

Section 5: Methods, Performance Actions, and Milestones

Method: Adaptive Management Strategy

The goal of the LMP is to protect and improve lake water quality by limiting basin-wide nutrient inputs that impair lake water quality conditions, which in turn influence the solubility of mining-related metals contamination contained in lake sediments.

The overall strategy embodied in the 2009 LMP to accomplish this goal is adaptive management. At its core, this approach relies on monitoring to establish lake conditions and track changes over time, modeling to predict possible future scenarios if key factors change, implementation of actions to reduce nutrients, and finally, more monitoring to determine lake response relative to the overall goal. Monitoring will guide decisions about the need for additional implementation actions on a repeating annual cycle. This process is consistent with what the National Academy of Sciences (NRC/NAS, 2005) outlined, as follows:

“Adaptive management is a six-step process for defining and implementing management policies for environmental resources under conditions of high uncertainty concerning the outcome of management actions. A well-structured adaptive management plan contains the following interactive steps:

- 1. Assessing the problem*
- 2. Designing a management plan*
- 3. Implementing the plan*
- 4. Monitoring*
- 5. Evaluating results obtained from monitoring*
- 6. Adjusting the management plan in response to the monitoring results.”*

DEQ and the Tribe plan a comprehensive 5-year review of LMP implementation (in 2015). Water quality trends, success of MAT implementation actions, and nutrient reduction projects will be examined.

There are several different scenarios that could result from the adaptive management process described above. If current regulations are being followed and enforced, and MAT recommendations are being implemented and demonstrated effective (as determined by improvements in lake water quality), then there would be no need to change regulations.

If the current regulations are being followed and enforced, and MAT recommendations are being implemented – yet water quality deteriorates, other actions will need to be taken. New and/or strengthened regulations within DEQ, Tribal, and MAT partner authorities may need to be established. If water quality deteriorates and current regulations are not being followed or

enforced adequately, and/or if BMPs are determined to be ineffective; then DEQ and the Tribe will work with the responsible authorities to ensure corrective steps are taken.

Performance Actions and Milestones

Performance actions lead to milestones that gauge success for each of the 2009 LMP strategies implemented. Performance actions are what the LMP partners set-out to accomplish, and the milestones are the outcome of these actions that determine success. The actions and milestones described below correspond with the Management Objectives and Strategies described more fully in Section 3.

5.1 Objective 1 – Improve Scientific Understanding of Lake Conditions through Monitoring, Modeling, and Special Studies

These *four strategic components* identified in Section 3.1 support this objective:

- 1) Establish water quality triggers (Tables 3 through 7)
- 2) Perform core routine monitoring of lake and rivers
- 3) Develop technical tools to support lake management
- 4) Conduct special studies

Performance actions for this strategy are:

- Manage lake water quality with respect to trends and action trigger levels for all monitored water quality variables
- Conduct core routine monitoring to build the data record for tracking water quality conditions and trends, and for use in verifying and improving model performance
- Carry out additional monitoring and special studies in response to specific needs
- Use the ELCOM-CAEDYM model as an analytical and predictive tool
- Summarize monitoring data and analysis through annual reports, and presentations to technical and other forums

Milestones for this strategy include:

- Management activities based on water quality trends and triggers are adjusted as necessary. Trend data is the measure of the success or failure of management actions and provides an “early warning system” for water quality deterioration. Therefore, management actions need to be adjusted in order to reverse negative trends that approach or exceed a water quality trigger. A trigger is an endpoint, while trend data is a continuum that needs to be evaluated on a yearly basis. Progress will be gauged on a yearly basis, and will be determined by whether there are significant differences in water quality variables from the previous year’s data.

The Tribe and DEQ are aware that certain triggers are already exceeded (in addition to the exceedances of metals WQS), in particular the triggers for total phosphorus, chlorophyll *a*, and dissolved oxygen in southern waters. Therefore, nutrient reduction actions are immediately needed. Examples of current projects to address these exceedances of water quality triggers include: the Plummer Creek watershed nutrient load assessment, sediment reduction projects in the Benewah Creek watershed, and an invasive aquatic weed control program. Completion of the nutrient inventory will identify additional nutrient reduction projects.

