Placer County Water Agency
Middle Fork American River Project
(FERC Project No. 2079)

2007 Study Implementation Progress Report for the Middle Fork American River Project (FERC Project No. 2079)

Placer County Water Agency
P.O. Box 6570
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January 22, 2008

PCWA
FIFTY YEARS

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January 22, 2008
File No. 01030A
Electronically Filed

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: 2007 Study Implementation Progress Report for the Middle Fork American River Project (FERC Project No. 2079)

Dear Secretary Bose:

The Placer County Water Agency (PCWA) is submitting this progress report to provide the Federal Energy Regulatory Commission (FERC or Commission) and the stakeholders identified in Attachment A with an update regarding progress made in implementing Technical Study Plans (TSPs), which were developed in collaboration with the stakeholders and included in PCWA's Pre-Application Document (PAD) for the Middle Fork American River Project (MFP or Project). As required in 18 CFR § 5.15 (c)(1), this report summarizes PCWA's overall progress to date, any variance from the study plans and schedule in implementing the study plans and data collected, and any modification to ongoing studies or new studies proposed by PCWA.

Background

PCWA began developing 28 separate TSPs in 2006 in collaboration with a variety of stakeholders participating in technical working groups (TWGs). After approval by the TWG participants, the TSPs were forwarded to a Plenary group for review and approval. All of the TSPs were approved by the Plenary during meetings held in May, June and September 2007. The stakeholder-approved TSPs were included in PCWA's PAD for the MFP, which was filed with the FERC on December 13, 2007.

The Commission has not issued a formal Study Plan Determination in regard to the stakeholder-approved TSPs included in the PAD. However, PCWA initiated implementation of select elements of the TSPs in May 2007, consistent with the implementation schedules provided with each TSP.

The ILP regulations require the licensee to file an initial progress report within one year of Study Plan Determination by the Commission and then annually thereafter. PCWA is distributing this progress report to the FERC and MFP stakeholders earlier than formally required in the ILP regulations to inform the parties on overall study progress to date prior to initiating the second year of stakeholder-approved study plans. PCWA will distribute its next Study Implementation Progress Report in January 2009, consistent with the Relicensing Process Plan (Supporting Document A) filed with the PAD.

Study Progress

Study plan elements implemented in 2007 included: selection of instream flow modeling transects; fish, amphibian, and macroinvertebrate surveys; water quality sample collection; recreation visitor counts; cultural resource inventories; vegetation community and wildlife habitat mapping; bat surveys; bald eagle wintering surveys; and the selection of key observation points for visual quality assessments. Information developed in 2007 is currently being summarized and will be shared with the stakeholders in a series of study reports to be distributed in early 2008. A draft Cultural Resources Study report was distributed to the stakeholders for review in November 2007, and will be finalized in March 2008.

With a few exceptions, all of the TSPs are progressing as outlined in the stakeholder-approved TSPs. No major variations from the stakeholder-approved TSPs have occurred or are proposed. In addition, PCWA does not propose any modifications to the TSPs. The minor variances in study plan implementation are summarized in Attachment B. Attachment B is organized by TSP and describes: 1) study elements completed/data collected; 2) any technical study plan variances; 3) outstanding study elements; 4) proposed modifications; and 5) proposed new studies. In addition, the table includes a "Work Group Update" column that describes what type of study information has been shared with the TWGs to date, and when the information was provided.

The TSP schedules are graphically depicted in Attachment C. The TSP schedules were included in the PAD, and with two exceptions have not been modified. The TERR 1 – Vegetation Communities and Wildlife Habitat TSP schedule was revised slightly to include a longer period of time to prepare the 2007 Technical Study Report. In addition, it was modified to provide time to incorporate riparian data collected as part of the AQ 10 – Riparian Resources TSP into the vegetation community maps and to prepare and distribute a supplemental report in 2008. The CUL 1 – Cultural Resources TSP schedule was modified to include an additional survey and reporting period in 2008.

Next Steps

PCWA will provide a study implementation progress report update during the Plenary meeting to be held from 9:00 A.M. to 12 P.M. on February 4, 2008 at the Canyon View Community Center (Foothills Room) located at 471 Maidu Rd, Auburn, California. During this meeting, PCWA will discuss overall progress of study plan implementation and address any stakeholder comments. PCWA does not propose any study plan modifications but will provide the stakeholders with an opportunity to discuss any proposed modifications during the meeting.

PCWA will distribute a meeting summary to the Commission and stakeholders for review by February 19, 2008. Any participant or the Commission staff may file comments on PCWA's meeting summary within 30 days, setting forth any disagreement and any modification to ongoing studies or new studies proposed.

PCWA looks forward to working with Commission staff and MFP stakeholders as the relicensing proceeds. If you have any questions regarding the enclosed information, please contact Mal Toy, MFP Relicensing Manager, at (530) 823-4889.

Sincerely,
PLACER COUNTY WATER AGENCY

Mal Toy
Director of Resource Development

MT:bb

Attachments:

Attachment A – PCWA Progress Report Distribution List
Attachment B – 2007 Technical Study Plan Progress Report Summary
Attachment C – Implementation Schedule for Technical Study Plans (as of 1/22/08)

ATTACHMENT A

PCWA Progress Report Distribution List

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ATTACHMENT B

2007 Technical Study Plan Progress Report Summary

Attachment B. 2007 Technical Study Plan Progress Report Summary.

