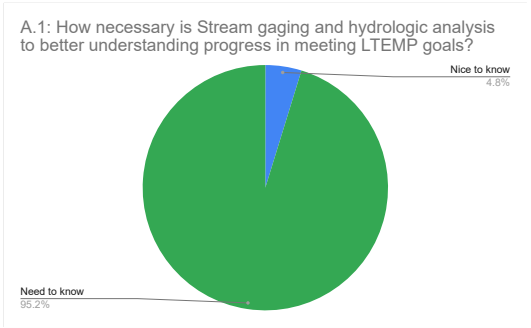
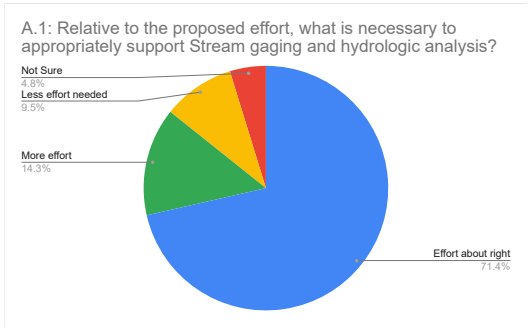
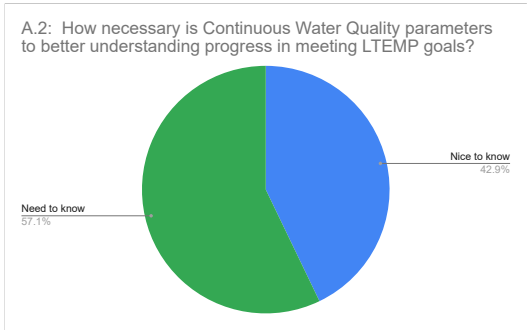
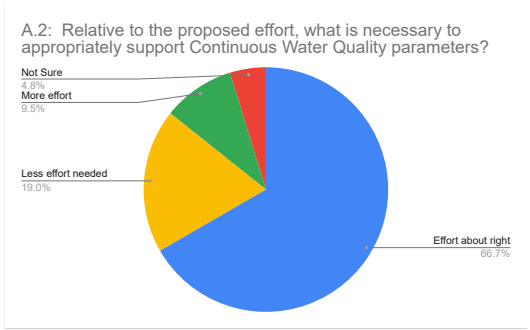
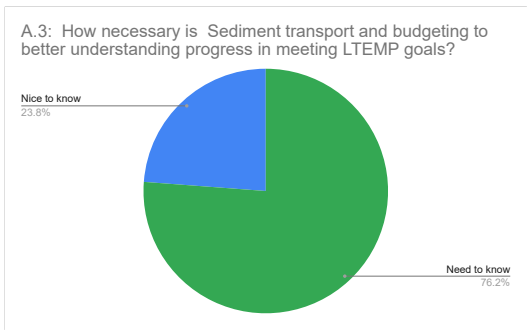
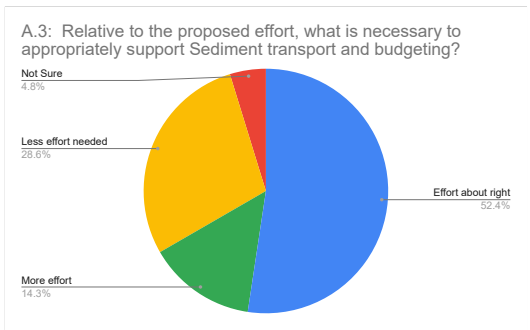




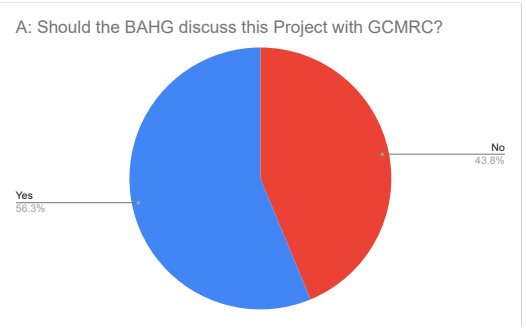


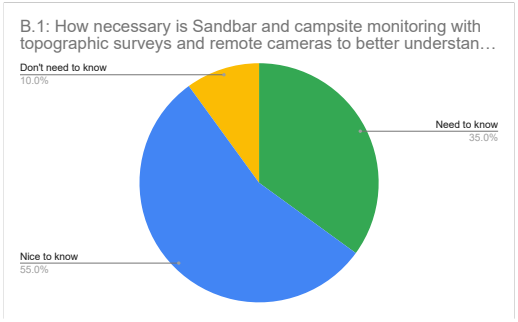


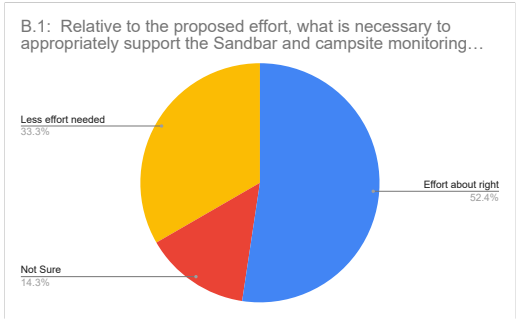


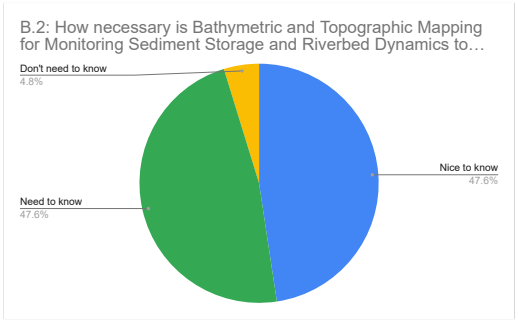


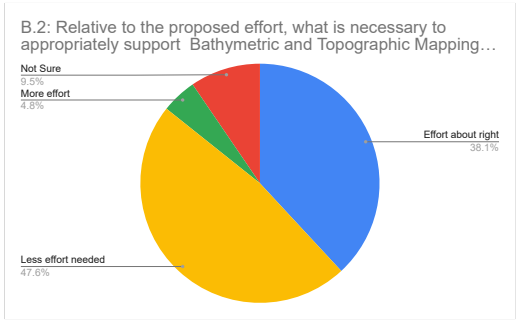
Project		Description	FY24 Budget	FY25	FY26	FY27
A		**Streamflow, Water Quality, and Sediment Transport and Budgeting in the Colorado River Ecosystem**	$0.00	$1,420,616.00	$1,500,372.00	$1,585,138.00
	1	Stream Gaging and Hydrologic Analyses	$345,498.00	$494,386.00	$520,164.00	$547,537.00
	2	Continuous Water-quality Parameters	$137,334.00	$244,505.00	$258,932.00	$274,316.00
	3	Sediment Transport and Budgeting	$711,313.00	$681,725.00	$721,276.00	$763,285.00

