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| **Description of Elements** | **No. of Stickers** |
|---|---|
| **Aquatic food base** | **32** |
| Foodbase Augmentation – The lack of terrestrial biomass has been identified as a potential reason for the lack of invertebrates downstream of Glen Canyon Dam. Conduct experiments to determine if the addition of various types of terrestrial organic matter will stimulate invertebrate production and determine the most efficient methods of supplementing the system. | 7 |
| Nutrient, phytoplankton, and zooplankton sampling above and below Glen Canyon Dam – Collect monthly nutrient, phytoplankton, and zooplankton samples above and below Glen Canyon Dam. Analyze the data to look for trends associated with lake elevation, inflows into Lake Powell, and quagga mussels. | 6 |
| New nutrient program: inflows; primary production; invertebrates; trout and chub. | 4 |
| Vegetation quantity and quality. How does macrophyte composition change spatially, seasonally, and over time (i.e., succession) and what are the impacts of these composition changes on invertebrates and fish? Monitoring: Build on pilot efforts by Mike Yard and develop low cost macrophyte monitoring program. Research: Investigate how invertebrate use varies by macrophyte taxa. | 3 |
| Bug flows. If bug flows are conducted this will drive a lot of research in the food base arena, and possibly the fish arena. Fly Fisher's believe increasing the overall quality (quantity & diversity) of the invertebrate web may benefit the whole ecosystem. Fly Fisher's believe this is a good time to test bug flows because RBT populations are very low. | 2 |
| Develop Lake-River nutrient dynamics model (include riparian zone). | 2 |
| With an increase of HFEs potential, what analysis can be done to determine foodbase recovery periods following HFE scouring of the Lee’s Ferry foodbase? This information is necessary to maintain a healthy foodbase. | 2 |
| Insect emergence in Grand Canyon via citizen science | 1 |
| Monitor impacts of movement of water/fluctuations on drift. | 1 |
| Vegetation quantity and quality. What are the main drivers/controls (e.g., flood timing, nutrients, flows, etc.) of gross primary production in Glen Canyon? Monitoring: Keep collecting DO data to estimate quantity of primary production. Research: Develop models to analyze these data and identify drivers, such as flow management and nutrients. | 1 |
| Develop a flotsam, coarse woody debris model in relation to flow. | 1 |

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| Discussion of flow fluctuations has recently focused on mortality factors described in Kennedy et al (2016); however, recent research indicates a varity of factors may be influencing food production and availability in the river. We request that Kennedy and others revisit the “filters” as used earlier to establish the hypotheses, and evaluate factors that influence availability of food in the drift, as well as the relationship of food production and drift to proposed experimentation. | 1 |
| Continue to inventory biota. | 1 |
| Quantifying the effects of hydropeaking on oviposition and egg mortality | 0 |
| Natural history of oviposition for species present in Grand Canyon | 0 |
| In 2015, we saw widespread evidence for food limitation in the Colorado River...further exploration and linkage between nutrient availability, primary and secondary production, and availability of food for fish is necessary. | 0 |
| Increased fluctuations increase food availability to a point. What is the fluctuation levels that best maximizes food transport (availability)? | 0 |
| Continue characterizing and monitoring drift and insect emergence in Glen Canyon | 0 |
| Developing automated tools for estimating algae production | 0 |
| Synthesis of stressors and controls on EPT distributions | 0 |
| Adding phosphorus to the system: effect on invertebrates/fish. | 0 |
| Natural history of oviposition for EPT via studies in the Upper Basin | 0 |
| ...prior to MLFF and HFEs, there was a well-documented and flourishing scud population. More recently, we have seen an increase in midge and black fly populations, but still lack mayflies, stoneflies and caddisflies. We also see a disparity between the tailwater invertebrate condition below the Dam and the condition of tailwaters below other dams on the Colorado River. What kind of research and analyses should be conducted to better understand this change in the foodbase, and what are predictions for the future? | 0 |
| Comparative longitudinal drift studies in Upper and Lower Colorado River Basin | 0 |
| Laboratory studies on insect oviposition and egg mortality associated with changing water levels | 0 |
| Practical and regulatory barriers to foodbase augmentation, such as addition of phosphorus, organic materials, and/or aquatic insect translocations. | 0 |
| Continue natal origins drift monitoring in Glen, Marble, and Grand Canyons | 0 |
| Synthesis and publication of Glen Canyon algae production | 0 |
| Link invertebrate drift patterns to substrate conditions in Glen, Marble, and Grand Canyons | 0 |
| Synthesis of the aquatic foodbase in western US tailwaters | 0 |