Technical Study Plan	Study Elements Completed/ Data Collected	Work Group Update	Technical Study Plan Variances	Outstanding Study Elements (Data analysis and reporting schedules are shown on the implementation schedules provided in Attachment C.)	Proposed Modifications	Proposed New Studies
Aquatic Resources						
AQ 1 Instream Flow	• Selected instream flow modeling sites and transects in collaboration with the Aquatic Technical Working Group (TWG) at 12 sites. Also installed transect-locater pins to prepare sites for data collection in 2008. • Selected habitat units to be modeled for amphibians (in addition to fish) at 4 instream flow modeling sites. Selected transects on 2 comparison streams for amphibian habitat stage-discharge modeling (AQ 12 – Special-Status Amphibian and Aquatic Reptile). • Selected transects on 5 comparison reaches for riparian studies (AQ 10 – Riparian Resources). • Selected special purpose geomorphology gravel mobility cross-sections at all instream flow modeling sites (AQ 9 – Geomorphology). • Installed 5 pressure transducers and collected data in the peaking reach for stage-discharge and travel time measurements (removed in the winter).	• Aug 6-10 and 13-17, 2007: Conducted site visit with Aquatic TWG to select instream flow modeling sites and transects. • Nov 5, 2007: Updated Aquatic TWG on 2007 field studies instream flow releases for instream flow modeling. • Jan 15-16, 2008: Met with Aquatic TWG to discuss habitat suitability criteria, lifestage periodicity charts, and habitat modeling methods.	None	• Collect data for instream flow modeling (topography, water surface elevations, velocities, substrate, and cover). • Conduct a one-time stranding evaluation downstream of Ralston Afterbay. • Conduct hydrodynamics and habitat modeling. • Develop technical memo describing results and suggestions regarding potential modeling approaches for large, slow-water pools.	None	None
AQ 2 Fish Population	• Conducted qualitative surveys for fry emergence at sites on Duncan and North and South Forks of Long Canyon creeks, and the Rubicon and Middle Fork American rivers upstream of Ralston Afterbay. • Conducted quantitative river sampling (electrofishing and/or snorkeling) at 19 sites. • Compared snorkeling and electrofishing sampling methods at 3 sites. • Sampled fish upstream of diversions to determine distribution limits of trout on North and South Forks of Long Canyon and Duncan creeks. • Conducted fish sampling (gillnetting) on Project reservoirs (Hell Hole, French Meadows, Ralston Afterbay, and Middle Fork Interbay). • Snorkeled Duncan Creek, North Fork Long Canyon Creek, and South Fork Long Canyon Creek diversion pools. • Collected rainbow trout, brown trout, and hardhead scales from fish, where present.	• Nov 5, 2007: Updated Aquatic TWG on 2007 field studies.	None	• Meet with Aquatic TWG to select appropriate fish standing crop comparison datasets. • Conduct Ralston Afterbay fish sampling in 2008. • Review river sampling data with the Aquatic TWG to determine which sites will be sampled in year two (2008) and possibly in year three (2009) to identify the temporal abundance of fish species. • Conduct 2008 river fish population sampling.	None	None
AQ 3 Macroninvertebrate and Aquatic Mollusk	• Collected drift samples at 9 sites at 3 different times of the year (Jun, Aug, and Oct). • Collected Surface Water Ambient Monitoring Program (SWAMP) benthic samples and inventory data at 14 sites. • Sampled 7 California Stream Bioassessment Procedure (CSBP) long-term sampling locations at the Ralston Sediment Management Project sampling sites. • Submitted the benthic samples to the laboratory for identification.	• Nov 5, 2007: Updated Aquatic TWG on 2007 field studies.	None	• Compare SWAMP and CSBP benthic sampling results between reaches and with data reported in the literature. • Determine if 2008 macroinvertebrate contingency studies are needed. • Conduct special-status aquatic mollusk sampling in 2008. • Document the benthic macroinvertebrate community in areas with known water quality issues, if any, as determined in the AQ 11 – Water Quality Study. • Complete drift sample analysis for inclusion into the Bioenergetics Study (AQ 5 – Bioenergetics).	None	None

Attachment B. 2007 Technical Study Plan Progress Report Summary.

Technical Study Plan	Study Elements Completed/ Data Collected	Work Group Update	Technical Study Plan Variances	Outstanding Study Elements (Data analysis and reporting schedules are shown on the implementation schedules provided in Attachment C.)	Proposed Modifications	Proposed New Studies
Aquatic Resources (continued)						
AQ 4 Water Temperature Modeling	None	N/A	None	• Collect water temperature and meteorological data (2008). • Collect water temperature data at selected tributary inflows and deep pools in the lower Rubicon and Middle Fork American rivers. • Establish Water Temperature Modeling Subgroup. • Select reservoir and river water temperature models for the specific study reaches. • Summarize existing water temperature and meteorological data. • Summarize thermal profiles in Project reservoirs. • Collect/develop model inputs (i.e. topographic and riparian shading, air temperature, wind speed, relative humidity, solar radiation, and bound condition flow and water temperature data) for modeled river reaches and reservoirs. • Develop reservoir and water temperature models for the specific study reaches. • Characterize modeled water temperatures for existing, unimpaired, and alternative flow conditions. • Consider predictions of changes in air temperature resulting from global warming in 2 or 3 of the model runs. • Model potential effects of Project betterments on reservoir temperature regimes and associated instream release temperatures.	None	None
AQ 5 Bioenergetics	None	N/A	None	• Analyze growth and water temperature relationships in the Rubicon River and the peaking reach using a salmonid bioenergetics model. • Quantify the amount and quality of habitat for salmonids using a bioenergetics foraging model. • Determine availability of bioenergetics data for hardhead to determine feasibility of addressing water temperature and/or food availability through modeling and complete modeling if sufficient information is available and deemed appropriate.	None	None
AQ 6 Fish Passage	• Identified and classified potential tributary barriers within the reservoir inlet areas (Hell Hole, French Meadows, Ralston Afterbay and Middle Fork Interbay). • Identified and classified potential tributary junction barriers along mainstem river reaches. • Identified and classified potential Project facilities (e.g. diversion structure, tunnel crossings, gage weirs) and did helicopter surveys of potential hardhead barriers upstream of Ralston Afterbay.	• Nov 5, 2007: Updated Aquatic TWG on 2007 field studies.	None	• Quantitatively evaluate fish passage at potential Project-related fish barriers during base flow (low flow) releases. • Qualitatively assess whether low flow barriers have the potential to become passable at flows higher than base flow. • Evaluate fish passage at Project diversion dams and determine if hydrodynamics modeling is needed to assess fish passage in collaboration with the Aquatic TWG.	None	None
AQ 7 Entrainment	None	N/A	None	• Meet with Aquatic TWG to fully develop fish entrainment threshold calculation approach. • Summarize literature and fish population data. • Characterize Project diversion structures and intakes, diversion operations, and powerhouse turbines. • Develop information necessary to assess the feasibility of screening intake structures, including feasibility level estimates of screen and screen installation costs. • Indirectly estimate entrainment and mortality potential. • Collaborate with Aquatic TWG to determine whether or not direct measurements of entrainment and mortality are warranted.	None	None

Attachment B. 2007 Technical Study Plan Progress Report Summary.

Technical Study Plan	Study Elements Completed/ Data Collected	Work Group Update	Technical Study Plan Variances	Outstanding Study Elements (Data analysis and reporting schedules are shown on the implementation schedules provided in Attachment C.)	Proposed Modifications	Proposed New Studies
Aquatic Resources (continued)						
AQ 8 Reservoir Fish Habitat	None	N/A	None	• Summarize current fish species assemblage data, stocking records, and fish success for each Project reservoir. • Characterize daily water surface elevation patterns and approximate pool volumes at each reservoir over the period of record. • Characterize historical hourly water surface elevation patterns and approximate pool volumes at Ralston Afterbay over the period of record. • Install a water surface elevation monitor or obtain access to existing water surface elevation data to record within-day fluctuations at Ralston Afterbay. • Characterize daily water surface elevation patterns and approximate pool volumes of each reservoir and Ralston Afterbay with potential Project betterments using the Project Operations Model. • Summarize water quality information (thermocline location, epilimnion and hypolimnion water temperatures and dissolved oxygen concentrations) for each Project reservoir under existing operations and under potential Project betterment operations.	None	None
AQ 9 Geomorphology	• Selected geomorphic transects at instream flow modeling study sites. • Conducted V* visual estimates at 109 pools located at 14 different study sites along the bypass and peaking reaches, and two comparison streams. • Collected 57 bulk samples at 14 study sites at hydraulic modeling transects (AQ 1 – Instream Flow). • Completed large woody debris capture field surveys at all Project reservoirs and diversions. • Surveyed French Meadows and Hell Hole reservoirs using aerial photogrammetry with ground-control surveys, and aerial observations with photo-documentation. • Located pre-dam topography of French Meadows and Hell Hole reservoirs for comparative assessment of pre-dam and post-dam 2007 topography. • Completed particle size sampling at Hell Hole Reservoir. • Surveyed Duncan Creek diversion pool to provide estimate of total volume of sediment load.	• Aug 6-10 and 13-17, 2007: Conducted site visit with Aquatic TWG to select geomorphic transects at instream flow modeling sites. • Nov 5, 2007: Updated Aquatic TWG on 2007 field studies.	**V* Sampling** • The TSP indicates that V* estimates would be performed at a total of 125 sites located along the bypass and peaking reaches, and two comparison reaches. Of these, 16 sites were not surveyed due to inaccessibility, excessive travel time, or active suction dredge mining in pools. These 16 sites will not be surveyed during future sampling efforts.	• Analyze V* field data. • Complete particle size sampling at French Meadows Reservoir, Duncan Creek Diversion Pool in fall 2008, and at Middle Fork Interbay and Ralston Afterbay if it is determined that there is insufficient data collected from previous studies for sediment management. • Calculate particle size composition and estimate sediment loads captured at Project reservoirs and diversion pools. • Analyze and summarize particle size composition of bulk spawning gravels collected at hydraulic modeling sites. • Compare particle size composition and fine sediment content to standards from the scientific literature. • Summarize information on PCWA's sediment management practices. • Estimate erosion and potential sediment loading along the shoreline of Hell Hole Reservoir associated with the Hell Hole Reservoir Seasonal Storage Increase Betterment. • Identify flows necessary to maintain geomorphic processes in bypass and peaking reaches. • Characterize the amount of LWD captured in Project reservoirs and diversion pools, and relative extent to which LWD capture may effect its recruitment in downstream reaches. • Collect high flow calibration data during 2008 runoff period.	None	None