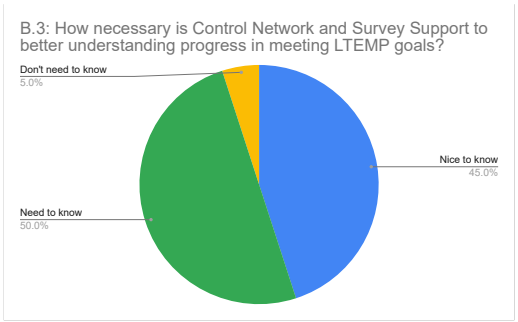


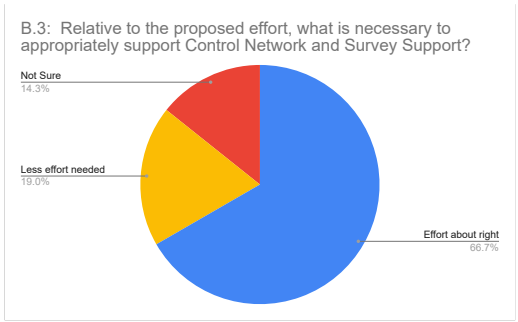


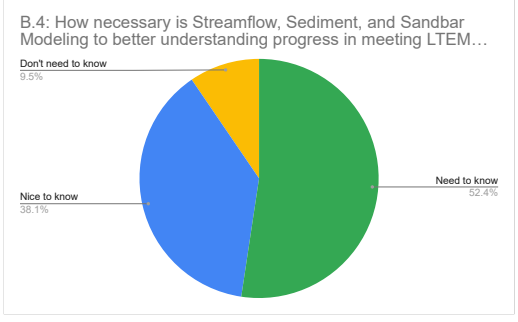


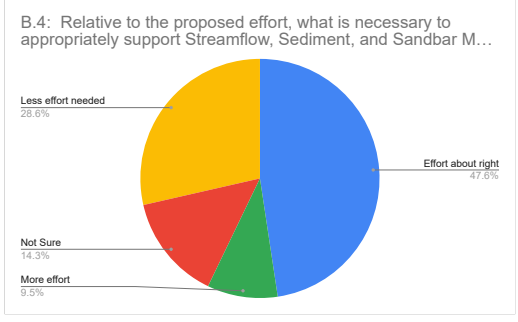




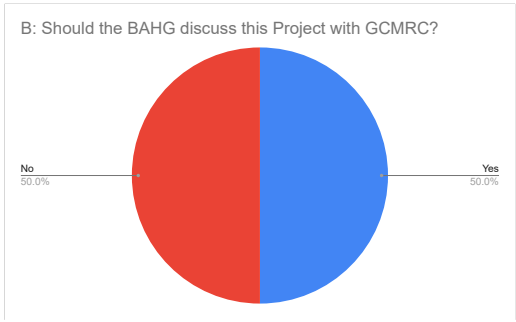


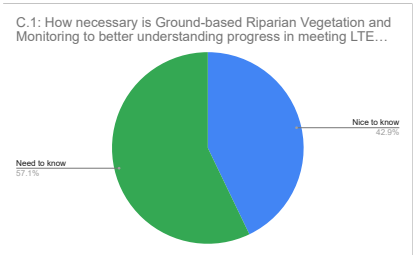


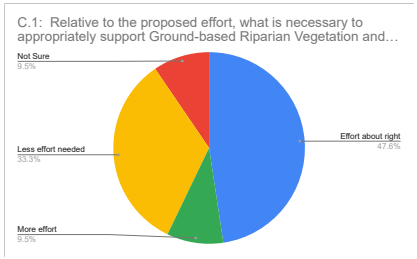




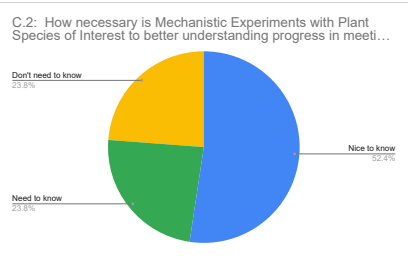
Project	Description	FY24 Budget	FY25	FY26	FY27
B	**Sandbar and Sediment Storage Monitoring and Research**	$984,662.00	$1,374,683.00	$1,383,150.00	$1,634,753.00
1	Sandbar and Campsite Monitoring with Topographic Surveys and Remote Cameras	$463,811.00	$352,603.00	$387,781.00	$412,503.00
2	Bathymetric and Topographic Mapping for Monitoring Sediment Storage and Riverbed Dynamics	$426,667.00	$693,582.00	$685,154.00	$834,036.00
3	Control Network and Survey Support	$94,184.00	$145,643.00	$155,488.00	$166,076.00
4	Streamflow, Sediment, and Sandbar Modeling	N/A	$182,855.00	$154,727.00	$222,138.00

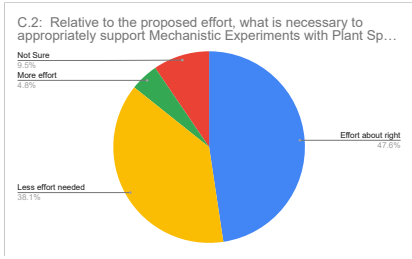


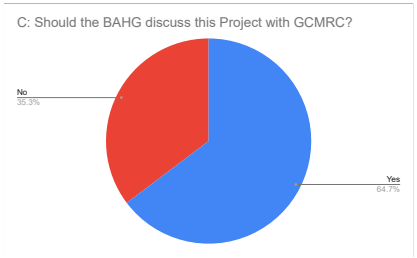


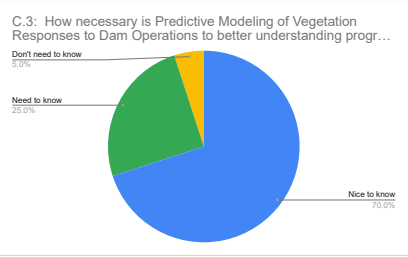


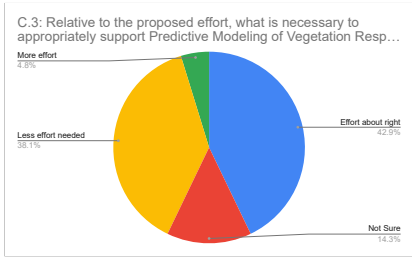
Project		Description	FY24 Budget	FY25	FY26	FY27
C		**Riparian Vegetation Monitoring and Research**	$339,145.00	$609,310.00	$629,695.00	$625,985.00
	1	Ground-based Riparian Vegetation Monitoring	$169,061.00	$348,265.00	$351,021.00	$344,828.00
	2	Mechanistic Experiments with Plant Species of Interest	$12,012.00	$72,832.00	$89,018.00	$79,826.00
	3	Predictive Modeling of Vegetation Response to Dam Operations	$143,022.00	$67,171.00	$69,761.00	$72,472.00
	4	Biogeomorphic Linkages between Streamflow, Sediment Transport, and Vegetation Composition	N/A	$93,845.00	$101,074.00	$108,855.00
	5	Vegetation Management Decision Support	N/A	$27,197.00	$18,821.00	$20,004.00