- Annual core routine monitoring program completed. Sampling will begin in the winter-early spring (December through March) and end in late November or early December.
- Annual “state of lake water quality” updates described in Section 2 (including modeling results) are published. Evaluation of data will occur (December through February) after the last field data for the year is collected (late November or early December). Yearly “state of the lake” water quality reports will be written and finalized by the spring of the new field season.
- Use special study results to guide management actions. Key questions will need to be framed and special studies designed to answer them. The studies will need to be planned and prioritized for implementation, utilizing existing staff or with additional funding.

5.2 Objective 2 – Establish and Strengthen Partnerships to Maximize Benefits of Actions under Existing Regulatory Frameworks

These *five strategic components* identified in Section 3.2 support this objective:

- 1) Use MATs to coordinate partnerships to implement the 2009 LMP
- 2) Improve understanding of authorities
- 3) Engage with land managers to identify opportunities in annual workplans
- 4) Collaborate to implement projects when appropriate
- 5) Evaluate MAT actions routinely and repeat the audit at 5-year intervals

Performance actions for this strategy are:

- Review and update MATs during annual workplan coordination with partners
- Meet with basin partners to promote understanding of authorities and consult on annual work plan development. This activity will commence immediately and be ongoing throughout the life of the LMP.
- Coordinate and implement MATs activities with basin partners, including an initial focus on Table C7 regarding river bank erosion and stabilization
- Integrate the 2009 LMP goal, objectives, and strategies in annual work plans of LMP partners

Milestones for this strategy are:

- LMP partner activities funded and implemented
- Meetings conducted with LMP partners to track MATs activities and effectiveness
- Projects funded and implemented
- Quarterly reports delivered to partners and the public
- Annual update of MATs completed
- 5-year audit of MATs completed

5.3 Objective 3 – Develop and Implement a Nutrient Reduction Action Plan

These *four strategic components* identified in Section 3.3 support this objective:

- 1) Design and conduct a basin-wide nutrient source inventory
- 2) Prioritize projects based on inventory
- 3) Incorporate TMDLs into the nutrient reduction plan
- 4) Incorporate Avista mitigation program into nutrient reduction plan

Performance Actions for this strategy are:

- Conduct a basin-wide inventory
- Identify, prioritize, and implement additional nutrient reduction projects including Avista mitigation measures that will help manage nutrient inputs into the lake
- Complete and implement TMDLs

Milestones for this strategy are:

- A basin-wide nutrient inventory funded, designed and conducted during 2010-2012
- Data analyzed and environmental database with GIS maps of nutrient loading developed
- Additional projects for nutrient reduction, including: wastewater treatment upgrades, subsurface sewage system upgrades, agricultural land restoration, riparian restoration, streambank stabilization, invasive aquatic weed control, and improvement/maintenance of road systems, are identified and scheduled
- Results of inventory shared with LMP partners and broader public
- WAGs established for TMDL development and implementation of sediment and nutrient reduction

Table 3. Water Quality Triggers for Station C1: SE of Tubbs Hill – Northern Pool, North End at 40 meters (see Appendix A, Figure A1 for map of stations)