Attachment B. 2007 Technical Study Plan Progress Report Summary.

Technical Study Plan	Study Elements Completed/ Data Collected	Work Group Update	Technical Study Plan Variances	Outstanding Study Elements (Data analysis and reporting schedules are shown on the implementation schedules provided in Attachment C.)	Proposed Modifications	Proposed New Studies
Aquatic Resources (continued)						
AQ 10 Riparian Resources	• Selected 6 sites and/or transects on 5 comparison streams, in coordination with AQ 1 – Instream Flow and in consultation with Aquatic TWG. • Conducted quantitative studies at each of the comparison stream sites (plots and line-intercept surveys along transects perpendicular to the channel, greenline surveys, and regeneration surveys). • Conducted line-intercept surveys upstream and downstream of the diversions on North and South Forks of Long Canyon Creek. • Collected tree cores at 2 comparison stream sites. • Completed riparian surveys at Project reservoirs, Ralston Afterbay, and Middle Fork Interbay.	• Aug 6-10 and 13-17, 2007: Conducted site visit with Aquatic TWG to select riparian transects at instream flow modeling sites. • Nov 5, 2007: Updated Aquatic TWG on 2007 field studies.	None	• Summarize riparian resources along the selected comparison stream reaches. • Summarize the distribution, characteristics, and condition of the riparian resources in relation to the life history strategies of the dominant species and fluvial geomorphic processes along bypass reaches, the peaking reach, and comparison reaches. • Characterize the relationship between historic and existing land uses, recreation activities, and riparian resources. • Develop indicators for riparian health in consultation with the Aquatic TWG. • Summarize the distribution, characteristics, and condition of the riparian resources at Project reservoirs in relation to WSE fluctuations. • Identify and map the distribution of riparian resources at proposed Project betterments, construction and staging, and new inundation areas. • Collect detailed riparian information at the mouth of Five Lakes Creek and Upper Hell Hole Reservoir following review of photogrammetry elevation layers. • Collect high flow calibration data during 2008 runoff period.	None	None
AQ 11 Water Quality	• Collected in-situ and general water quality measurements on the bypass reaches, peaking reaches, reservoirs, and diversion pools in spring (39 locations) and fall (36 locations). • Collected fecal coliform samples at 17 sites. • Collected fish samples at Project reservoirs (Hell Hole, French Meadows, Ralston Afterbay, Middle Fork Interbay) and at one river site (Middle Fork American River downstream of Ralston Afterbay) for mercury fish tissue analyses. • Provided water quality samples to State-certified laboratories approved by the State Water Resources Control Board for chemical analyses. • Compared water quality results to the CVRWQCB Basin Plan objectives and water quality standards (CVRWQCB, Fourth Edition revised February 2007). • Compared fish tissue results to the OEHHA guidelines.	• Nov 5, 2007: Updated Aquatic TWG on 2007 field studies.	**Fish Tissue Sampling** • Five of the 10 recommended fish caught at French Meadows Reservoir (two brown trout and three rainbow trout) were analyzed for individual methyl mercury concentrations in the fish muscle tissue. The remaining five fish (brown trout) that were caught should have been analyzed individually. However, these 5 fish were analyzed as a composite sample due to a laboratory error. <u>Voluntary Enhancements</u> • In addition to the ten fish caught at Hell Hole Reservoir (brown trout, rainbow trout, and lake trout that were analyzed for individual methyl mercury concentration), five additional fish (brown trout) were caught and analyzed as a composite sample. **General Water Quality Sampling** • Water quality samples were not collected during high and low flow events along the peaking reach of the Middle Fork American River during the spring and fall sampling events. Water quality samples were collected once during the spring and fall sampling events at various locations and flows throughout the peaking reach. • One metal (manganese) was not analyzed during the spring sampling event due to a transcription error. Manganese was sampled during the fall sampling event. <u>Voluntary Enhancements</u> • In-situ measurements were taken and water samples were collected and analyzed for dissolved metals and total mercury at 3 additional locations (leakage channels and main channel) downstream of Hell Hole Reservoir and 5 additional locations (leakage channels and main channel) downstream of French Meadows Reservoir. • The TSP states that the water quality analytical results would be compared to the Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition, published in September 1998. The analytical results were compared to the most recent version of the Basin Plan, which was updated with amendments in February 2007.	• Consult with Aquatic TWG to discuss contingency water quality related studies.	None	None