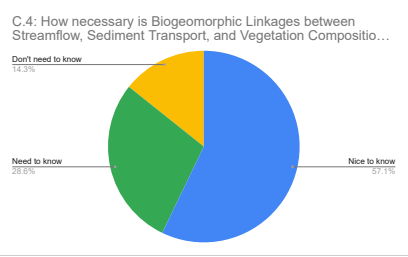


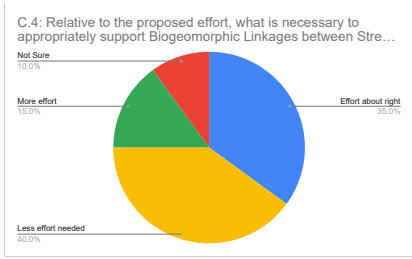


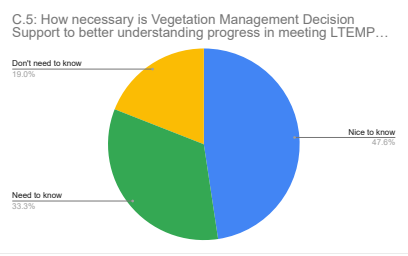


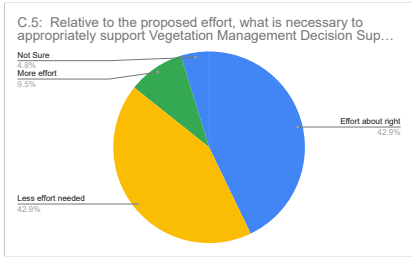


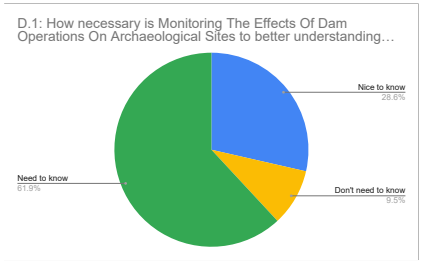


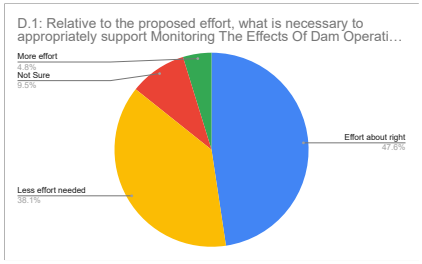


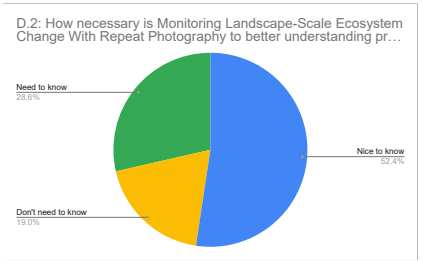


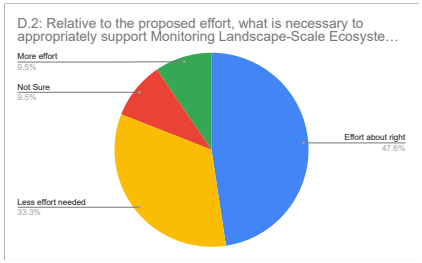


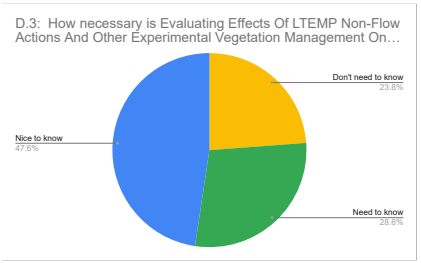


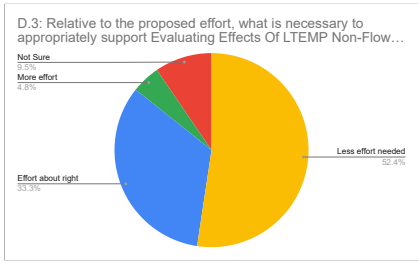


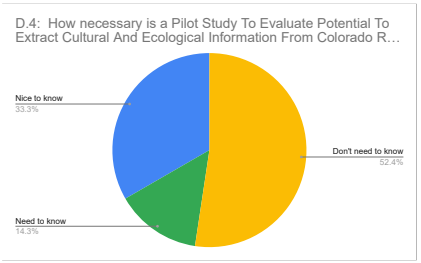


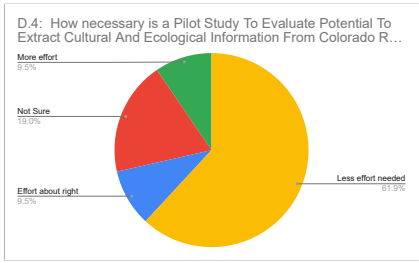


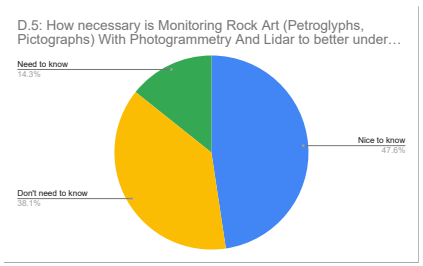


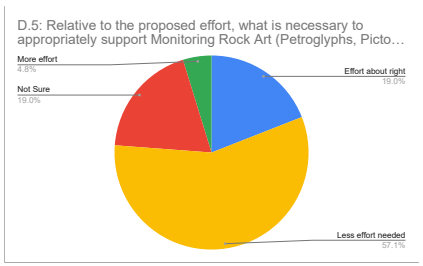




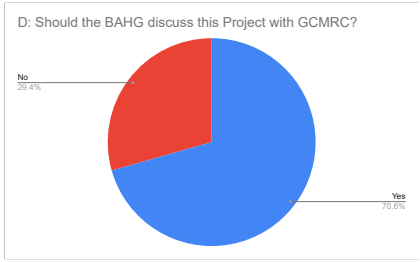


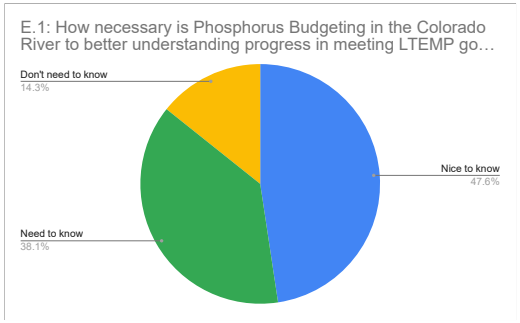


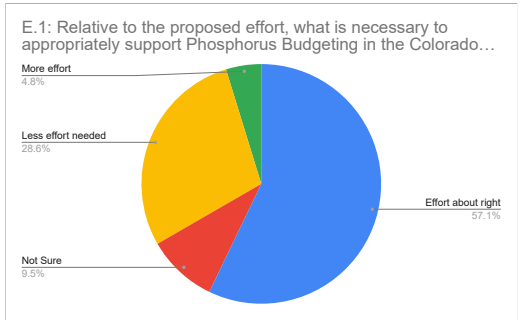




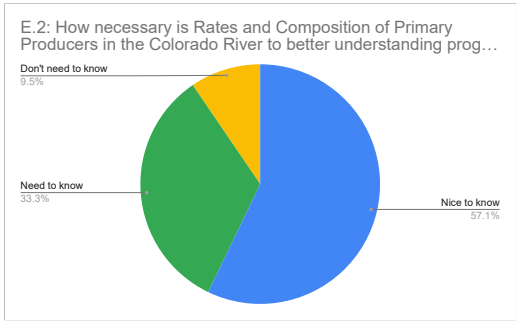
Project		Description	FY24 Budget	FY25	FY26	FY27
D		**Effects of Dam Operations and Experimental Vegetation Management for Archaeological Sites**	$331,624.00	$524,953.00	$631,699.00	$670,798.00
	1	(Modified ongoing study) Monitoring The Effects Of Dam Operations On Archaeological Sites	$291,020.00	$296,903.00	$331,737.00	$352,590.00
	2	Monitoring Landscape-scale Ecosystem Change with Repeat Photography	$40,604.00	$34,609.00	$42,360.00	$45,275.00
	3	(Modified ongoing study) Evaluating Effects Of LTEMP Non-Flow Actions And Other Experimental Vegetation Management On Archaeological Sites	$0.00	$86,962.00	$124,861.00	$132,652.00
	4	(New study) Pilot Study To Evaluate Potential To Extract Cultural And Ecological Information From Colorado River Deposits Using Edna And Pollen	N/A	$56,533.00	$66,513.00	$69,473.00
	5	(New study) Monitoring Rock Art (Petroglyphs, Pictographs) With Photogrammetry And Lidar	N/A	$49,946.00	$66,228.00	$70,808.00

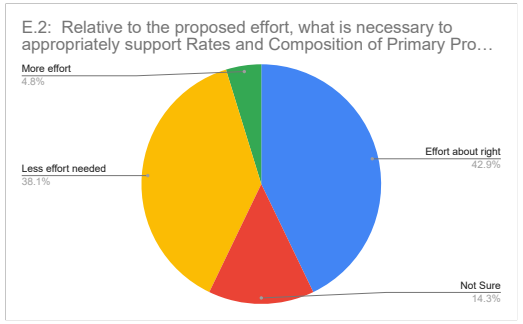


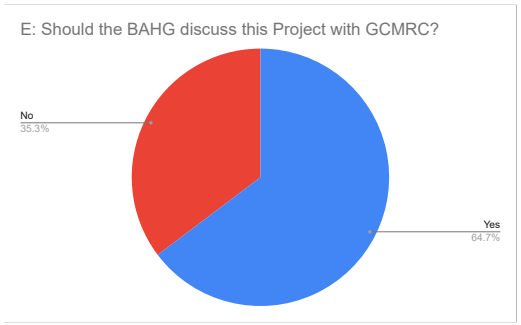


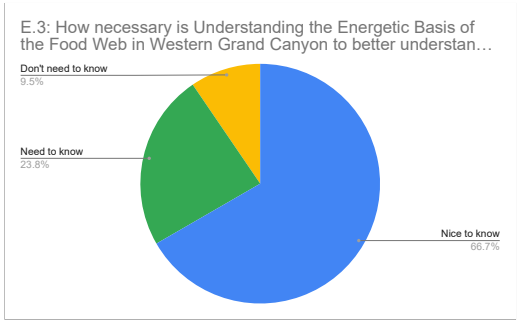


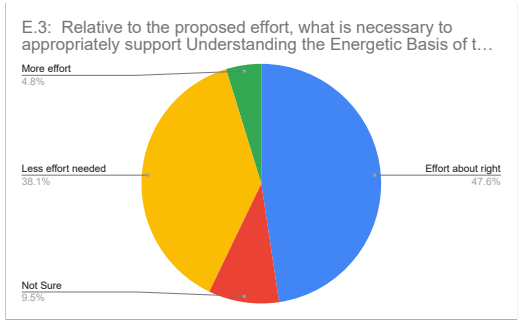
Project		Description	FY24 Budget	FY25	FY26	FY27
E		**Controls on Ecosystem Productivity: Nutrients, Flow, and Temperature**	$281,351.00	$697,967.00	$686,665.00	$733,389.00
	1	Phosphorus Budgeting in the Colorado River	$94,369.00	$86,098.00	$91,990.00	$155,005.00
	2	Rates and Composition of Primary Producers in the Colorado River	$94,945.00	$280,515.00	$226,959.00	$225,087.00
	3	Understanding the Energetic Basis of the Food Web in Western Grand Canyon	N/A	$190,866.00	$188,456.00	$214,346.00
	4	Linking Ecosystem Metabolism to Higher Trophic Levels	N/A	$140,488.00	$179,260.00	$138,951.00

