? I wonder how useful tracer studies would be in determining the fate of a material that has very different viscosity and solubility.
A very good project for preparing the park for inevitable spills. Cost seems high for the product.
Long introduction, which continues throughout the proposal. Suggest trimming it down to get to the facts more directly.
Although it is designed to solve a possible water quality issue, it is not a water quality study, it is a flow and risk study, so it doesn't seem like this is the best venue for this proposal. It also doesn't seem like there is much help and enthusiasm from the park personnel. While the possible use of this method may be useful, this doesn't seem to be the venue for funding it.
Would subsurface or transient storage samples from lysimeters benefit the effort?
The inter-active tool that will be developed, is the main user NPS or FEMA or anyone? Will it be publically available (if so, is there any security issues associated with that)? Could this tool be useful for other things than just emergency response to spill (i.e. flood risk analysis, water supply contamination investigation, TMDL, non- point source pollution assessment)?
Although the park should have a plan such as proposed, there is nothing innovative about the proposed work.

Are Mountain Lakes on a Trajectory of Rapid Eutrophication toward Harmful Algal Blooms?	
CATEGORY: Intensive	**PARK: ROMO, SEKI, SIEN, YOSE**
USGS Ft. Collins Science Center	

Comments:

Excellent science but with no real emphasis on the hydrology of the lakes. What happens if groundwater input becomes more important during drought years?
The online story map is pretty neat- I think it is a great way to communicate science to the general public etc.
There are a lot of questions you are trying to answer and a lot of data you are planning on collecting in a short amount of time. Is it all necessary to answer some of these questions- can the study be downsized in anyway (i.e. would the lab experiments be less valuable without the monitoring/ field component, or could less lakes be sampled?)
Continuous temperature measurements using T-RODs could support a hydrological interpretation of changes with minimal additional expense. This could be done in one or two lakes as a means to see if this is important.
Why recover subsamples in the field? Wouldn't it be easier and less chance for contamination or error if the cores were returned to the lab first?
Well written proposal.
Although outcomes and support are good, it isn't clear if the data will change people's minds in CA and being such an agricultural state, is it possible to really reduce the atmospheric N input enough, and what is that level that is needed? This second question is something that needs to be addressed. But still a good proposal.
Seems like some discussion of nutrient data as a constant/control would have been useful instead of simply thermal data.
I think the remote sensing tool could be very useful to managers.
Do you have any experience with crowd-sourcing citizen science app? Is there any QA/ QC to make sure information is accurate?
Authors make a clear case for resource importance and severity of problem. No easy resolution to the problem.

Development of an Interactive GIS-Based Management Tool to Support a Spill Preparedness Plan and the Design of a Water-Quality Monitoring Network to Assess Baseline Water-Quality Conditions Within, and Adjacent to Theodore Roosevelt National Park, North Dakota	
CATEGORY: Intensive	**PARK: Theodore Roosevelt National Park (THRO)**
USGS Dakota Water Science Center	

Comments:

Will NPS or others be able to add to the GIS tool in the future as they get new information or complimentary science is conducted (i.e. location of important natural resources, T&E species)?
This proposal, although mostly a GIS activity, does include some baseline water quality sampling to help the park. This is important.
A very good project for preparing the park for inevitable spills and strategizing for monitoring.
No info on how past spills have impacted Little Mo. river or how close any of the 403 spills were to park or threat they provided.
Will the NPS implement the WQ monitoring protocol delivered by this project?
It wasn't clear if the authors would include any historical data for either surface or groundwater if available, but this should be done if possible.
No map or discussion of currently known or previously ID'd park springs/seeps as pathway endpoints.
The transferability of this work may not be all that great as there are many additional resources (like ready-made GW flow models) that need to be available to make this work. But overall, a good proposal
Quarterly sampling for one year seems inadequate to establish baseline conditions.
No map or discussion of currently known or previously ID'd park springs/seeps as pathway endpoints.
Cost seems high for the products - could this project save on costs by just focusing on the spill-preparedness model?
Where does $150,000 of support come from (p. 14)? Support appears to be $30,000.