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Technical Study Plan	Study Elements Completed/ Data Collected	Work Group Update	Technical Study Plan Variances	Outstanding Study Elements (Data analysis and reporting schedules are shown on the implementation schedules provided in Attachment C.)	Proposed Modifications	Proposed New Studies
Aquatic Resources (continued)						
AQ 11 Water Quality (continued)			**Fecal Coliform Sampling** • According to the fecal coliform sampling protocols, fecal samples were to be collected five times within a 30 day period between July 4 and Labor Day. Two of the fecal coliform sampling locations were sampled the week after Labor Day (the fifth sample in 30 days) because of a sampling location change late in the summer.			
AQ 12 Special-Status Amphibian and Aquatic Reptile	**Foothill Yellow-legged Frog (FYLF)** • Identified and mapped potential breeding and rearing habitat in the study area. • Document the distribution and abundance of FYLF populations in the study area. • Documented the timing and length of FYLF breeding season. • Identified existing data and obtain new data necessary to develop HSC for FYLF. • Selected FYLF modeling sites in coordination with the Aquatic TWG. **California Red-legged Frog (CRLF)** • Conducted USFWS CRLF site3 assessment. • Identified and mapped potential CRLF habitat in the study area. • Documented the distribution and abundance of CRLF in the study area. **Western Pond Turtle (WPT)** • Documented the presence of WPT during CRLF and FYLF surveys. • Mapped potential WPT nesting habitat in study area. • Documented the presence of potential WPT nesting habitat near Project reservoirs and potential Project betterment inundation zones. • Verified WPT habitat around Project reservoirs with ground surveys.	• Aug 6-10 and 13-17, 2007. Conducted site visit with Aquatic TWG to selected FYLF modeling sites. • Nov 5, 2007: Updated Aquatic TWG on 2007 field studies. • Jan 15-16, 2008: Presented FYLF draft HSC data from study streams.	**FYLF** Voluntary Enhancements • Several perennial tributary survey sites were added to the study plan as either qualitative sampling or an incidental one-time site visit location (confluence of American Canyon Creek, Pond Creek, and Jesse Creek with the Middle Fork American River and Wallace Canyon Creek, tributary to Long Canyon Creek).	**FYLF** • Meet with Aquatic TWG to discuss FYLF survey results and determine if additional limited scope surveys (i.e., distribution and abundance or timing and length of breeding season) are needed in 2008. This consultation with the Aquatic TWG will be completed in early 2008. Contingency studies, if needed, will be completed in 2008 and reported in the 2008 AQ 12 – TSR, as described in the study plan. • Collect FYLF egg validation data at instream flow modeling sites in spring 2008. This information will be reported in the 2009 AQ 1 – Instream Flow TSR. • Develop HSC for eggs and tadpoles in consultation with the Aquatic TWG, based on data collected during surveys and existing information sources. This information will be developed in 2008 and reported in the 2009 AQ 1 – Instream Flow TSR. • Develop a life stage periodicity chart for FYLF that identifies the season of the year (time period) when each life stage is likely to be present within the Project area. This data will be used to determine when the HSC information is applicable in evaluating effects of flow alterations on potential FYLF habitat. This information will be developed in 2008 and reported in the 2009 AQ 1 – Instream Flow TSR. • Characterize the water stage and velocity under different flow regimes as it relates to FYLF habitat through coordination with the instream flow study. Water stage and velocity information under different flow regimes will be analyzed and reported in the 2009 AQ 1 – Instream Flow TSR. **FYLF and WPT** • Characterize instream temperatures under different flow regimes as it relates to FYLF and WPT habitat through coordination with the water temperature study. Temperature information under different flow regimes will be analyzed and reported in the 2009 AQ 4 – Water Temperature Modeling TSR. **CRLF** • If determined necessary by USFWS, conduct protocol-level CRLF surveys in accordance with the Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog, August 2005. This contingency study, if needed, will be completed in 2008 and reported in the 2008 AQ 12 – TSR, as described in the study plan.	None	None

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Cultural Resources						
CUL 1 Cultural Resources	**Phase 1 – Summary of Existing Cultural Resources Information** • Completed in 2005 and documented in 2005 Cultural Resources Inventory Study Report (PCWA 2006). **Phase 2 – Verification of Known Cultural Resources and Identification of Unknown Sites** • Field surveys initiated in 2006 and continued through 2007. • Work completed in 2006 is documented in 2006 Cultural Resources Inventory Report (PCWA 2007). • Work completed in 2007 is documented in Draft CUL 1 – Cultural Resources Technical Study Report - 2007, which was distributed to stakeholders in December 2007. • Majority of study area has been surveyed.	• Nov 27, 2007. Updated TWG on 2007 field activities and study results.	**Identification of Unknown Sites** • The cultural resources inventory field work was not completed in 2007 as outlined in the study plan. Outstanding field surveys will be completed in 2008. A supplemental report will be distributed to the stakeholders in 2008, as shown on Attachment C.	• Finalize CUL 1 – Cultural Resources Technical Study Report - 2007, incorporating stakeholder comments. • Complete field surveys to identify unknown sites in the study area. • Prepare and distribute a Supplemental Report documenting the results of field surveys conducted in 2008. • Develop recommendations regarding need for eligibility studies. • Prepare eligibility evaluation study plan, if needed. • Amend AI permit to cover Evaluation studies, if needed. • Conduct eligibility assessment(s), if needed. • If additional Project facilities, features, recreation facilities or dispersed concentrated use areas are identified, these areas will be surveyed consistent with the study plan.	None	None
Land Management						
LAND 1 Transportation System	None	N/A	None	• Identify and map Project roads and trails used by PCWA to access Project facilities and Project Recreation facilities and by the public to access dispersed concentrated use areas. • Conduct road assessment to characterize the current condition of Project roads and trails, and associated drainage features. • Inventory the location and condition of safety, traffic control and information signs and access control features along Project roads and trails. • Identify potential natural resource issues that occur along Project roads and trails. • Identify and characterize potential traffic safety concerns. • Identify and characterize current maintenance practices, schedules and responsibilities for Project roads and trails and non-Project general access roads. • Identify and map the locations of existing legal easements and right of ways associated with Project roads and trails. • Identify the location and condition of helicopter landing sites that are used top operate and maintain the MFP. • Identify and map non-Project General Access roads and trails used by the PCWA and the public to access Project facilities and non-Project recreation areas. • Characterize the general characteristics of non-Project General Access roads. • Identify and map Project related signs located along non-Project general access roads and trails. • Characterize use of non-Project General Access roads and trails. • Identify and map the location of areas that may be at risk to damage from natural events. • Identify and describe the location of any new roads or trails associated with Project betterments. • Determine whether the timing or level of road and trail use will change as a result of potential changes in MFP operation or maintenance activities.	None	None

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Land Management (continued)						
LAND 2 Fire Prevention and Response	None	N/A	None	• Identify and describe applicable federal, state and local fire prevention and management regulations, fuel treatment plans and agreements relevant to fire prevention on lands within the FERC Project boundary and within the Watershed. • Identify and map fuel and facility conditions. • Identify defense zones. • Identify and describe PCWA's existing and proposed fire prevention measures. • Identify and describe PCWA's fire resources and procedures.	None	None
LAND 3 Emergency Action and Public Safety	None	N/A	None	• Describe PCWA's Emergency Action Plan (EAP) and how the EAP is updated. • Describe PCWA's planning efforts and response activities related to emergency situations not covered under the EAP. • Describe how PCWA communicates and coordinates with state, federal, and local agencies during emergency events in the vicinity of the MFP. • Describe PCWA's public and worker safety measures. • Describe PCWA's planning efforts and response activities related to incidents or emergencies involving the public, employees, or contractors. • Characterize the number, type and location of incidents and associated emergency response efforts that have occurred in the vicinity of the MFP.	None	None
LAND 4 FERC Boundary and Authorization	None	N/A	None	• Identify and map the location of all existing Project facilities, roads, trails, etc. in relation to the FERC Project boundary. • Identify Project facilities that lie outside the current FERC Project boundary. • Identify and map legal easements and ROWs associated with the MFP. • Compile and summarized current authorizations and other Project-related agreements. • Identify and map proposed facilities and inundation areas associated with proposed Project betterments in relation to the current FERC Project boundary. • Identify and map the location of construction, staging, and disposal areas in relation to the current FERC Project boundary.	None	None
Recreation Resources						
REC 1 Recreation Use and Facilities Assessment	• Vehicle counts initiated in May 2007. • Acquisition of existing use data available from USFS and ASRA in progress. • Data compilation, tabulation, and evaluation in progress.	• Jan 15, 2008: Distributed vehicle count data and summary to TWG.	None	• Continue vehicle counts through May 2008. • Continue acquisition of existing use data. • Compile and evaluate vehicle count data. • Conduct facility assessments.	None	None
REC 2 Recreation Visitor Surveys	• Developed draft general visitor survey instrument in consultation with TWG. • Assessed vehicle count data to support development of general visitor survey sampling strategy.	• Oct 1-2, 2007: Discussed and refined draft general visitor survey instrument. • Dec 10, 2007: Discussed and refined draft general visitor survey instrument.	None	• Finalize general visitor survey instrument in consultation with TWG. • Develop survey protocols and procedures based on vehicle count data. • General visitor surveys to be administered during the summer of 2008.	None	None
REC 3 Reservoir Recreation Opportunities	None	N/A	None	• Characterize existing recreation opportunities. • Characterize the relationship between reservoir water surface elevation (WSE) and current and future reservoir-based recreation opportunities. • Characterize existing and future WSE-related operational constraints. • Identify assess access and safety concerns. • Develop information about potential user conflicts.	None	None