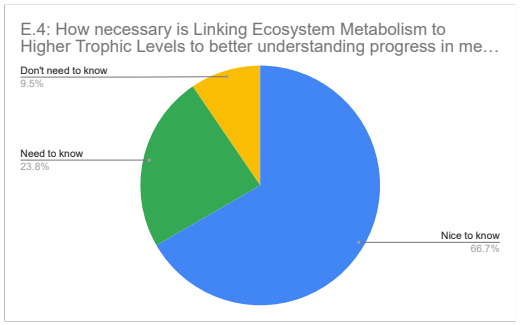


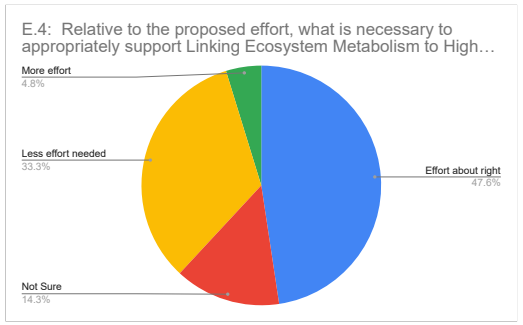


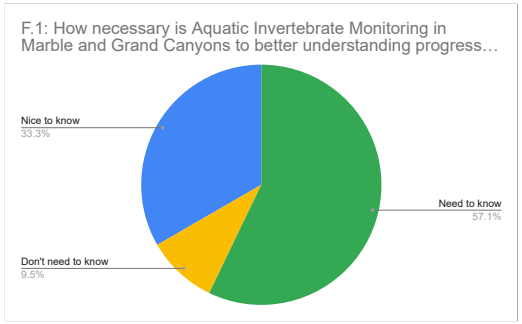


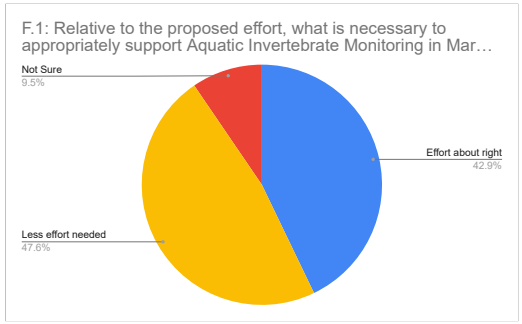




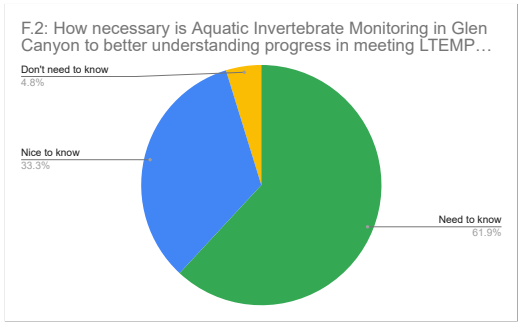


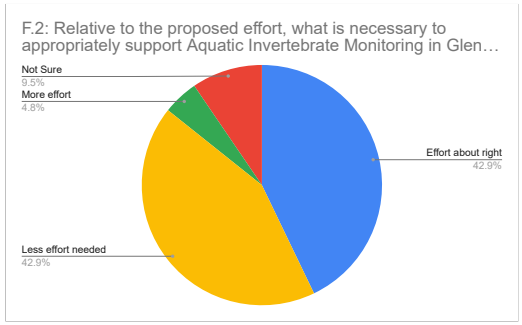


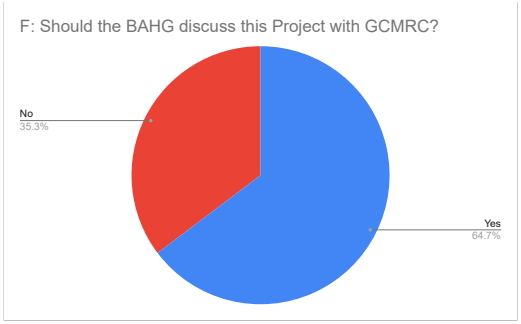


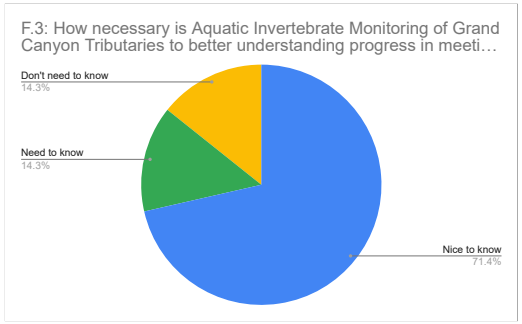


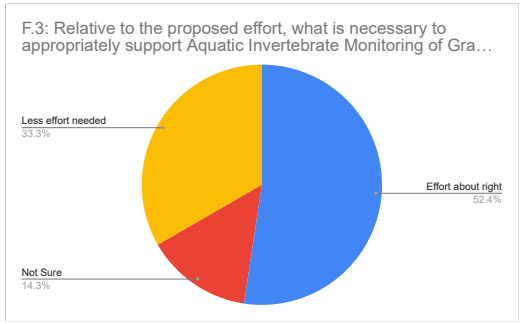
Project		Description	FY24 Budget	FY25	FY26	FY27
F		**Aquatic Invertebrate Ecology**	$686,647.00	$1,135,987.00	$1,220,082.00	$1,308,286.00
	1	Aquatic Invertebrate Monitoring in Marble and Grand Canyons	$358,497.00	$478,155.00	$513,332.00	$550,865.00
	2	Aquatic Invertebrate Monitoring in Glen Canyon	$270,068.00	$286,327.00	$307,396.00	$329,549.00
	3	Aquatic Invertebrate Monitoring of Grand Canyon Tributaries	$0.00	$77,880.00	$82,799.00	$86,677.00
	4	Fish Diet Studies	$58,082.00	$293,625.00	$316,555.00	$341,195.00