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|---|---|
| Comparative emergence studies in Upper Basin using citizen science light trapping | 0 |
| Monitoring dissolved oxygen in Glen, Marble, and Grand Canyon | 0 |
| Link drift at natal origins Project transects to channel bed shear stress | 0 |
| Invertebrate foodbase. Hydropeaking as a constraint on the foodbase. Monitoring: Keep collecting drift, sticky traps, and light traps. Improve dissemination and turnaround time of these monitoring data. Research: Learning would be greatly advanced by Bug flows. Also lots more to be done with egg laying and mortality studies, even if bug flows don't occur. | 0 |
| Invertebrate foodbase. Stress test of existing invertebrates—how will an arctic invertebrate assemblage respond to warm water temperature releases (~22C = 72F!! under some scenarios) that are possible with a low Lake Powell? Research: mesocosm experiments? | 0 |
| **Archaeological and cultural resources** | **17** |
| Hualapai archive project. Digitize 30 years of Tribal Elder interviews about river corridor resource condition to develop searchable database accessible by program participants. Will assist with: 1) Section 106 compliance; 2) determination of eligibility; 3) desired future conditions; 4) respecting Hualapai perspectives; and 5) monitoring results over the years in regards to Glen Canyon Dam operations. | 7 |
| Continue terrestrial monitoring of archeological sites and terrace formations having the potential to contain archeological remains that are susceptible to erosion induced by dam operations in GLCA Reach by NPS-GLCA. | 4 |
| Tribal Values and Perspectives of Resources Downstream of Glen Canyon Dam | 2 |
| Monitoring of cultural sites in Grand and Glen Canyons | 2 |
| Geomorphological assessment of terrace formations in the GLCA Reach susceptible to inundation and associated erosion for the purpose of determining relative age and potential for archeological remains to inform long-term monitoring needs. | 2 |
| Fifth [priority], protection of cultural resources within the CRE. | 0 |
| Tribal evaluations of cultural landscape changes | 0 |
| Quantifying connectivity along the fluvial-aeolian-hillslope continuum at landscape scales | 0 |
| Tribal workshop and analysis of cultural landscape change | 0 |
| Expand stage elevation model to include GLCA Reach. Incorporate into proposed testing and validation of predictability for archeological resource inundation at 45,000 ft3/s (1,274 m3/s) controlled floods. Develop flow lines for historic controlled floods at greater than 45,000 ft3/s to determine extent of prior inundation during dam operations. | 0 |

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| Implement geophysical survey pilot study at Ninemile Terrace in GLCA Reach | 0 |
| Continue submerged resource monitoring of the Spencer Steamboat by NPS-SRC. | 0 |
| Continue remote sensing monitoring of topographic change of archeological sites in GLCA Reach by GCMRC to inform long term trends in changing conditions in response to dam operations at a resolution greater than achieved by observational monitoring. | 0 |
| **Humpback chub** | **24** |
| Humpback chub western Grand Canyon monitoring/origens. | 5 |
| Annual spring/fall humpback chub abundance estimates in the lower 13.6 km of the Little Colorado River | 3 |
| Mainstem Colorado River Humpback Chub aggregation monitoring | 2 |
| Additional translocations of humpback chub. | 2 |
| Monitoring mainstem aggregations with PIT tag antennas (pilot) | 2 |
| Remote PIT tag array monitoring in the LCR | 2 |
| There is a lack of information on the full distribution of Humpback Chub in the Colorado River between Glen Canyon Dam and Lake Mead. The only system wide monitoring occurs via AGFD electrofishing, unfortunately electrofishing is not very effective for Humpback Chub. As a result AGFD began implementing hoop net sampling within their system wide sampling detailed above. We propose to continue this sampling. | 2 |
| Food web monitoring in the Little Colorado River | 1 |
| Recognizing that additional research, analysis and independent expert panel opinion will be required prior to consideration of low summer flows, what preliminary analysis/research is necessary to ensure the panel and the AMP have a full suite of risks and benefits prior to considering this action? | 1 |
| With scheduled juvenile Humpback Chub monitoring efforts potentially ending, the need exists to continue monitoring at a level that meets certain metrics identified in the Humpback Chub recovery plan. This will likely involve a cooperative effort from multiple research partners. Goal: monitor the juvenile chub at the Little Colorado Inflow via electrofishing and hoop nets. | 1 |
| What research is necessary to understand the implications of a “head start” program and stocking hatchery reared fish into the mainstem at the LCR? What factors (such as predation and competition, genetics, temperature) need to be considered prior to undertaking this action? Could this action be used to augment the LCR population in periods of limited larval production, cold temperatures, or other adverse conditions? We recommend inclusion of the Valdez translocation work from the 2000’s as these questions are considered and answered. | 1 |