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Recreation Resources (continued)						
REC 4 Stream-based Recreation Opportunities	• Acquisition of existing recreation information and hydrologic data in progress.	N/A	None	• Establish focus groups. • Develop questions for focus group discussions. • Conduct focus group interviews during spring of 2008. • Establish flow study groups. • Develop flow study survey instruments. • Conduct angling, stream crossing, and boating flow studies during spring and summer of 2008, in coordination with implementation of AQ 1 – Instream Flow TSP.	None	None
REC 5 Visual Quality Assessment	• Identified Key Observation Points (KOPs) with USFS in October 2007. • Photo-documented low water visual conditions at Hell Hole and French Meadows reservoirs in October 2007.	N/A	None	• Photo-document high water conditions at Hell Hole and French Meadows reservoirs in July 2008. • Conduct Visual Management System inventory. • Document existing visual condition of all existing Project facilities.	None	None
Terrestrial Resources						
TERR 1 Vegetation Communities and Wildlife Habitat	**Vegetation Communities** • Developed preliminary vegetation community maps from available Calveg data. • Verified Calveg data against aerial photos and Project video. • Conducted ground-truth surveys. • Developed final vegetation community maps. **Wildlife Habitats** • Developed Calveg-CWHR Crosswalk table for the MFP. • Developed preliminary vegetation density maps from aerial photos and Project video. • Conducted vegetation density ground-truth surveys and collected data on tree size classes. • Developed final vegetation density and tree size class maps.	• Nov 6, 2007: Provided overview of study results	**Reporting** • Timing of the distribution of the 2007 draft Technical Study Report was delayed because additional time was needed to complete data analysis and to prepare final vegetation community maps (see Attachment C). **Vegetation Mapping** • A detailed description of the riparian community at the mouth of Five Lakes Creek and at upper Hell Hole Reservoir could not be completed in 2007 because the existing topographic information was insufficient to accurately identify the new inundation area associated with the Hell Hole Reservoir Seasonal Storage Increase betterment. This study element will be completed in 2008 using detailed photogrammetry-based topographic mapping of the inundation zone. A supplemental report documenting the results of this effort will be distributed in late 2008 (see Attachment C).	• Develop detailed descriptions of riparian vegetation communities at the mouth of Five Lakes Creek, and at upper Hell Hole Reservoir (To be completed as part of AQ 10 – Riparian Resources TSP). • If additional Project facilities, features, recreation facilities or dispersed concentrated use areas are identified, these areas will be surveyed consistent with the study plan.	None	None
TERR 2 Special-Status Plants	None	N/A	None	• Identify and map special-status plants, fungi, and mosses at existing Project facilities, features, recreation facilities, and dispersed concentrated use areas, and at areas associated with proposed Project betterments. • Identify and map special-status aquatic and riparian plants and mosses at quantitative geomorphic and riparian sampling sites in bypass and peaking reaches.	None	None
TERR 3 Noxious Weeds	None	N/A	None	• Identify and map known occurrences of noxious weed populations at existing Project facilities and features, recreation facilities, and dispersed concentrated use areas, and at areas associated with proposed Project betterments. • Consult with USDA-FS personnel to develop a list of noxious weeds and invasive non-native plants of highest concern in the ENF and TNF. • Conduct noxious weed surveys. • Develop a GIS map of noxious weeds and invasive non-native plants with respect to Project facilities, Project betterments, etc. • If additional Project facilities, features, recreation facilities or dispersed concentrated use areas are identified, these areas will be surveyed consistent with the study plan.	None	None

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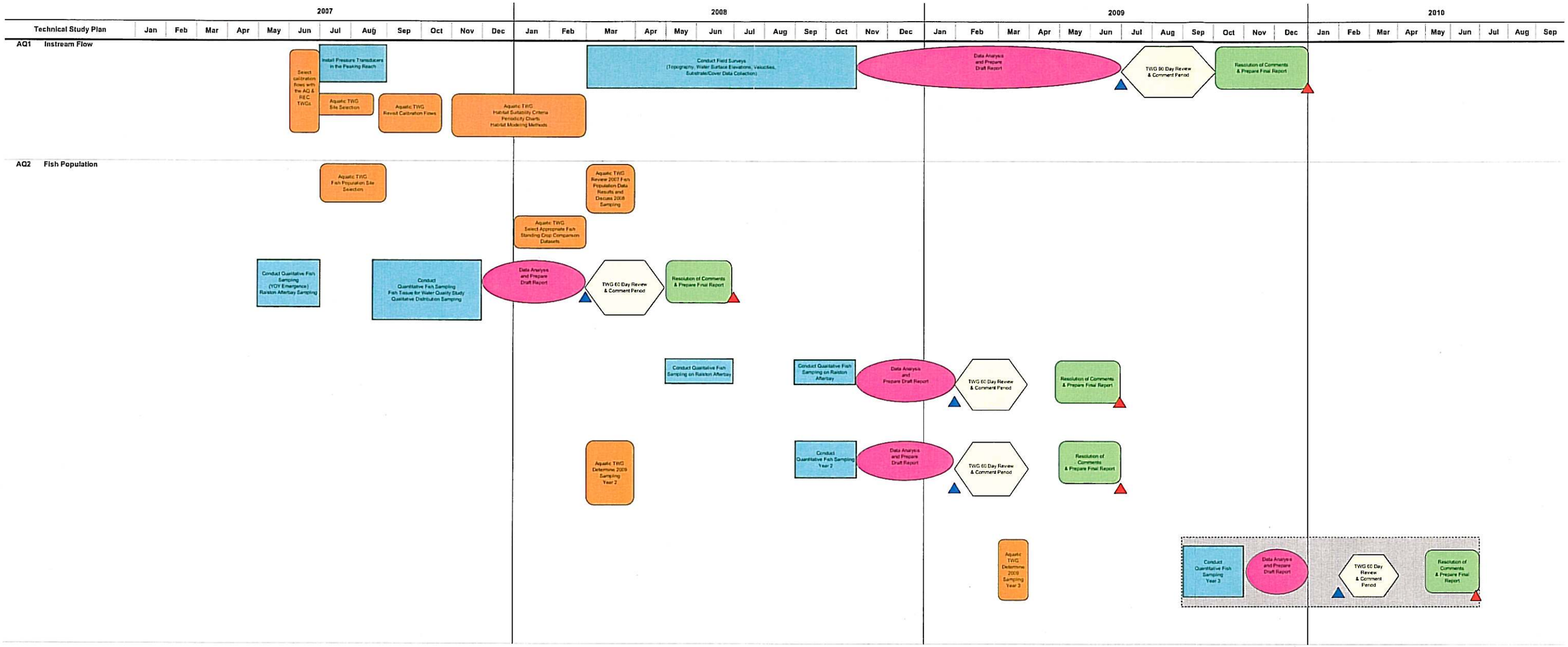
Terrestrial Resources (continued)						
TERR 4 Special-Status Wildlife	• Identified and mapped known occurrences of special-status wildlife species. • Determined Project communication line and powerline consistency with APLIC Guidelines. • Documented incidental observations of special-status species during Project field surveys in 2007. • Obtained USDA-FS GIS data layers of northern goshawk, California spotted owl, Pacific fisher, and pine marten land allocations. • Obtained USDA-FS GIS data layers documenting potential willow flycatcher habitat.	• Nov 6, 2007: Provided overview of study elements and preliminary results.	None	**General Wildlife** • Identify and map wildlife species potentially occurring within CWHR designations. • Conduct general wildlife surveys at potential Project betterments. • If additional Project facilities, features, recreation facilities or dispersed concentrated use areas are identified, these areas will be surveyed consistent with the study plan. **Osprey** • Conduct osprey nest surveys in conjunction with bald eagle nest surveys. • Develop GIS map of osprey occurrences and nests. **Northern Goshawk** • Develop GIS map of existing northern goshawk information with respect to Project facilities, etc. • Conduct northern goshawk surveys at potential Project betterments. **California Spotted Owl** • Develop GIS map of California spotted owl land allocations and known occurrences with respect to Project facilities, etc. **Willow Flycatcher** • Develop GIS map of willow flycatcher nesting habitat and known occurrences with respect to Project facilities, etc. **Mesocarnivores** • Develop GIS map of mesocarnivore land allocations and known occurrences with respect to Project facilities, etc. **Mule Deer** • Update GIS map of deer herd migration patterns and important habitats in the MFP watershed.	None	None
TERR 5 Bald Eagle	• Conducted December and January winter roost survey. • Conducted Project communication line and powerline evaluation.	N/A	None	• Conduct February winter roost surveys. • Conduct nesting surveys. • Develop GIS map documenting bald eagle winter roost and nest sites.	None	None
TERR 6 Special-Status Bats	• Developed preliminary map of know occurrences. • Conducted facility assessment. • Selected survey locations. • Conducted reproductive surveys. • Conducted seasonal use surveys. • Developed map of known special-status bat occurrences in the study area. • Development of technical study report in progress.	• Aug 13, 2007: Provided overview of facility assessment results and selected proposed sampling sites and survey methods.	None	• If additional Project facilities, features, recreation facilities or dispersed concentrated use areas are identified, these areas will be surveyed consistent with the study plan.	None	None