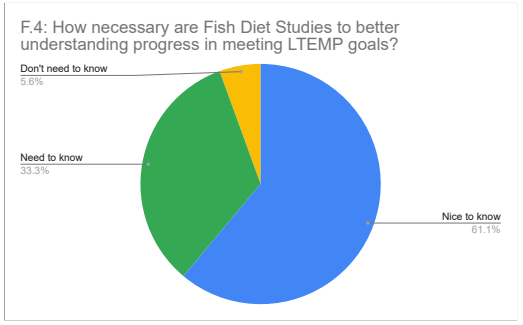


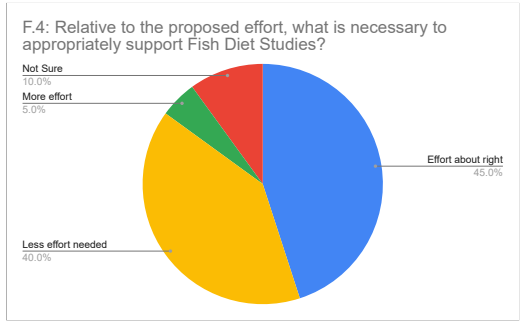


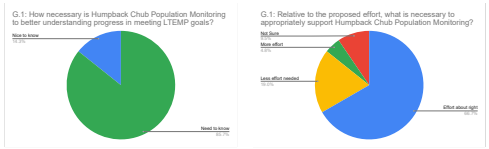


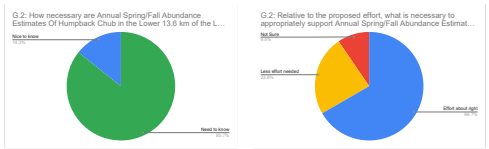


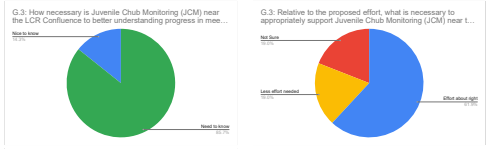


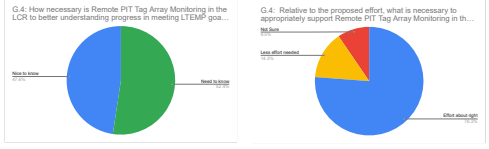


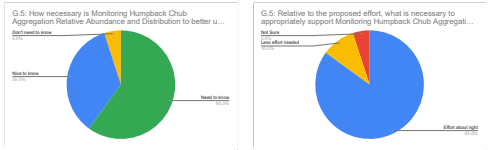


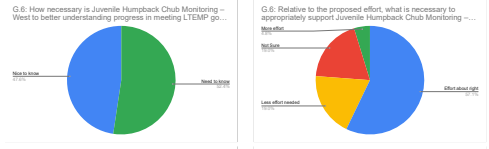


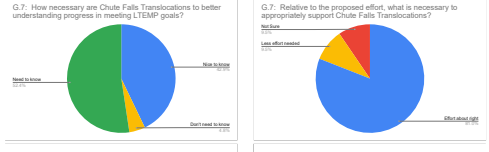


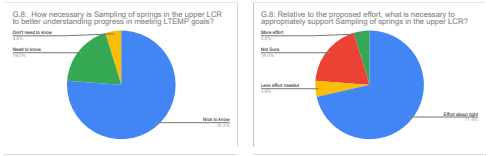


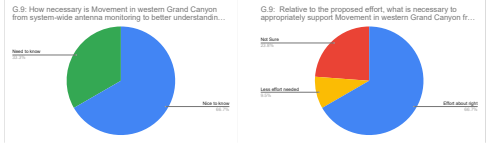




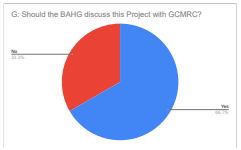


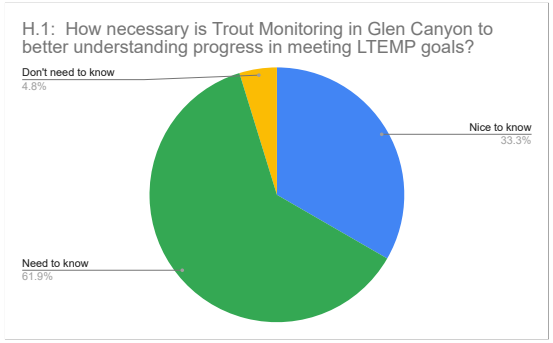


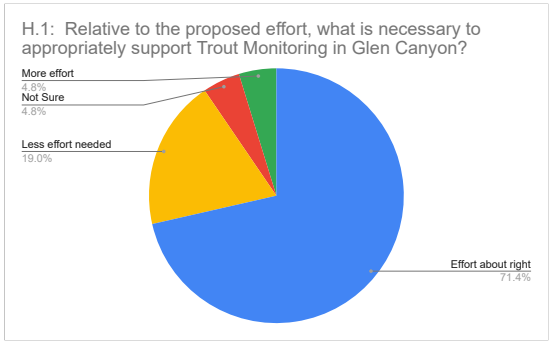


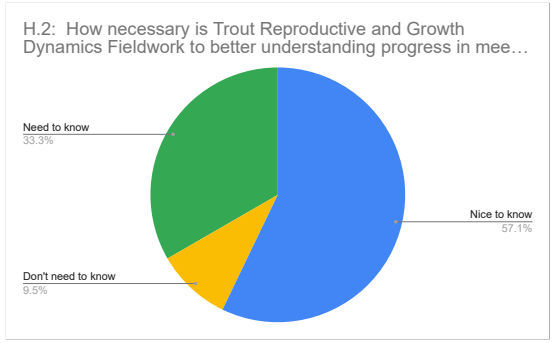


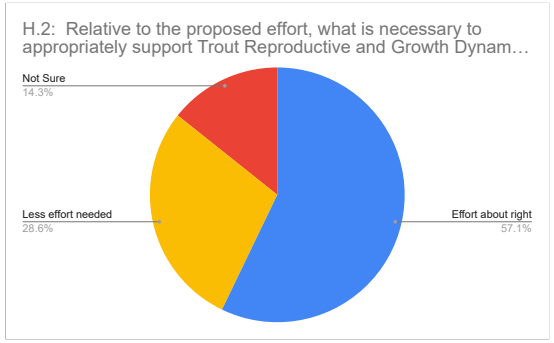
Project	Description	FY24 Budget	FY25	FY26	FY27
G	**Humpback Chub Population Dynamics throughout the Colorado River Ecosystem**	$1,594,535.00	$2,332,231.00	$2,388,201.00	$2,399,962.00
1	Humpback Chub Population Monitoring	$150,929.00	$206,005.00	$220,758.00	$236,629.00
2	Annual Spring/Fall Abudnace Estimates of Humpback Chub in lower 13.6km of LCR	$826,083.00	$582,500.00	$592,051.00	$603,727.00
3	Juvenile Humpback Chub Monitoring near the LCR Confluence	$530,907.00	$629,991.00	$663,430.00	$697,962.00
4	Remote PIT Tag Array Monitoring in the LCR	$75,569.00	$39,046.00	$41,238.00	$43,592.00
5	Monitoring Humpback Chub Aggregation Relative Abundance and Distribution	$210,348.00	$263,492.00	$340,395.00	$276,237.00
6	Juvenile Humpback Chub Monitoring in Western Grand Canyon	$0.00	$362,424.00	$390,191.00	$398,629.00
7	Chute Falls Translocations	$100,899.00	$105,599.00	$107,389.00	$109,211.00
8	Sampling of springs in the Upper LCR	N/A		$82,122.00	$0.00	$0.00
9	Movement in western Grand Canyon from system-wide antenna monitoring	N/A		$62,052.00	$32,749.00	$33,975.00

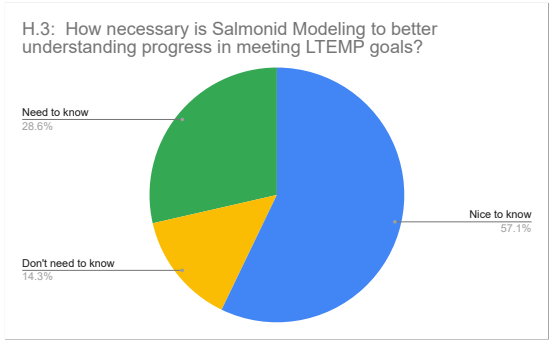


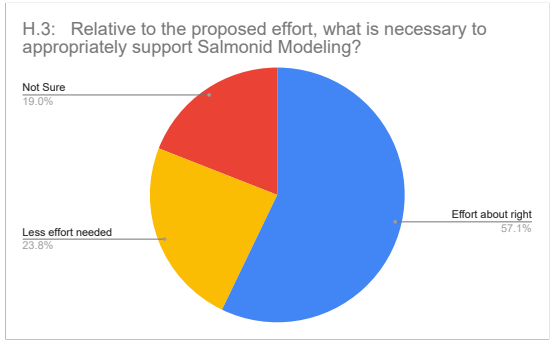




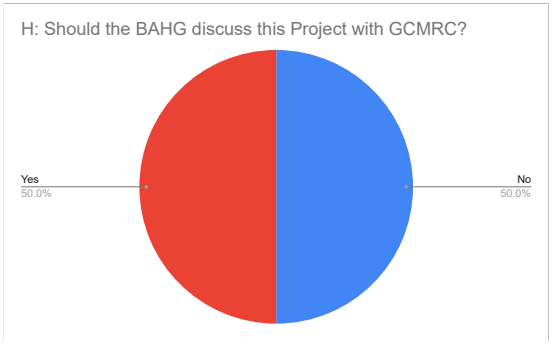


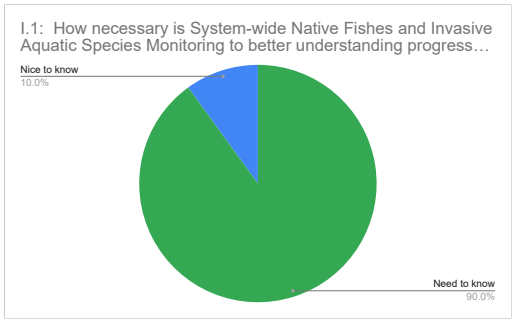


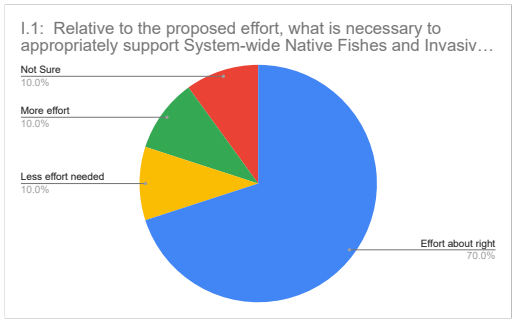


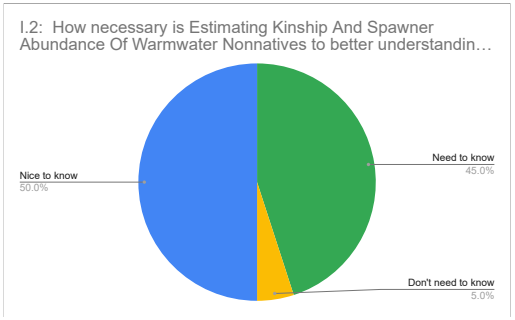


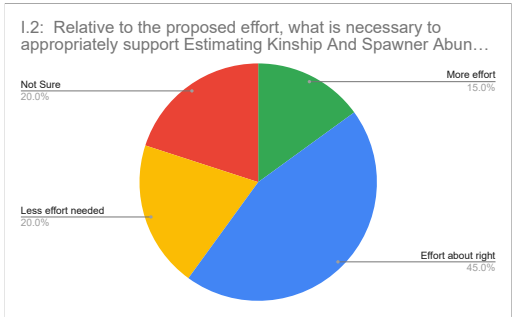
Project		Description	FY24 Budget	FY25	FY26	FY27
H		**Salmonid Research and Monitoring**	$511,247.00	$635,503.00	$634,574.00	$659,182.00
	1	Trout Monitoring in Glen Canyon	$123,760.00	$125,227.00	$125,876.00	$126,575.00
	2	Trout reproductive and growth dynamics fieldwork	$0.00	$439,635.00	$433,130.00	$451,740.00
	3	salmonid modeling	$119,782.00	$70,641.00	$75,568.00	$80,867.00