Sunscreen Chemical Risk for Corals in Virgin Islands National Park	
CATEGORY: Intensive	**PARK: Virgin Islands National Park (VIIS)**
USGS Wetland and Aquatic Research Center	

Comments:

Interesting proposed study. However, unclear that this is the most important local stressor to manage for protecting the reefs.
Would it be helpful to do at least one diurnal sampling to know how the concentration various over the course of a day- in addition to the 24h time-weighted average concentration measurements? It might be useful to determining how to vary concentrations during lab experiments.
Confusing reference list and inconsistent method of citing references throughout the document
Do you know anything about whether the signage is working- are people using different sunscreen?
Poor prospects for management of the problem.
For laboratory experiments, you will use coral damaged by boat groundings- could that damage produce a confounding factor (i.e. are these corals already under stress and therefore may not respond in the same way as corals that were not recently damaged?)?
No mention of how you would control for water temperature increase
Not really transferrable to other NPS units
Excellent job on the ranking criteria
Would be better if you knew you had permission to use Mote Marine
Although this is a problem of concern, it seems there many more pressing problems for coral reefs than sunscreen. Obviously warming temperatures, land based and boat based effluent flowing to the reefs seem more severe and important than sunscreen. The resolution may also be easier to achieve, as with sunscreens, by the authors own admission, it isn't clear which sunscreens will protect reefs (and people), and it is really not possible to tell people they can't use sunscreen when going to the beach and reefs. Some sort of display, brochure or webpage to help the park talk to the public about the dangers of sunscreens would be more helpful than a journal article. But even that outcome was hard to find and was not put in the right place.
The effect of tides and other possible inputs to the coral areas hasn't really been addressed, although this could be relatively minor.
As a minor point, the budget in the last year exceeds the amount available in any given year.
There are some good components to the study, but it isn't really overly cooperative and has minimal park involvement. The outcomes for the park are largely science, which is fine, but doesn't really help the park.
Expected results #3 and 4: no assumption for amount and type of sunscreen use--makes correlation analyses coarse

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:

Enteric bacteria is an important water quality issue at many parks. I would be interested to know if the contamination is related to discharge at CONG and if so how you will take that into account during sampling- i.e. how will storms influence when you sample?
Very little if any discussion of types of body contact W/CONG resource waters was discussed such as direct (e.g. swimming) or incidental (e.g. canoeing) so difficult to assess visitor risk.
Is there a hypothesis/ expected result? Do you anticipate internal sources as the cause?
For this setting it may work fine because there are many sources of bacteria, but in other more remote parks it may or may not be successful. This needs to be addressed (even for the work in this park).
Although the CV of two park people are included in the proposal, it isn't clear what their role in the study is going to be. This needs to be better defined if they will actually be engaged in the work.
It isn't made clear how this current study builds or enhances the previous work already completed. Why was the previous work not enough to assess the bivalve vulnerability?
Would like to see more evidence that the MST would provide actionable information for this area, I've reviewed several studies in which the data were inconclusive.
Very well written proposal, which should result in excellent scientific information for the park.
I would like to know more about previous work and how comparing results from this study to results from previous studies will provide a broader understanding.
Knowing the source of contamination would be useful, but in some cases just knowing when the contamination does pose a human health threat would be better- how can we determine this faster so recreational waters could be closed or the public could be notified- are there rapid assessment protocols that could be developed?

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

Comments:

Is there any evidence that these compounds have an adverse impact on the mussels or the mussel communities- you've documented accumulation in mussel tissue but you don't talk about what impact that has, if any.
A good baseline study to understand presumed risks to focal taxa. Prospects for problem resolution are low.
Extrapolating 8 sampling sites to the entire Southeast is very dangerous and is not likely to provide useful information. While the issue is important, the focus should be on the Park and not on the overall southeastern US.
Figures are too small to read.
It also isn't made clear how this current study builds or enhances the previous work already completed. Why was the previous work not enough to assess the bivalve vulnerability?
Introduction is quite long
Also, is this the most immediate threat to these communities- you mention hydrology, I wonder if climate change will be a bigger more immediate threat than CUPs.
The methods are very confusing because it says that all samples will be measured in California and then it says water samples will be sent to NWQL and tissue will be done using a custom method at NWQL. What is being sampled where?
Problem resolution seems weak.