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| If the conservation measures outlined in the Biological Opinion are not adequate to reverse a decline in the HBC population (should that occur), what research should be proposed to confirm the efficacy of these measures in order to avoid a “take” as described in the Biological Opinion? | 1 |
| Improving survival rate for humpback chub. | 1 |
| What research is needed to determine the actual value HFEs provide if they are used to create backwater habitats for HBC? Continuing references to this need appear to us to be contradictory to findings from the nearshore ecology work. | 0 |
| System wide population estimate of humpback chub. | 0 |
| GCMRC should develop a research project to identify mortality associated with stranding of all life stages of HBC due to flows, as this conclusion appears multiple times in LTEMP documentation. | 0 |
| Evaluate CO2 as a limiting factor early life history stages of humpback chub in the Little Colorado River | 0 |
| Translocation and monitoring above Chute Falls | 0 |
| According to the Biological Opinion, predation and competition by non-native fish are likely the greatest threat to continued existence of the lower basin HBC populations. What research should be proposed to develop effective control measures for fish predators and competitors? | 0 |
| Direct Mainstem Augmentation of Humpback Chub | 0 |
| Juvenile chub monitoring in the mainstem near the Little Colorado River confluence | 0 |
| Genetic Monitoring of Lower Basin Humpback Chub | 0 |
| Evaluate effects of Asian tapeworm infestation on Juvenile humpback chub | 0 |
| Humpback chub population modeling | 0 |
| Aggregation recruitment | 0 |
| Development of a non-lethal tool to assess the physiological condition of humpback chub in the Colorado and Little Colorado Rivers | 0 |
| Potential for gravel substrate limitation for humpback chub reproduction in the LCR | 0 |
| What research is needed to support development of the five new actions identified in the Biological Opinion? (e.g., TCD, non-natives through the Dam, slough, rapid response for non-natives, TMFs for RBT). Clearly, this question could not have been addressed in the October Science Plan, as the Biological Opinion had not yet been issued, nor had the ROD. | 0 |
| Rainbow Trout Early Life Stage Survey | 0 |

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|---|---|
| Rainbow trout. What are the impacts of rainbow trout on humpback chub? Monitoring: Monitoring of both rainbow trout and humpback chub through the JCM monitoring program. Research: Continued population modeling development and increased emphasis on scenario analysis. | 0 |
| July Little Colorado River juvenile humpback chub marking to estimate production and outmigration | 0 |
| **Hydropower and energy** | **10** |
| Third [priority], experiments that could increase hydropower. | 9 |
| As the Science Plan recognizes, the “implementation and continuation of proposed experiments and actions identified in the Preferred Alternative are contingent on the responses of one or more socioeconomic metrics….includ(ing) hydropower production and the Basin Fund, …recreational interests…and Tribal concerns”. Higher fluctuations increase the value of the hydropower resource by reducing the amount of market purchased required for WAPA to meet contract obligations....associate [increased fluctuations in low volume years and high fluctuations in high volume years]...with the impact to hydropower value as described. | 1 |
| **Invasive fish species** | **16** |
| Invasive Species Surveillance and Response | 13 |
| Genetic engineering research to control/eliminate aquatic invasive species. | 1 |
| Brown Trout have become an increasing concern in Lees Ferry due to a recent increase in recruitment. We need a better understanding of the population dynamics in this system to inform management decisions; e.g. while we know the location of some redds – there is the potential that Brown Trout may be spawning in other areas or at depths or times not identifiable by traditional surveys. Goal: increase our knowledge of the extent of brown trout spawning locations and timing in Glen Canyon. | 1 |
| Brown trout. What factors are responsible for recent brown trout increases in Lees Ferry and what management options are available to reverse this trend? Monitoring. Some form of population monitoring – RTELLS, NO lite, AZGF? Research. Sonic tagging and diet studies of browns and rainbows to determine habitat use and feeding habits. | 1 |
| Channelizing the slough in Glen Canyon to keep cold water flowing through green sunfish habitat. | 0 |
| Brown trout natal origins through body pigmentation patterns in the Colorado River | 0 |
| **Multiple** | **22** |
| Integration of tribal value and knowledge into treatment of archaeological sites. | 4 |