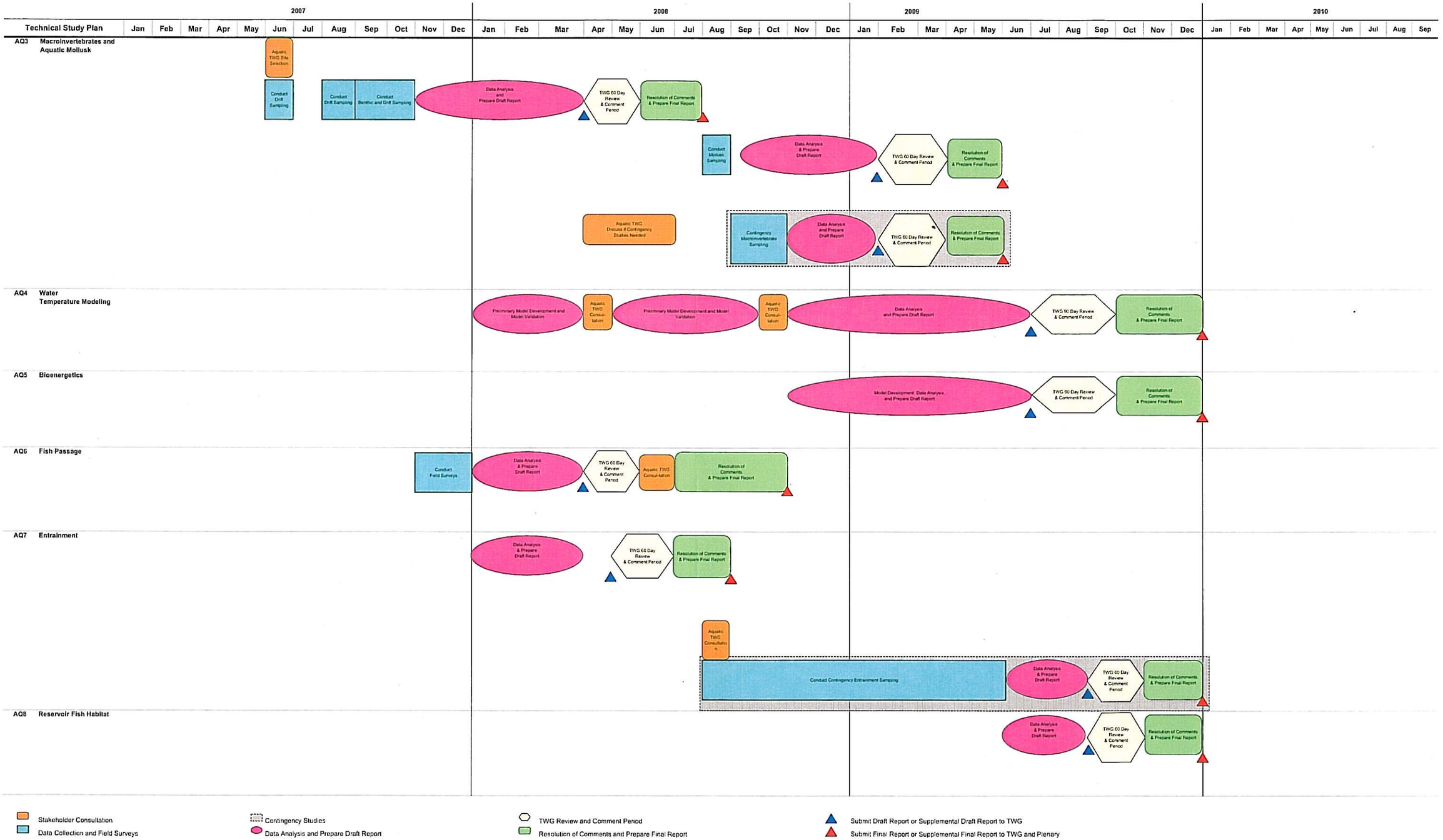
ATTACHMENT C

Implementation Schedules for Technical Study Plans

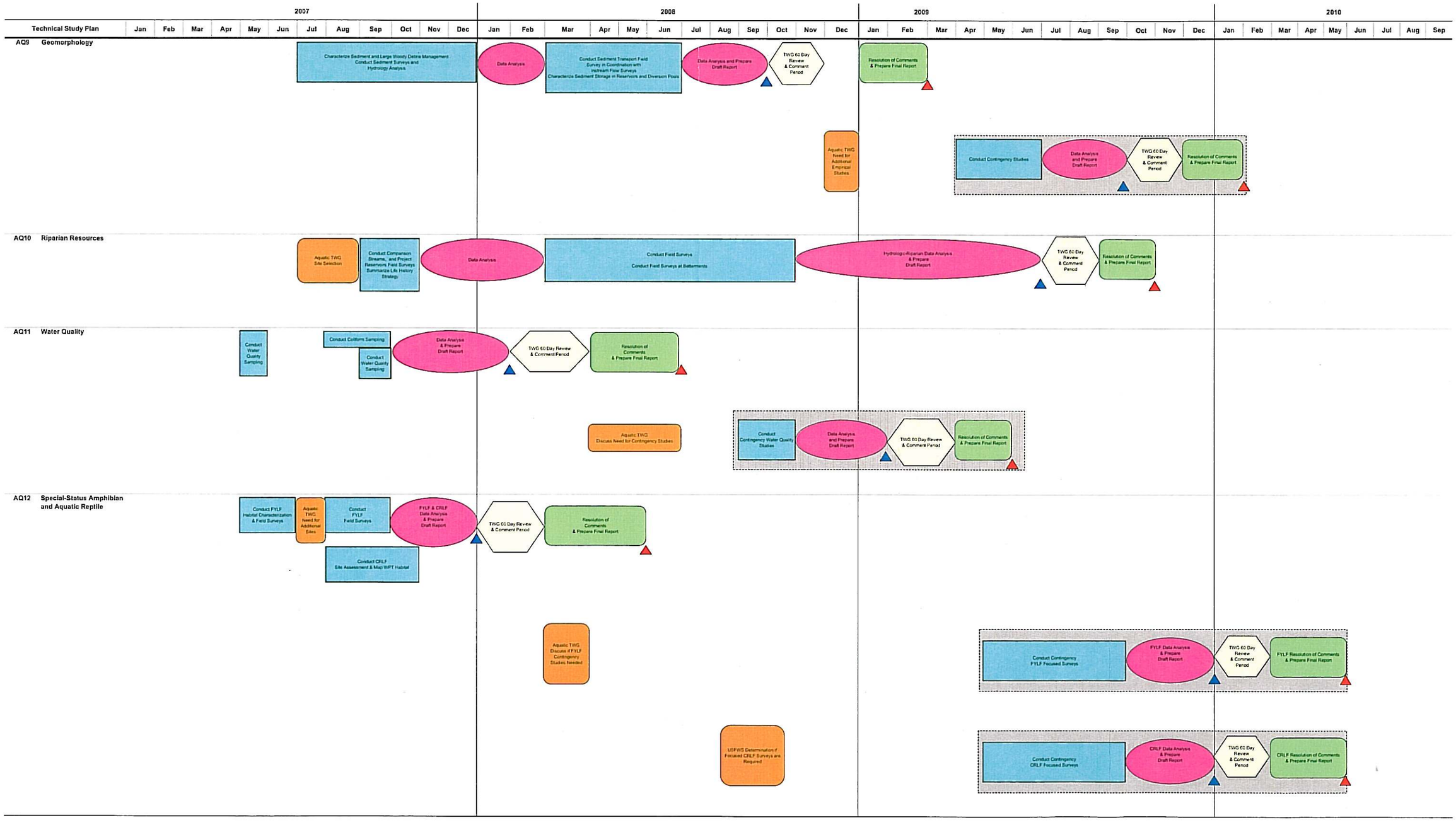
Attachment C. Implementation Schedule for Technical Study Plans as of January 22, 2008.
Aquatic Resources