Metal Concentrations in Water, Quagga Mussels, and Fish in Lake Mead National Recreation Area	
CATEGORY: Synoptic	**PARK: Lake Mead National Recreation Area (LAKE)**
USGS Nevada Water Science Center	

Comments:

High priority resource, severe problem, straightforward methodology.
SNWA not defined. SNWA is doing major ion analyses: are they a USGS approved lab? If not, not sure you can release the data as USGS "owned".
Other than better informing fish consumption guidelines, problem resolution unclear.
The collaboration between the USGS, NPS, NDOW and SNWA are a very positive thing and this one of the best parts of the study. More thought on the science is needed however.
Do you expect there to be a temporal pattern in metal concentrations and if so what would be the cause of that?
Scientifically, it isn't clear that sampling in October is the best time to achieve useable results. Spawning for most of the fish are in the spring timeframe, so to better understand the uptake and effect of the metals on the fish, sampling at pre-spawning periods would be more effective.
How will rain events impact when you sample since presumably runoff would have a huge impact on what concentration you might find on a given day?
While Se and Hg are an important issue, it isn't clear what the other elements contribute to the study.
Introduction is too long; should be shortened and focused by referring to a map.
In addition, the proposal never made it clear why quagga are being sampled. I can understand sampling all the game fish, but in terms of bioaccumulation, most game fish don't eat quagga. While carp have been known to eat quagga in small amounts, gamefish haven't been known to eat them. Therefore, the bioaccumulation aspects are not really well defined. There are other macroinvertebrates that would be better to sample as they are eaten by the gamefish.
It would be interesting to do an analysis of the land use patterns in each upstream watershed to see if there is any correlation with concentrations found in the confluence samples.

Assessment of beach-spawning habitat restoration on dissolved oxygen, groundwater upwelling, and egg survival of Lake Ozette Sockeye, OLYM	
CATEGORY: Synoptic	**PARK: Olympic National Park (OLYM)**
USGS Washington Water Science Center	

Comments:

Good science with a really good resolution.
If project is successful in demonstrating effectiveness of this approach to restoration, how feasible is it to remove grass and entrained fines that has occurred over many years.
High priority resource, substantial threat to focal biota. Chance for problem resolution good if DO truly is a limiting factor and altering restoration designs can fix that.
Would sampling surface water DO be useful- depending on the hydrology of the gravel beds, is it possible that the low DO concentrations are a result of a bigger problem with low DO in the lake?
Good figures.
Well thought out, but the experiments will be hard to control and you may end up with results that are not statistically significant.
Good cooperation from tribe and from the Park.
Is it possible that there might be a delay in the effectiveness of the restoration activity on the DO or sediment and your first year of sampling may not show anything, for example could the installation cause an increase in sedimentation that will need time to settle down?
What if sufficient eggs are not available from the hatchery?
Also the placement of large woody structures at sufficient scale and at an acceptable cost w/o disturbing habitat too much was not addressed.
Perhaps not as transferable as other studies. A better outcome for the park in terms of publicizing the results might be preferable to journal articles.
Introduction is repetitive and needs focus.
Since the restoration has not occurred would it be possible/ better to do a before and after sampling instead of or in addition to the 2 control sites?

Pipestone National Monument Water-Quality Assessment	
CATEGORY: Synoptic	**PARK: Pipestone National Monument (PIPE)**
USGS Minnesota Water Science Center	

Comments:

Well written.
Results should be very useful to the park. Identifying a method to sample aerosols from the waterfall is very innovative.
Needed inventory of park waters for visitor management needs.
Will you be testing multiple methods for sampling waterfall mist?
Is there any hypothesis as to why the concentrations seem to be highest during spring and summer? Is it related to flow or high flow events?
Excellent proposal with good outcomes and resolution of the problem.
Not clear how severe the issue is, but clearly there have been some minor health concerns already.
I think this aspect is very interesting and has a lot of transferability. Aerosolization of water is not typically something aquatic ecologist think about and it could have broad impact for many NPS units.
Seems like greater collaboration with MPCA may have reduced the cost of this study.
Good collaboration with tribes as well as NPS.
Sample size is a little small, but likely is adequate.
Some discussion of Cohn's disease and Johnes disease x-species transmission potential or their manifestation in humans could be discussed further.