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|---|---|
| In preparation for TMFs, examine how fluctuation rates attenuate as water moves downstream, with particular focus on expected rates of water elevation change at the LCR and in Lower Grand Canyon | 3 |
| Stream Flow, Water Quality, and Sediment Transport in the Colorado River Ecosystem | 3 |
| Synthesis of TEK and indigenous knowledge systems and integrate into AMP. | 3 |
| Representative sample of the fish community in the Colorado River from Lees Ferry to Lake Mead (distribution and relative abundance). Objective 1: monitor the fish community via electrofishing and hoop nets in the spring/summer (two trips, ~15 nights of sampling each). Objective 2: Fall monitoring (electrofishing, hoop nets) below Diamond Creek (RM 225) to determine distribution and abundance of fish, in particular any non-natives coming up from Lake Mead (three nights of sampling). | 2 |
| What is the resource impact to hydropower, recreation, fishing and tribal resources of HFEs that are limited to bypasses resulting in less than 25,000 metric tons of carbon in a 12-month period? Compare those impacts to an HFE resource impacts with higher bypasses (such as 2014, 2016). As an LTEMP resource, air quality considerations should be included in consideration of operational, experimental and management actions. | 2 |
| Avian monitoring in Grand Canyon. | 1 |
| Heritage Tribal film production. | 1 |
| Survey of Hualapai communities about values associated with the river. | 1 |
| First [priority], activities that benefit the humpback chub and razorback sucker, such as control of non-native species. | 1 |
| The Colorado River now extends an additional 15 miles past Pearce Ferry Rapid. There is a lack of information on the distribution and abundance of fish below Pearce Ferry Rapid. AGFD proposal/goal: Representative sample of the fish community in the Colorado River below Pearce Ferry Rapid to Lake Mead. Objective: monitor this area using hoop nets and other feasible methods (electrofishing, trammel net, etc.). Three nights and four days of monitoring. | 1 |
| Effects of “science” on cultural resources in Grand Canyon. | 0 |
| Native American student inter-disciplinary internship program at GCMRC/NPS/BOR/Tribe. | 0 |
| Mechanisms that limit RBT and BNT growth in other western tailwater systems | 0 |
| Develop a standing research design that integrates indigenous knowledge into archaeological practice. | 0 |
| Representative sample of the fish community in the Colorado River in Glen Canyon. Objective: three electrofishing trips (spring, summer, fall). One night during summer trip target areas where rare non-natives occur. | 0 |

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|---|---|
| Fisheries Protocol Evaluation Panel (FY16 or FY17) | 0 |
| System Wide Electrofishing | 0 |
| Document 2 archaeological sites as Zuni solstice observatories. | 0 |
| Monitor the Lees Ferry fishery. Objective: conduct angler surveys throughout the year (six days per month) at the boat launch and the walk-in area. | 0 |
| Traditional Indigenous detection of climate change. | 0 |
| Documentation of traditional ceremonies that relate to the Grand Canyon – pilot project. | 0 |
| "Navajo Monitoring and inventory of Threatened, Endangered and culturally significant plants in LCR and Marble Canyon" | 0 |
| Can dam operations be modified, keeping in mind the law to maximize hydropower as well as achieve a desired mix of all resources, to benefit that particular resource. | 0 |
| Terrestrial, wildlife, vegetation composition monitoring below Diamond Creek. | 0 |
| Capacity Building Assistance for Tribal Digitizing, Scanning, and Organizing of all materials related to the Glen Canyon Dam Adaptive Management Program (1989-present, Zuni). | 0 |
| Comparative study on the feeding morphology of drift feeding fish | 0 |
| Efficacy and ecological impacts of Trout removal | 0 |
| Mapping and Assessment of Aquatic Habitats below Glen Canyon Dam | 0 |
| "Navajo Monitoring threatened and endagered wildlife in LCR and Marble Canyon" | 0 |
| "Navajo Participating in threatened and endangered fish monitoring and recovery efforts in LCR and the Colorado River" | 0 |
| How, specifically, do dam operations impact a particular resource? | 0 |
| How, specifically, do the findings of an experiment help identify an acceptable, achievable and sustainable mix of resource conditions? For example, if HFE's are designed to maximize sand conservation, does that provide an acceptable and sustainable amount vegetative control? | 0 |
| **Overall** | **22** |
| Plan and conduct a spring time HFE | 8 |
| TWP Chapter 2 to represent the Strategic Science Plan | 4 |
| ROD requirements: ESA/BO; NHPA 106; veg. treatment | 2 |
| Colorado feels that the FY 18-20 TWP should emphasize monitoring over research. It is extremely important to have a core monitoring plan that tracks, on a regular basis, the condition of all resources so that the findings of all experiments can be evaluated against the impacts they may have on all resources. | 2 |
| Core monitoring program. | 2 |