Variables	CY91-92 Condition ^a	WY04-06 Condition ^a	Idaho WQ Standards Criteria (IDAPA 58.01.02)	Desired Condition	Trigger Condition
Total phosphorus 1 m – 30 m depth ^b	2.7 µg/L geomean ^c	5.0 µg/L geomean	nutrient narrative (200.06)	no greater than WY04-06 condition	8.0 µg/L annual geomean ^d
Dissolved oxygen in hypolimnion	minimum >6.0 mg/L	minimum >6.0 mg/L	hypolimnion exempt (250.02.a.iii)	minimum >6.0 mg/L	minimum <6.0 mg/L
Chlorophyll <i>a</i> in photic zone	0.46 µg/L (0.92 µg/L) ^e geomean 1.3 µg/L max (1.7 µg/L max) ^e	1.57 µg/L geomean 3.3 µg/L max	nutrient narrative(200.06)	no greater than WY04-06 condition	3.0 µg/L annual geomean ^f 5.0 µg/L max
Blue-green algae (cyanobacteria) blooms	blue-greens minor component	not measured	nutrient narrative (200.06)	blue-greens minor component	blue-greens are dominant algal group with seasonal blooms
Water clarity Secchi depth July – October	8.3 m geomean	9.4 m geomean	none	no less than CY91-92 condition	clarity trigger may reflect chlorophyll <i>a</i> trigger
Dissolved zinc 1 m ≈ 39 m ^g (1 m off bottom)	only total zinc measured	62 µg/L geomean 33-91 range	36 µg/L CCC ^h (210.02 & 210.03)	meet Idaho WQS	already consistently exceeds WQS
Dissolved lead 1 m ≈ 39 m (1 m off bottom)	only total lead measured	0.12 µg/L geomean 0.05-0.88 rng	0.54 µg/L CCC (210.02 & 210.03)	meet Idaho WQS	when WQS are exceeded
Diss. cadmium 1 m ≈ 39 m (1 m off bottom)	only total cadmium measured	0.23 µg/L geomean 0.15-0.52 rng	0.25 µg/L CCC (210.02 & 210.03)	meet Idaho WQS	already occasionally exceeds WQS

a = CY91-92 - USGS baseline study, annual sampling from January 1991 – December 1992.
WY04-06 - USGS study, annual sampling from October 2003 – August 2006.

b = Data combined for composite photic zone samples and discrete samples at 20 m and 30 m.

c = Geometric mean - used by USGS to summarize data in the CY91-92 studies. A geometric mean dampens the effect of a few very high or very low sample results as compared to an arithmetic mean.

d = A consistent annual trend of 8 µg/L geometric mean for total phosphorus would be a statistically significant upward departure from the CY91-92 data set.

e = Chlorophyll *a* analysis methods changed from CY91-92 to WY04-06. Thus, the USGS did a paired study of chlorophyll *a* samples using the two analytical methods and derived a statistical relationship that adjusts the original chlorophyll *a* values for CY91-92 (first listed value) to values comparable to the WY04-06 data (values in parenthesis).

Footnotes for Table 3, cont.

- f = Based on a transitioning between the current oligotrophic condition and a meso-oligotrophic condition. An annual geometric mean of 3 µg/L chlorophyll *a* would be a doubling of the mean from the WY04-06 data set.
- g = Data combined for composite photic zone samples and discrete samples at 20 m, 30 m, and 1 m off bottom.
- h = CCC is Criterion Continuous Concentration – 4 day average concentration that ensures adequate protection of sensitive species of aquatic organisms from chronic toxicity. The CCC is not to be exceeded more than once every 3 years. The CCC was calculated with a total hardness of 25 mg/L as CaCO₃ (Idaho WQS uses a lower hardness cap of 25 mg/L to calculate CCC for dissolved metals).

Table 4. Water Quality Triggers for Station C4: NE of University Point – Northern Pool, South End at 40 meters