Assessment of the Source and Vulnerability of Sensitive Water Resources in the Rincon Mountains of Saguaro National Park East	
CATEGORY: Synoptic	**PARK: Saguaro National Park (SAGU)**
USGS Arizona Water Science Center	

Comments:

Investigation of baseline knowledge for water resources of the park that will help inform a suite of management decisions.
Not clear why so many tracers are needed. Need more detail about choice of analytes/isotopes/tracers and how the data would be interpreted. Which major ions? Are the samples filtered? What size filter for trace elements?
Focus on a select few low elevation springs/seeps may address this impact question and still meet the needs of the park.
Is it possible that your two sources of water could mix and if so how will you differentiate the source in that case? Would using some type of mixing model method help?
While an interesting study and certainly significant to the park, it isn't really the water quality that is of concern it is the availability of water that is being typed by using water quality.
Is there a water quality issue as water levels go down, i.e. too saline, more radioactivity in the water? This would make it a more compelling water quality issue.
There is good involvement from the park and the science is interesting.
It isn't really clear how transferable this project is as well. Not too many parks with Tinajas.

Vulnerability of Big Tom Spring to Contamination	
CATEGORY: Technical Assistance	**PARK: Chickasaw National Recreation Area (CHIC)**
USGS Oklahoma Water Science Center	

Comments:

For the dye release during a "wet period"- how will you determine what storm event to use, i.e. is there is a discharge or storm size threshold that you are going to aim for?
Park needs information about fecal coliform presence, but is currently getting adequate data to inform visitors for safety.
Although there is some threat to the public from drinking water that is contaminated by fecal coliforms, there doesn't seem to be evidence that this has occurred. While it is certainly a worthwhile effort to demonstrate that the source of the contaminants is coming from the sewer line, there is no plan for determining what to do if the dye doesn't show up in the spring, what then is the sources?
Also in the introduction the contamination appeared to occur when the sewer overflowed, not because of a leak, these are different issues and aren't really addressed in the proposal.
Fig. 3 used to show Q but does not describe the location of the USGS gage--the sentence implies that it is a gage for the spring, but that is not the case.
Not explained where the spring discharge data (a deliverable) would come from.
Would it make sense to use the dye in conjunction with a chemical tracer (sodium chloride or something like that)?
Additional discussion of hydrograph correlation with past detections of spring contamination events seems warranted and also should provide estimated flow range for the 7 springs at CHIC.
Project seems expensive for products.
Will you start the dye before the rain or during or just after peak?
Study does not solve the problem, just gives park staff more information to request a repair.
CNRA not defined.

Hydrologic and Water-Quality Impacts of Urban Development in Cedar Creek Watershed Upstream of Congaree National Park: A Paired Watershed Assessment	
CATEGORY: Technical Assistance	**PARK: Congaree National Park (CONG)**
USGS South Atlantic Water Science Center	

Comments:

Vulnerability assessment and data synthesis of existing information.
It doesn't appear that any new data are being collected for the study, so some information on quality assuring different WQ and land use information is needed.
If multiple mitigation efforts have occurred throughout Gills Creek, it is unclear how you will be able to determine the effectiveness of individual actions.
Figures 1 and 2 are difficult to see the park outline and zoning categories.
While this is an interesting paired watershed initiative, the proposal doesn't give enough detail on how priority will be given to land uses that are more likely to cause degradation. In other words, how will the criteria be developed to rank land uses and the vulnerability to the stream and the Park?
The proposal hasn't demonstrated any project support within the study, although there appears to have been great support for the development of the study. There are also difficulties in implementing any resolution to the issues found during the study, and this is typical for this type of study.

Assessment of water-quality of ecologically critical karst streams and features at the Great Smoky Mountains National Park	
CATEGORY: Technical Assistance	**Park: Great Smoky Mountains National Park (GRSM)**
USGS Lower Mississippi Gulf Water Science Center	

Comments:

Good use of leveraging funds onto a in-progress project to improve knowledge of key park resources.
Much of this work could be conducted as a NPS water scoping project.
Why focus sampling efforts during low to moderate flow? Is it possible that contaminates may be entering the ecosystem during high flow? Also, how is low, moderate, and high flow defined- do you have baseline data to determine thresholds/ base flow/ stormflow?
Further development as to what are the sources of irreparable damage to the karst areas from inside the park. How do visitors present a risk to park resources also needs better development.
While the cooperation with work being done with another project adds some additional resources to the project, it isn't clear that enough samples are being collected to identify where issues may be coming from, and the limited analyte schedule is also of concern. Because so little appears to be known about the hydrology and water quality it is difficult to assess whether there is an issue to be addressed.
Will the end result be a step by step monitoring plan for the park to implement in the future (i.e. will you recommend specific monitoring sites) or will it just provide information for the park to determine monitoring sites?
Perhaps a reconnaissance of looking at water quality results from the USGS, NPS and local agencies should be done first to assess what might already be known. It is hard to believe that no previous water quality analyses are available to give some background at least for the general area.
Where is the rapid development taking place, at higher or lower elevation than the karst resources inside the park? What is the anticipated mechanism for impairing karst features?

Orthophosphate release rates from sediments above the water line at Lake Mead - will a rise in lake levels trigger a harmful algal bloom?	
CATEGORY: Technical Assistance	**PARK: Lake Mead National Recreation Area (LAKE)**
USGS Nevada Water Science Center	

Comments:

This is an interesting way to look at HAB issues and does have some interesting points to the proposal.
If your study shows that there will be large pulse of P if lake levels rise, is there anything that can be done to prevent it- either the rise in water level or the pulse of P?
It also appears that P concentrations have increased since the late 1950's. These fact could have been noted in the proposal and added more weight to the importance of doing this work.
High priority resource, substantial threat to focal biota.
It isn't until the last line of the proposal that we see that rewetting is predicted for the lake. This seems in contrast to other studies that appear to think Lake Mead could dry up in 20 years. The likelihood of rewetting needs to be discussed more to give the reader some information on whether this will really be a significant problem.
Some prospect for problem resolution, although it seems a bit optimistic. If this problem is linked to climate change then the ultimate problem resolution is beyond the scope of this study.
It also doesn't appear that the initial nutrient concentrations in the "soils" are going to be measured. Without this initial amount how will rates be determined? Sediment P concentrations have already been published by Rosen and van Metre for Las Vegas Bay and Virgin basin sediments. This would have been useful to have in the proposal to show differences between the sites. According to the publication, Las Vegas Bay sediment is about 30 percent higher in P than eastern parts of the lake
"water quality...generally exceeds the standards set...." (p. 2)--don't think this says what you want it to say.
Jan 2018 through Dec 2019 is not 12 months, as stated in the timeline (p. 8)

National Park Service/USGS Water Quality Partnership Evaluating Potential Refugia for the Endangered Mohave Tui Chub	
CATEGORY: Technical Assistance	**PARK: Mojave National Preserve (MOJA)**
USGS Nevada Water Science Center	

Comments:

Proposal needs a location map.
High priority at-risk focal species. This study is one early step toward establishing new populations.
It does seem strange to target such a compromised site as habitat for a critically endangered species.
In determining whether these two ponds will support MTC, you will compare your results to ponds that currently support MTC and EPA criteria- but how will you make that comparison, i.e. what statistics will be used, will you compare the parameters individually or use a multi-metric statistical test, how will you prioritize the importance of the various different measurements? For example, what if your proposed sides are adequate for some parameters but poor water quality/ sediment quality for other parameters.
While this proposal may contribute to the resolution of the problem, one year of data is not likely enough given possible dry or wet years that may change water quality.
It is important to the Park and the prospect of the usefulness of these sites is worth investigating, the severity of the problem isn't well defined and the amount of data collected is perhaps not enough. Probably would be more suited to a Synoptic study.

Rapid-Assessment Test Strips for Determining Cyanotoxin Presence in Algal Blooms	
CATEGORY: Technical Assistance	**PARK: Voyageurs National Park (VOYA)**
USGS Minnesota Water Science Center	

Comments:

This is an interesting study that is piggybacking on another USGS-NPS WQ partnership investigation. I'm not sure that this really provides in-kind support as the partnership is already paying for this work or similar work to be done.
Good exploration of new technology to address problems in park waters.
What if the test strips are not accurate?
My main concern is that there aren't enough sites and different water types being sampled to assess how affective these test strips will be in other areas and in other types of lakes. Therefore the ability to truly assess their effectiveness likely won't be demonstrated except perhaps for water similar to that collected in the park.
This seems like a study that needs to be done in multiple places with different water types, and environmental conditions to truly determine if these test are effective.