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| Mechanisms to archive and get program information out to the public. | 1 |
| Reintroduce pikeminnow. | 1 |
| Based on latest fish studies on brown trout, rethink sediment accounting period for Spring HFEs. | 1 |
| Applied Decision Methods for the Glen Canyon Adaptive Management Plan | 1 |
| Seventh [priority], identification of the desired conditions. This gets to a conceptual model that can identify trade offs between actions that benefit one resource and the impact to other resources. | 0 |
| Comprehensive fishery (all species) model per Yard/Kennedy et al. | 0 |
| Geographic Information Systems, Services, and Support | 0 |
| GCMRC Admin and Support | 0 |
| Second [priority], a high quality core monitoring program. | 0 |
| More focus on a fish and aquatic food base oriented program than a sediment oriented program. | 0 |
| It goes without saying that all elements are constrained by the 2007 Interim Guidelines for operating Lake Powell and Lake Mead. | 0 |
| GCMRC logistical support | 0 |
| How do we measure success? Research: Establish a post-ROD baseline with measurable DFC's in which to compare. | 0 |
| **Rainbow trout fishery** | **9** |
| Rainbow trout. What are the important factors driving the rainbow trout fishery and which factors can be managed? Monitoring: Some form of population monitoring – RTELLS, NO lite, AZGF? Monitoring: Restart Lake Powell monitoring and start monitoring nutrients in the Colorado River. Research: Develop conceptual and mathematical models that integrate the various ecosystem components and allow us to test the importance of flows, nutrients, and other potential drivers. | 2 |
| Trout management flows. Given the current status of trout populations (low rainbow trout, brown trout very low but increasing) a trout management flow targeted at brown trout is the most logical course of action, but compliance is not in place for this. Trout management flows in the EIS can occur from May-July, but this timing would not be effective at reducing brown trout. Additionally, if it is looking like we will repeat 2011 equalization flows we may want to test TMF soon. | 2 |
| Lees ferry trout. -In = Growth *RBT-100 | 1 |
| Lees Ferry RBT; monitoring, analysis, and study design | 1 |

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| HFE timing. Fall HFE experiments are still a concern of FF. GCMRC needs to complete there analysis of the HFEs to determine impact on trout. Additionally, GCMRC needs to consider the effects of Fall HFEs on Brown Trout proliferation. | 1 |
| Lees Ferry Creel Survey | 1 |
| In the fishery management plan for Lees Ferry there are catch metrics based on the size of fish caught. Currently no one monitors those metrics. AGFD Proposal/goal: Institute a citizen science program utilizing guides to measure fish actually caught by anglers. Objective: monitor angler catch throughout the year via guide volunteers. | 1 |
| Application of a bioenergetics model in a seasonally turbid river | 0 |
| Detection of RBT movement from upper Colorado River below GCD (NO) | 0 |
| Meta-analysis and the development of reactive distance relationships for encounter rate models | 0 |
| Examining the Effects of High Flow Experiments on the Physiological Condition of Age-0 and Adult Rainbow Trout in Glen Canyon | 0 |
| Sixth [priority], a high quality trout population above the Paria River. | 0 |
| Exploring the mechanisms behind trout growth, reproduction, and movement in Glen and Marble Canyons using lipid (fat) reserves as an indicator of physiological condition | 0 |
| Contingency Planning for High Experimental Flows and Subsequent Rainbow Trout Population Management | 0 |
| Lab studies to evaluate turbidity as a potential Glen Canyon Dam- operations management tool to constrain rainbow trout populations and reduce predation/competition on juvenile humpback chub | 0 |
| **Recreational experience** | **2** |
| How do different flow scenarios impact commercial whitewater trips? Research: Conduct a Grand Canyon river guide survey to better understand the impact flow scenarios, experiments, and other management decisions have on commercial whitewater trips. | 1 |
| Socioeconomic. What are the regional economic impacts of recreational angling at Lees Ferry? Research: Develop a regional economic model using angler expenditure data collected in the angler surveys administered for Project 13.1 in the GCDAMP TWP FY15-17. | 1 |
| What are the recreational safety characteristics/metrics and user value differences associated with release levels of above 8,000 cfs? | 0 |