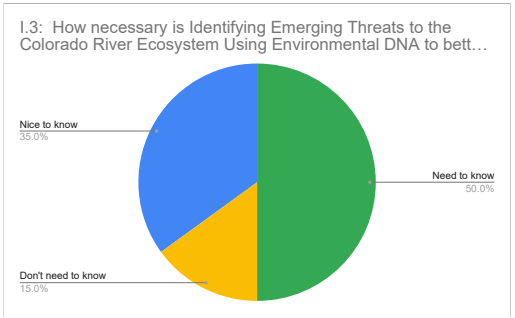


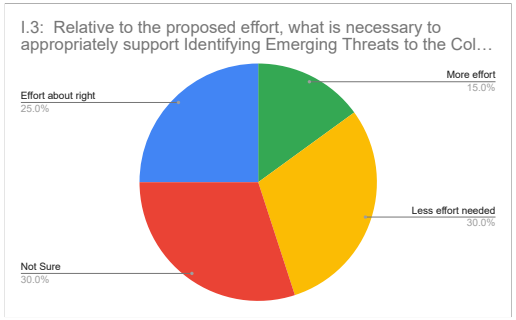


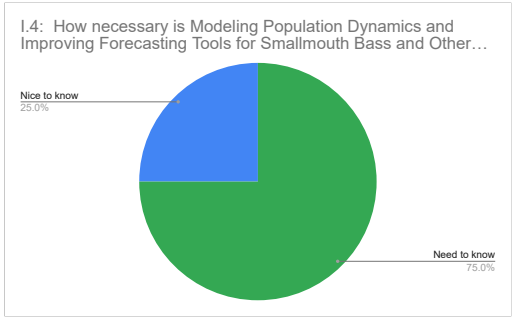


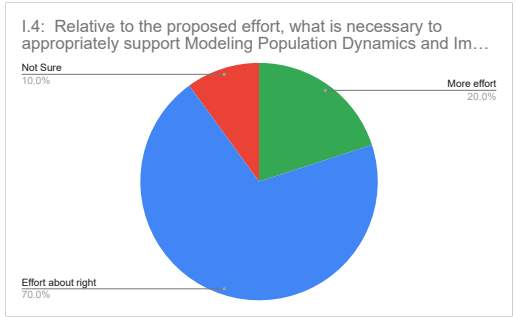




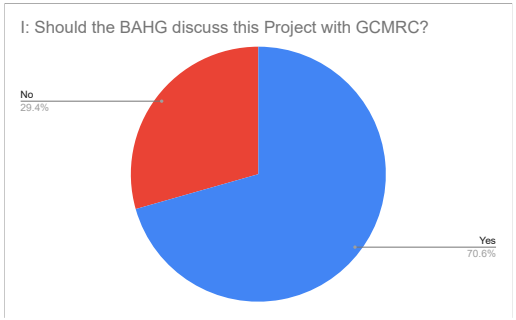


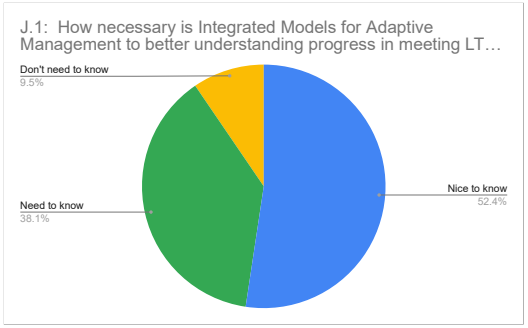


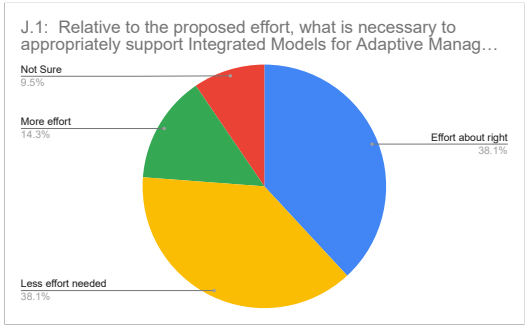


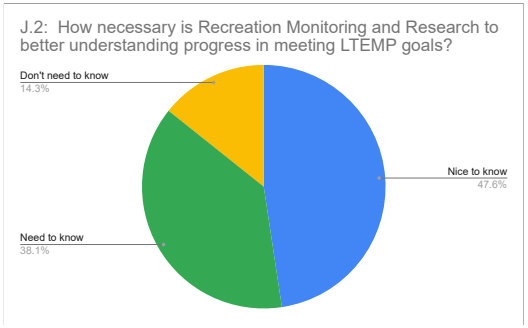


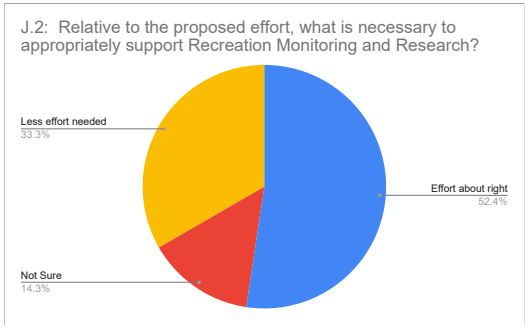
Project		Description	FY24 Budget	FY25	FY26	FY27
I		**Non-Native Invasive Species Monitoring and Research**	$655,279.00	$1,379,401.00	$1,414,037.00	$1,333,846.00
	1	System-wide Native Fish and Invasive Aquatic Species Monitoring	$359,532.00	$475,325.00	$487,938.00	$496,592.00
	2	Estimating Kinship and Spawner Abundance of warmwater non-natives	N/A	$225,342.00	$233,292.00	$241,848.00
	3	idetifying emerging threats to the Colorado River Ecosystem using eDNA	N/A	$457,422.00	$454,709.00	$339,243.00
	4	Modeling population Dynamics and improving Forecasting Tools for Smallmouth Bass and Other non-Native Fishes	N/A	$221,312.00	$238,098.00	$256,163.00

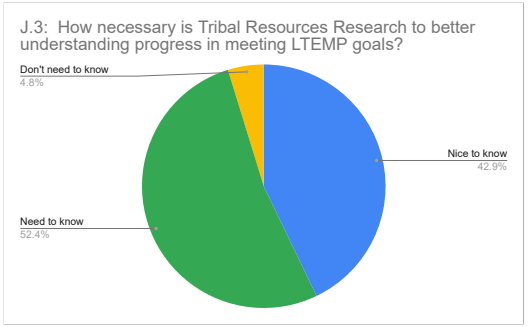


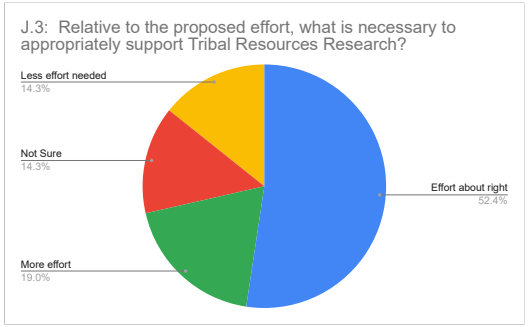




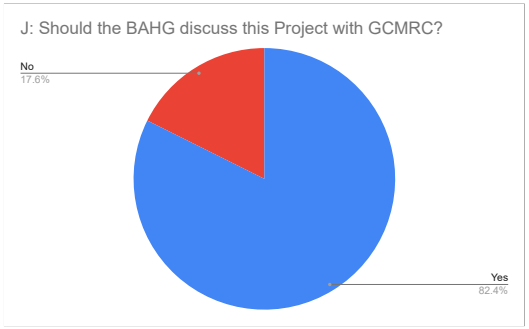


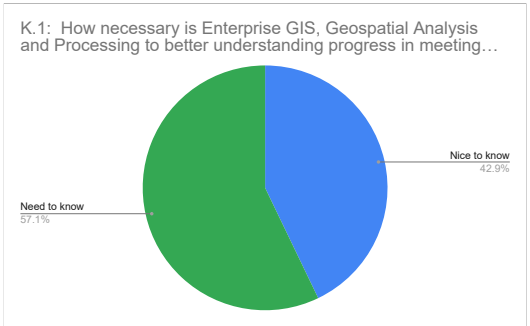


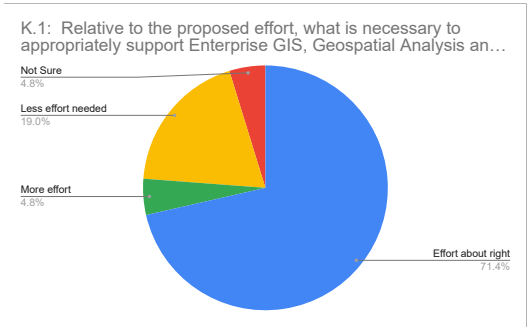


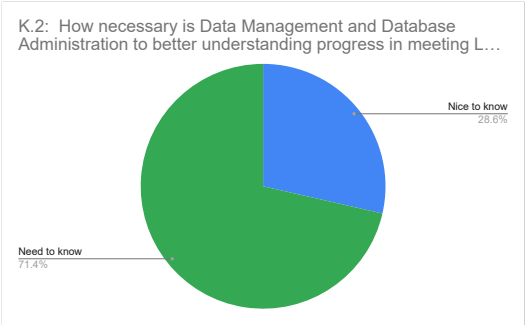


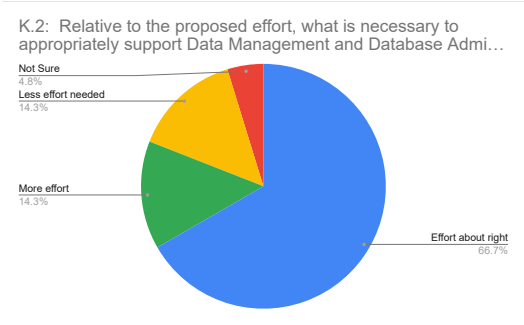
Project		Description	FY24 Budget	FY25	FY26	FY27
J		**Socioeconomic Research**	$190,302.00	$617,004.00	$629,508.00	$645,458.00
	1	Integrated Models for Adaptive Management	$64,579.00	$267,655.00	$264,525.00	$280,656.00
	2	Recreation Monitoring and Research	$125,723.00	$200,995.00	$189,188.00	$202,108.00
	3	Tribal Resources Research		$148,354.00	$175,795.00	$162,694.00