Variables	CY91-92 Condition ^a	WY04-06 Condition ^a	Idaho WQ Standards Criteria (IDAPA 58.01.02)	Desired Condition	Trigger Condition
Total phosphorus 1 m – 30 m depth ^b	3.8 µg/L geomean ^c	6.2 µg/L geomean	nutrient narrative (200.06)	no greater than WY04- 06 condition	8.0 µg/L annual geomean ^d
Dissolved oxygen in hypolimnion	minimum >6.0 mg/L	minimum >6.0 mg/L	hypolimnion exempt (250.02.a.iii)	minimum >6.0 mg/L	minimum <6.0 mg/L
Chlorophyll <i>a</i> in photic zone	0.48 µg/L (0.94 µg/L) ^e geomean 1.5 µg/L max (1.8 µg/L max) ^e	1.55 µg/L geomean 3.1 µg/L max	nutrient narrative (200.06)	no greater than WY04- 06 condition	3.0 µg/L annual geomean ^f 5.0 µg/L max
Blue-green algae (cyanobacteria) blooms	blue-greens minor component	not measured	nutrient narrative (200.06)	blue-greens minor component	blue-greens are dominant algal group with seasonal blooms
Water clarity Secchi depth July – October	7.7 m geomean	8.6 m geomean	none	no less than CY91-92 condition	clarity trigger may reflect chlorophyll <i>a</i> trigger
Dissolved zinc 1 m ≈ 39 m ^g (1 m off bottom)	only total zinc measured	68 µg/L geomean 36-104 range	36 µg/L CCC ^h (210.02 & 210.03)	meet Idaho WQS	already consistently exceeds WQS
Dissolved lead 1 m ≈ 39 m (1 m off bottom)	only total lead measured	0.27 µg/L geomean 0.05-2.76 rng	0.54 µg/L CCC (210.02 & 210.03)	meet Idaho WQS	already occasionally exceeds WQS
Diss. cadmium 1 m ≈ 39 m (1 m off bottom)	only total cadmium measured	0.26 µg/L geomean 0.16-0.43 rng	0.25 µg/L CCC (210.02 & 210.03)	meet Idaho WQS	already frequently exceeds WQS

For footnotes a – h, see for Table 3 for Station C1.

Table 5. Water Quality Triggers for Shallow Bays of Northern Pool – Shoreline to ≈ 20 meters

Variables	Summer 91-92 and July – Oct 95-02 ^a	WY04-06 Condition ^b	Idaho WQ Standards Criteria (IDAPA 58.01.02)	Desired Condition	Trigger Condition
Nearshore periphyton & aquatic plants ^c	periphyton production in bays - 1992	not measured	nutrient narrative (200.06)	to be determined by nearshore LMP studies	to be determined by nearshore LMP studies
Eurasian milfoil	not present	not present	none	not present	present
Total phosphorus water column	5.7 µg/L geomean 1991 - 2002	5.8 µg/L geomean	nutrient narrative (200.06)	no greater than current condition	9.0 µg/L annual geomean ^d
Dissolved oxygen to near bottom	minimum >6.0 mg/L 1991 - 2002	dissolved oxygen data not reported	min. >6.0 mg/L bottom 20% of depth exempt (250.02.a.iii)	minimum >6.0 mg/L	minimum <6.0 mg/L
Chlorophyll <i>a</i> in photic zone	0.40 µg/L (0.90 µg/L) ^e geomean 1.7 µg/L max (2.0 µg/L max) ^e 1991 - 1992	1.2 µg/L geomean 3.5 µg/L max	nutrient narrative (200.06)	no greater than current condition	3.0 µg/L annual geomean ^f 5.0 µg/L max
Water clarity Secchi depth 10 m and deeper July – Oct.	8.1 m geomean 1991 - 2002	not measured	none	no less than current condition	clarity trigger may reflect chlorophyll <i>a</i> trigger
Blue-green algae (cyanobacteria) blooms	not measured	not measured	nutrient narrative (200.06)	blue-greens - minor component	blue-greens are dominant algal group with season blooms
Coliform bacteria	not measured	not measured	126 <i>E. coli</i> /100 ml geomean of 5 samples/30 days (251.01.c ^g)	meet Idaho WQS	when WQS are exceeded
Dissolved zinc water column	58 µg/L geomean 28-272 range 1995 - 2002	49 µg/L geomean 25-98 µg/L range	36 µg/L CCC (210.02 & 210.03)	meet Idaho WQS	already consistently exceeds WQS
Dissolved lead water column	samples <det. limit of 3 µg/L 1995 - 2002	0.17 µg/L geomean 0.05-1.24 range	0.54 µg/L CCC (210.02 & 210.03)	meet Idaho WQS	already occasionally exceeds WQS
Diss. cadmium water column	samples <det. limit 0.5 µg/L 1995 - 2002	0.19 µg/L geomean 0.10-0.35 range	0.25 µg/L CCC (210.02 & 210.03)	meet Idaho WQS	already occasionally exceeds WQS