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| Socioeconomic. What are the economic impacts of future flow scenarios on anglers at Lees Ferry? Research: develop a recreational simulation model, building on the modeling efforts that occurred for the LTEMP EIS, to estimate angler economic impacts under future flow scenarios. This modeling would incorporate up-to-date economic value information estimated for Project 13.1 in the GCDAMP TWP FY15-17. | 0 |
| What are the regional economic impacts of whitewater floating in Grand Canyon National Park? Research: Develop a regional economic model using whitewater floater expenditure data collected in the whitewater surveys administered for Project 13.1 in the GCDAMP TWP FY15-17. This information allows stakeholders to understand the economic impacts recreation along the Colorado River has on local economies and how changes in resources conditions might impact recreational spending. | 0 |
| Economic Values of Recreational Resources Along the Colorado River – Grand Canyon Whitewater Floater and Lees Ferry Angler Values | 0 |
| What are the economic impacts of future flow scenarios on whitewater floaters in Grand Canyon National Park? Research: Develop a recreation simulation model, building on the modeling efforts that occurred for the LTEMP EIS, to estimate whitewater economic impacts under future flow scenarios. This modeling would incorporate up-to-date economic value information estimated for Project 13.1 in the GCDAMP TWP FY15-17. | 0 |
| **Riparian vegetation** | **0** |
| Science Review Panel of Successes and Challenges in Non-native Vegetation Control in the Colorado River and Rio Grande Watersheds | 0 |
| Periodic landscape scale vegetation mapping and analysis using remotely sensed data | 0 |
| Ground-based vegetation monitoring | 0 |
| Influence of sediment and vegetation feedbacks on the evolution of sandbars in Grand Canyon since 1991 | 0 |
| **Sediment** | **8** |
| Study on how lower down ramping rates of HFEs relates to slower eroding beaches (building lower sloping beaches). | 5 |
| Testing the hypothesis that sediment transport is driven more by volume than by fluctuations: what is the impact on sediment transport of increased fluctuations in low volume (8.23MAF and below) years? | 2 |
| Connecting bed material transport, bed morphodynamics, and sand budgets in Grand Canyon | 1 |
| Comparing information from steady equalization flow years, what is the difference in sediment transport in high volume years (11 MAF and above) with high fluctuations? | 0 |
| Sediment storage monitoring | 0 |

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| Monitoring sand bars and shorelines above 8000 ft3/s by remote sensing | 0 |
| Monitoring sandbars using topographic surveys and remote cameras | 0 |
| Control network and survey support | 0 |
| Characterizing, and predictive modeling, of sand bar response at local and reach scales | 0 |
| Surveying with a camera: rapid topographic surveys with digital images using structure-from- motion (SFM) photogrammetry | 0 |
| With the elimination of steady flows following HFEs, the Science Plan may want to reconsider its recommendation regarding expansion of its structure-from motion topographic measurement program, if it was intended primarily to “evaluate the effectiveness of reduced daily fluctuations immediately after fall HFEs.” | 0 |
| Develop a silt distribution model | 0 |
| Analysis of historical images at selected monitoring sites | 0 |
| Fourth [priority], sediment conservation through dam operations. This EXCLUDES sediment augmentation which addresses the impacts of the dam. | 0 |
| **Water quality** | **7** |
| Cool water Temperature Control Device, bypass tube turbine | 5 |
| Reservoir limnology and ecology monitoring and research science review panel | 2 |
| Monitor, model hyporheic anoxia in Glen Canyon | 0 |
| Lake Powell and Glen Canyon Dam Release Water-Quality Monitoring | 0 |
| **Duplicate** | **0** |
| Monitoring and detection of other exotic non-native fish species (grass carp, burbot) - duplicate of "Invasive Species Surveillance and Response" | 0 |