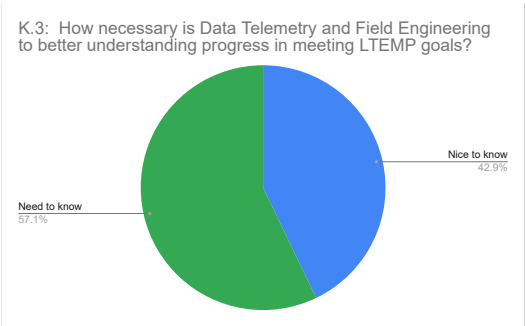


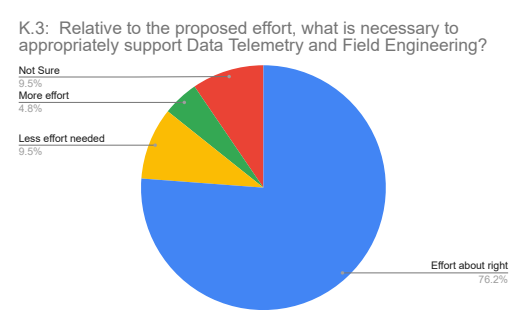




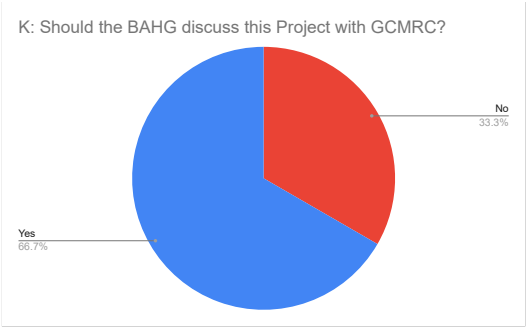


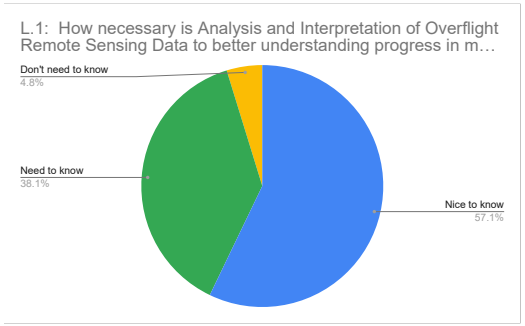


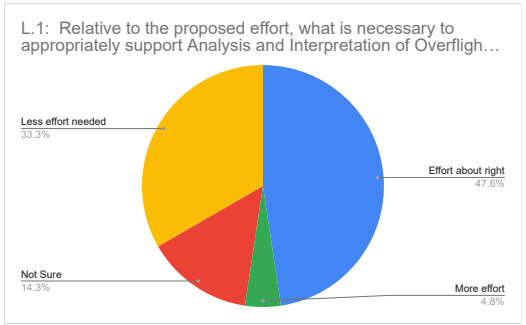


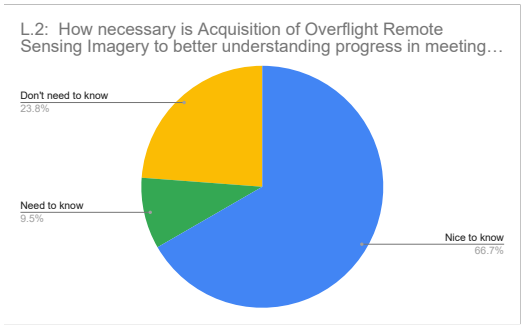


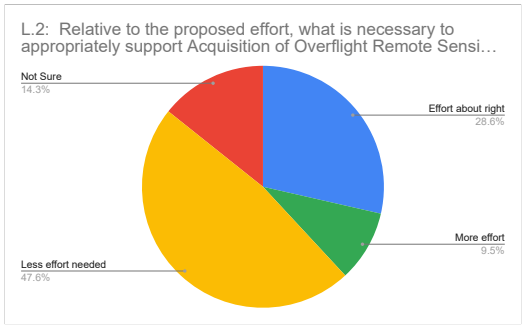
Project		Description	FY24 Budget	FY25	FY26	FY27
K			$503,452.00	$884,083.00	$950,127.00	$1,021,817.00
	1	Enterprise GIS, Geospatial Analysis and Processing	$236,423.00	$236,696.00	$254,104.00	$272,836.00
	2	Data Management and Database Administration	$206,180.00	$426,231.00	$458,651.00	$493,544.00
	3	Data Teleetry and Field Engineering	$60,849.00	$221,156.00	$237,372.00	$255,437.00

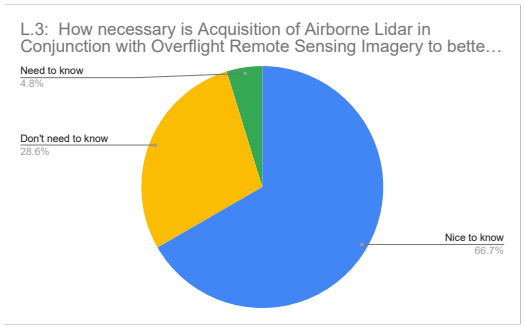


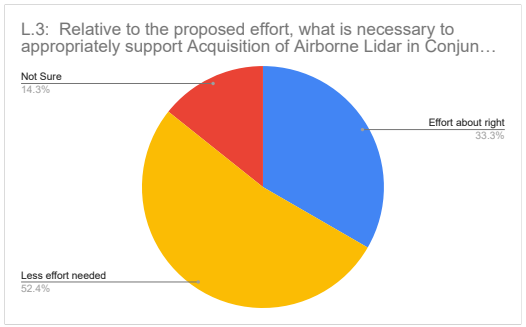




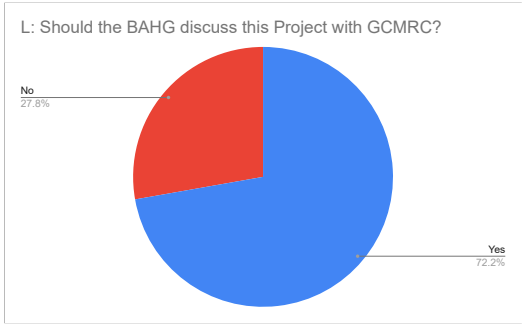


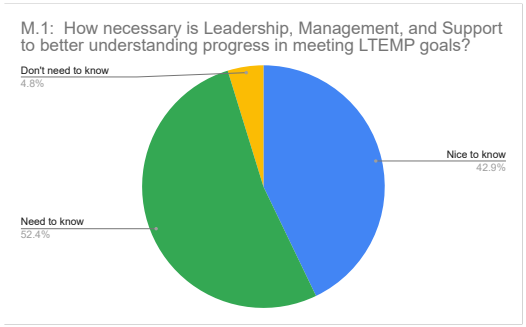


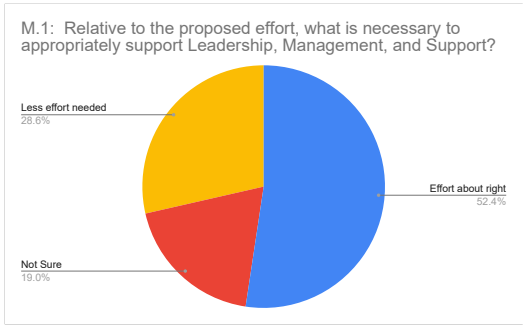


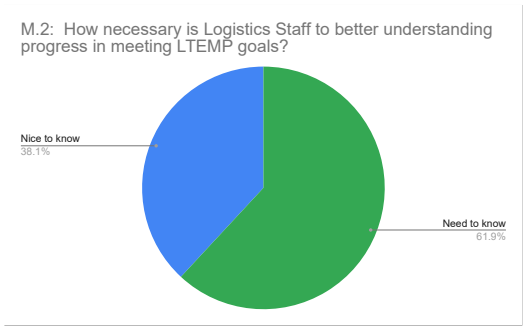


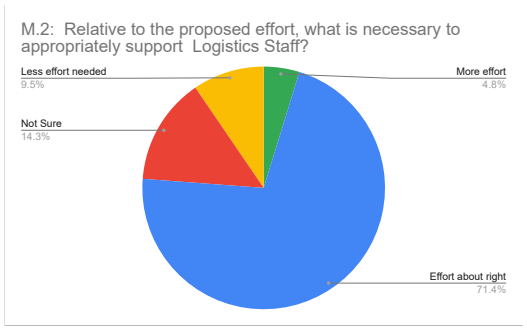
Project	Description	FY21	FY24 Budget	FY25	FY26	FY27
L	**Overflight Remote Sensing in Support of GCDAMP and LTEMP**	$897,350.00	$312,349.00	$405,609.00	$1,313,098.00	$472,114.00
1	Overflight Remote Sensing in Support of Long-Term Monitoring and LTEMP	$897,350.00	$312,349.00	$405,609.00	$444,873.00	$472,114.00
2	Acquisition of Overflight Remote Sensing imagery			$0.00	$603,225.00	$0.00
3	Acquisiting of Airborne LiDAR in conjunction with overflight remote sensing imagery			$0.00	$265,000.00	$0.00