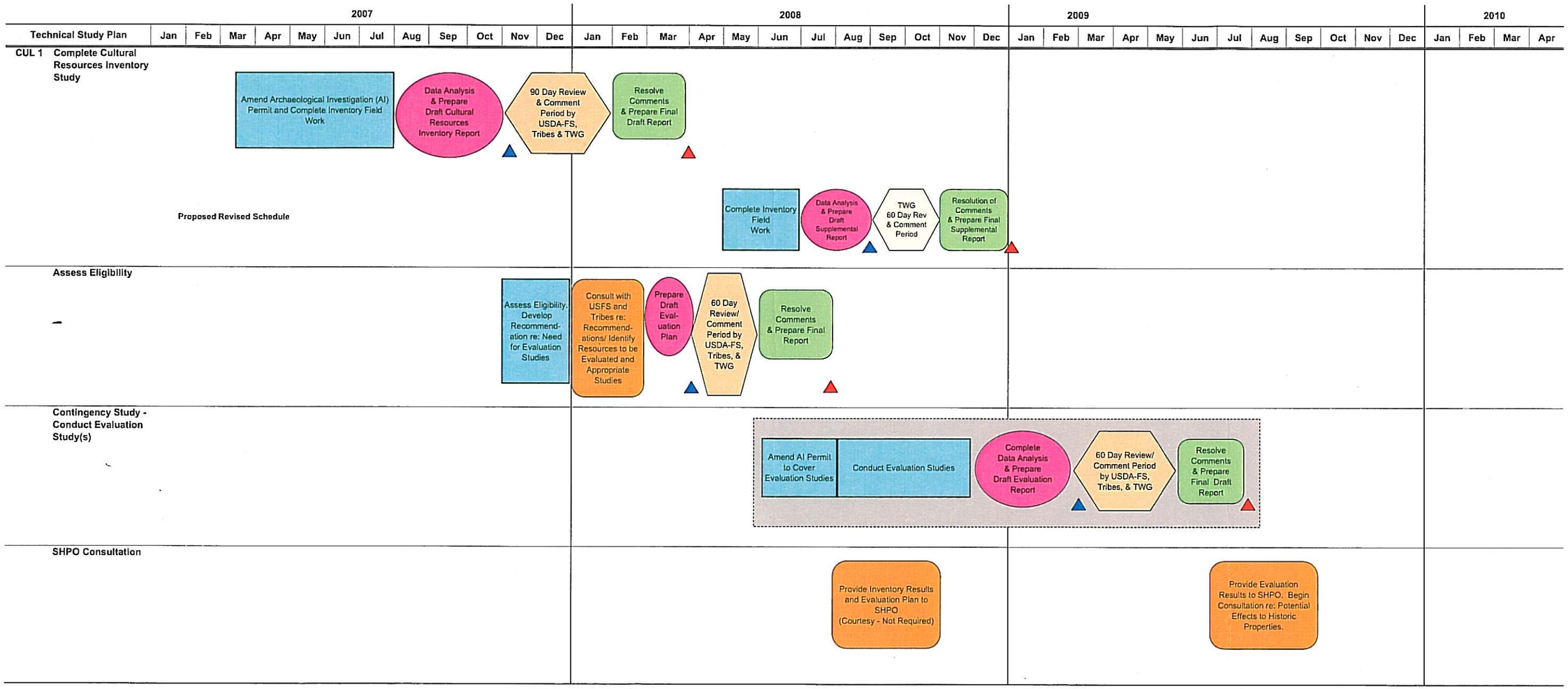
Attachment C. Implementation Schedule for Technical Study Plans as of January 22, 2008 (continued).
Aquatic Resources



Attachment C. Implementation Schedule for Technical Study Plans as of January 22, 2008 (continued).
Aquatic Resources