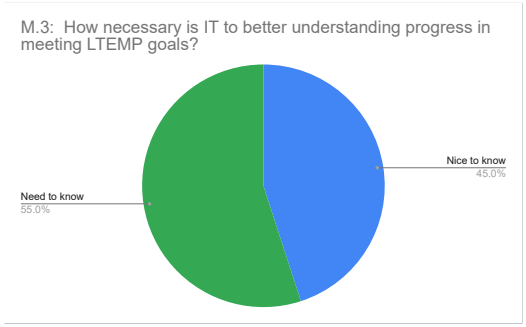


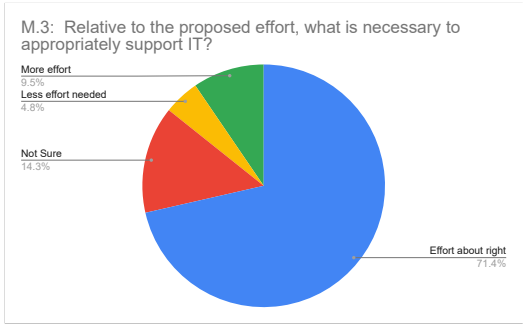




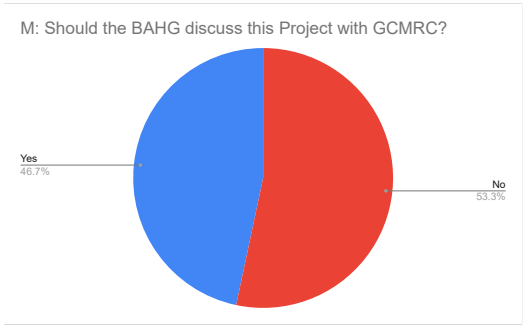


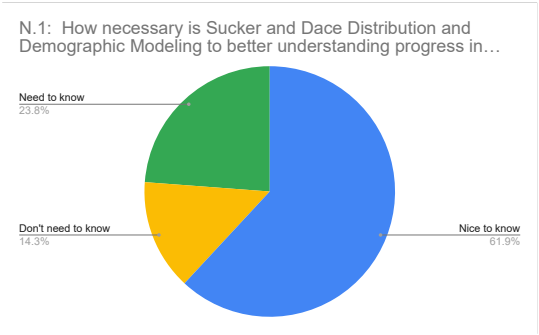


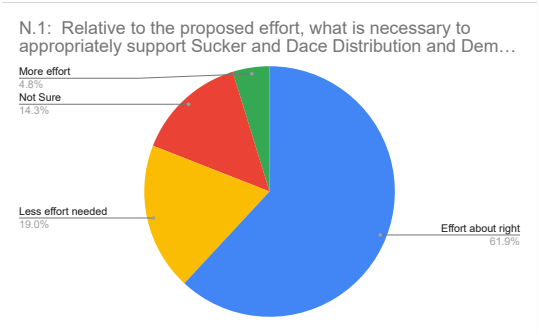


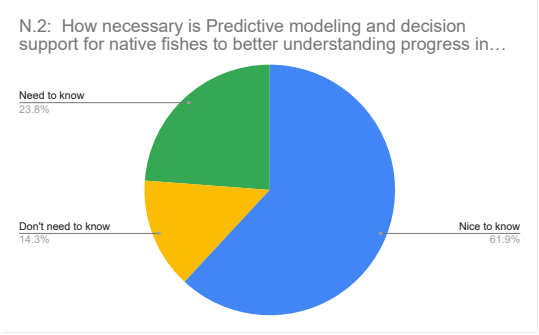


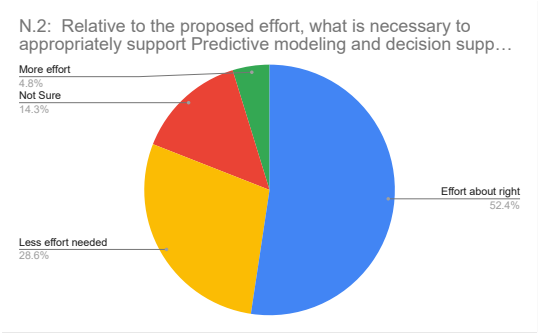
Project		Description	FY24 Budget	FY25	FY26	FY27
M		**Leadership, Management, and Support**	$1,022,543.00	$1,691,552.00	$1,796,312.00	$1,924,477.00
	1	leadership, management, and support	$729,535.00	$1,073,795.00	$1,141,832.00	$1,214,962.00
	2	Logistics staff	$293,008.00	$545,274.00	$584,291.00	$628,379.00
	3	IT	$0.00	$72,483.00	$70,189.00	$81,136.00

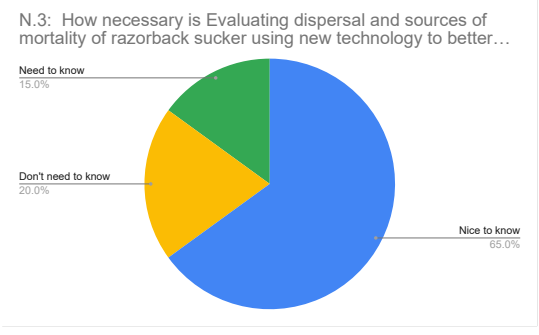


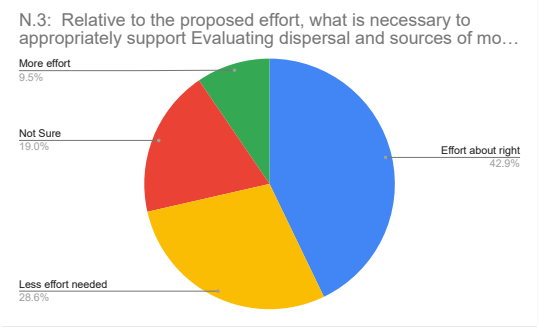




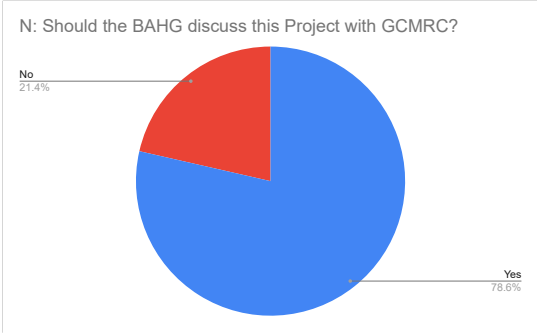




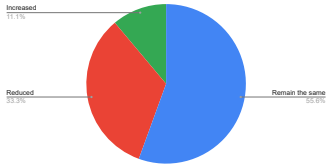




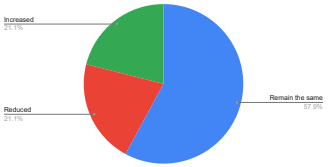
Project		Description	FY24 Budget	FY25	FY26	FY27
N		**Native Fish Population Dynamics* (New Project)**	N/A	$393,958.00	$340,376.00	$356,608.00
	1	Sucker and Dace Distribution and Demographic Modeling		$133,933.00	$132,227.00	$142,233.00
	2	Predictive Modeling and Decision Support for Native Fishes		$42,127.00	$46,371.00	$48,864.00
	3	Evaluating Dispersal and Sources of Mortality of Razorback Sucker Using New Technology		$217,898.00	$161,778.00	$165,511.00



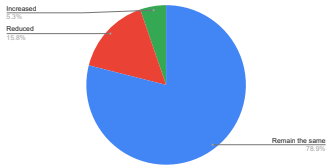
1. Archaeological and Cultural Resources. Maintain the integrity of potentially affected NRHP-eligible or listed historic



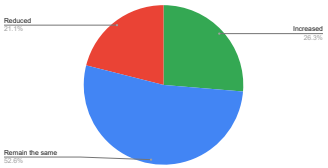
2. Natural Processes. Restore, to the extent practicable, ecological patterns and processes within their range of natural



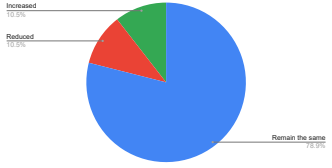
3. Humpback Chub. Meet humpback chub recovery goals, including maintaining a self-sustaining population, spawning



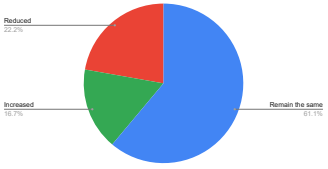
4. Hydropower and Energy. Maintain or increase Glen Canyon Dam electric energy generation, load following capability, and



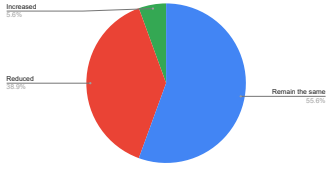
5. Other Native Fish. Maintain self-sustaining native fish species populations and their habitats in their natural ranges on



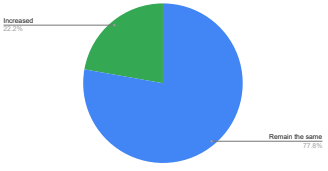
6. Recreational Experience. Maintain and improve the quality of recreational experiences for the users of the Colorado River



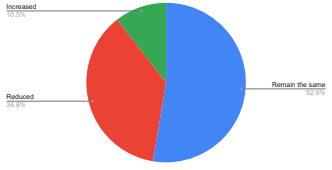
7. Sediment. Increase and retain fine sediment volume, area, and distribution in the Glen, Marble, and Grand Canyon



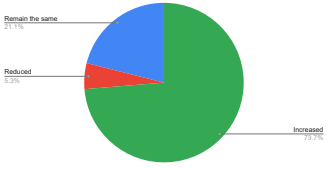
8. Tribal Resources. Maintain the diverse values and resources of traditionally associated Tribes along the Colorado River



9. Rainbow Trout Fishery. Achieve a healthy high-quality recreational rainbow trout fishery in GCNRA and reduce or



10. Nonnative Invasive Species. Minimize or reduce the presence and expansion of aquatic nonnative invasive species.



11. Riparian Vegetation. Maintain native vegetation and wildlife habitat, in various stages of maturity, such that they are