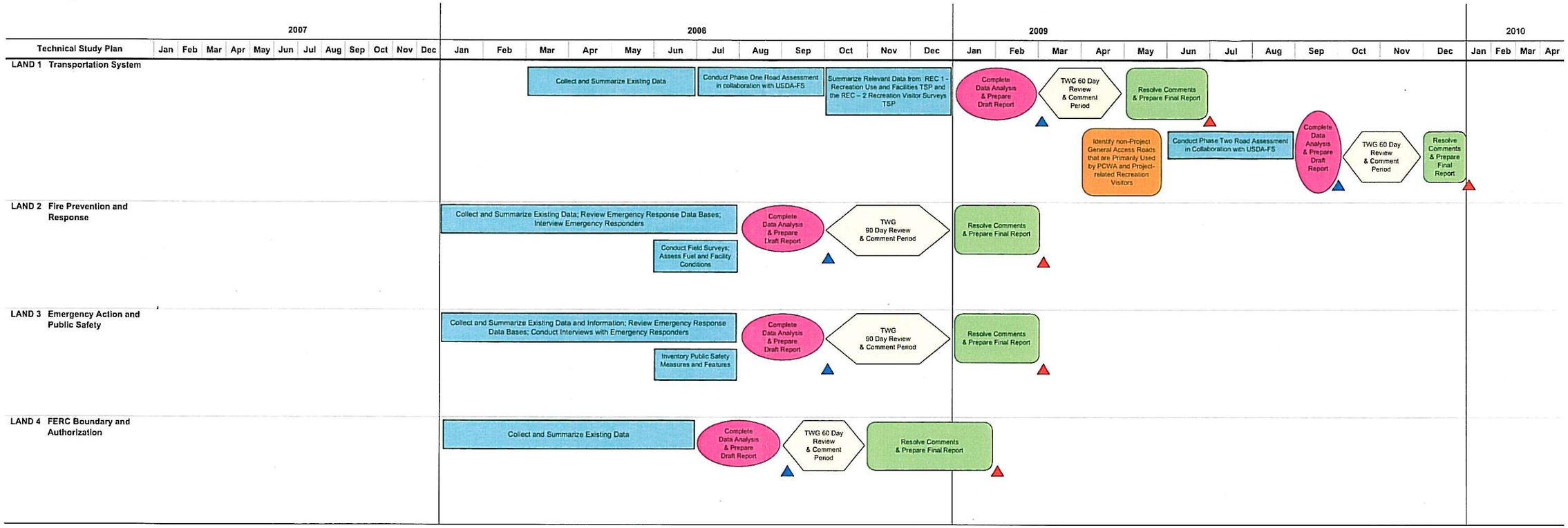


Attachment C. Implementation Schedule for Technical Study Plans as of January 22, 2008 (continued).
Cultural Resources



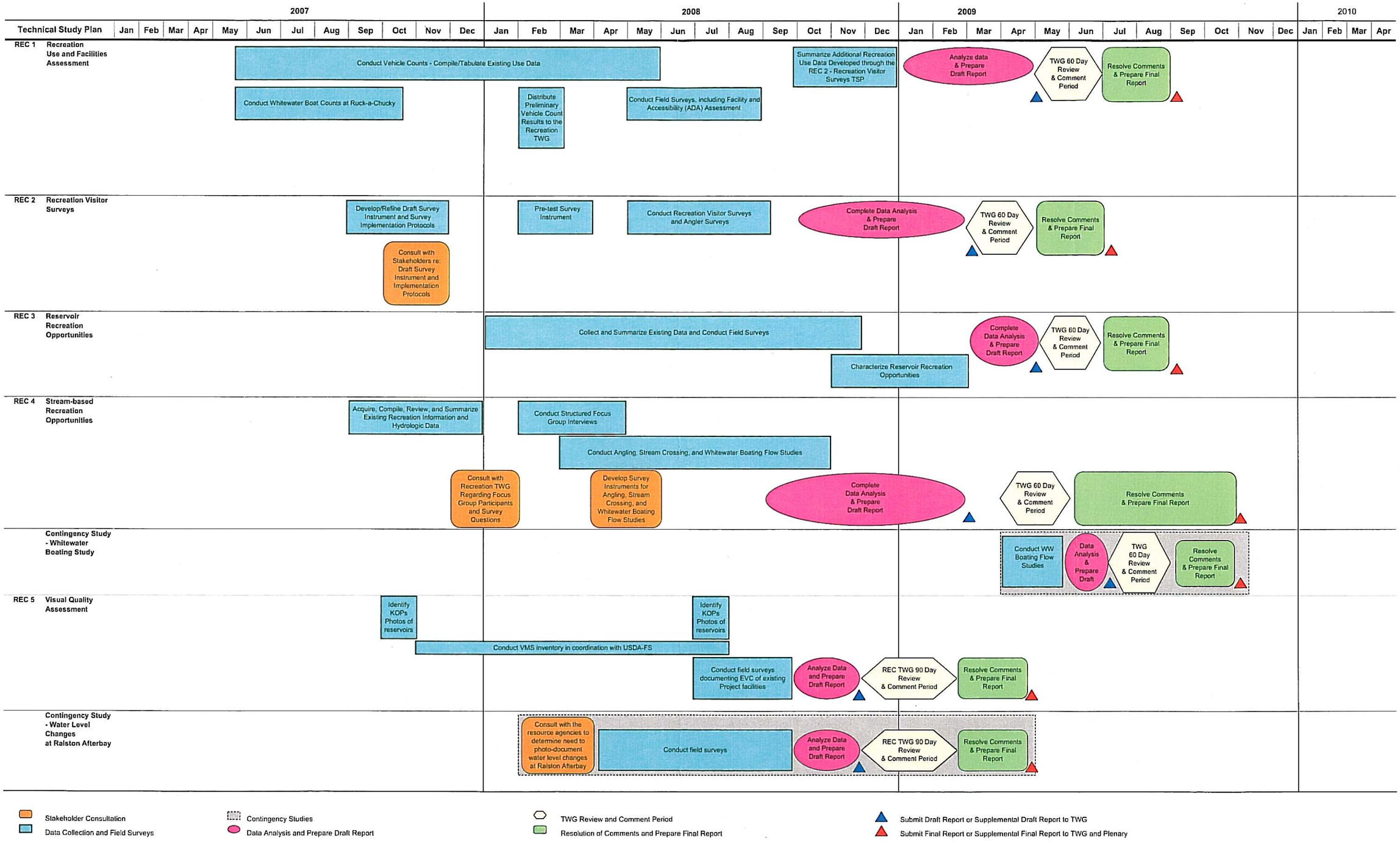
Stakeholder Consultation
Data Collection and Field Surveys
Contingency Studies
Data Analysis and Prepare Draft Report
TWG Review and Comment Period
Resolution of Comments and Prepare Final Report
Submit Draft Report or Supplemental Draft Report to TWG
Submit Final Report or Supplemental Final Report to TWG and Plenary

Attachment C. Implementation Schedule for Technical Study Plans as of January 22, 2008 (continued).
Land Management



Stakeholder Consultation
Data Collection and Field Surveys
Contingency Studies
Data Analysis and Prepare Draft Report
TWG Review and Comment Period
Resolution of Comments and Prepare Final Report
Submit Draft Report or Supplemental Draft Report to TWG
Submit Final Report or Supplemental Final Report to TWG and Plenary

Attachment C. Implementation Schedule for Technical Study Plans as of January 22, 2008 (continued).
Recreation Resources



Attachment C. Implementation Schedule for Technical Study Plans as of January 22, 2008 (continued).
Terrestrial Resources