Footnotes for Table 5

- a = These data are from USGS sampling in summer months for 1991-92 baseline study, and DEQ sampling for July – Oct., 1995–2002.
- b = WY04-06 – these data are from USGS study with periodic sampling within littoral bay areas from October 2003 – October 2005. Data was combined for littoral stations NS3 through NS12 (see Appendix A, Figure A1 for map of sampling stations).
- c = Periphyton is attached algae growing on natural and artificial substrates.
- d = Based on a numerical total phosphorus target established for the nutrient TMDL of near shore waters of Pend Oreille Lake, Idaho (Tetra Tech, 2002).
- e = Chlorophyll *a* analysis methods changed from CY91-92 to WY04-06. Thus, the USGS did a paired study of chlorophyll *a* samples using the two analytical methods and derived a statistical relationship that adjusts the original chlorophyll *a* values for CY91-92 (first listed value) to values comparable to the WY04-06 data (values in parenthesis).
- f = Based on a transitioning between the current oligotrophic condition to a meso-oligotrophic condition. An annual geometric mean of 3 µg/L chlorophyll *a* would be a doubling of the mean from the WY04-06 data set.
- g = For areas that are specified as public swimming beaches, the criteria is 235 *E. coli*/100 ml for a single sample (251.01.a).

Table 6. Water Quality Triggers for Station C5: NE of Blue Point – Southern Pelagic Site South of Harrison.

Parameter	CY91-92 Condition ^b	WY04-06 Condition ^b	Coeur d'Alene Tribe WQ Standards Criteria ^c	Desired Condition	Trigger Condition
Total Phosphorus (euphotic zone) ^d	6.1 µg/L geomean ^e	11.2 µg/L geomean	Narrative ^c	no greater than CY91-92 condition	8.0 µg/L annual geomean
Total Phosphorus (1 m off bottom)	6.1 µg/L geomean	15.6 µg/L geomean	Narrative	no greater than CY91-92 condition	8.0 µg/L annual geomean
Dissolved Oxygen in hypolimnion	minimum 2.8 mg/L	minimum 2.5 mg/L	minimum >8.0 mg/L	minimum >8.0 mg/L	minimum <8.0 mg/L
Chlorophyll <i>a</i> in photic zone	0.68 µg/L (1.13 µg/L) ^f geomean 1.9 µg/L (2.21 µg/L d) ^f max	1.56 µg/L geomean 5.3 µg/L max	Narrative	no greater than CY91-92 adjusted condition ^f	3.0 µg/L annual geomean 5.0 µg/L max
Blue-green algae (cyanobacteria) blooms	blue-greens minor component	not measured	Narrative	blue-greens minor component	blue-greens are dominant algal group with seasonal blooms
Water Clarity Secchi depth July – October	5.2 m geomean	5.6 m geomean	Narrative	no less than WY04-06 condition	clarity trigger may reflect chlorophyll <i>a</i> trigger
Dissolved zinc (euphotic zone)	only total zinc measured	17.0 µg/L geomean 1.4-60.0 range	26-37 µg/L CCC ^g	meet CDA Tribe WQS	already exceeds WQS
Dissolved zinc (1 m off bottom)	only total zinc measured	40.0 µg/L geomean 4.2-83.0 range	27-37 µg/L CCC	meet CDA Tribe WQS	already exceeds WQS
Dissolved lead (euphotic zone)	only total lead measured	0.15 µg/L geomean 0.05-0.7 range	0.39-0.56 µg/L CCC	meet CDA Tribe WQS	already exceeds WQS
Dissolved lead (1 m off bottom)	only total lead measured	0.18 µg/L geomean 0.05-1.2 range	0.45-0.55 µg/L CCC	meet CDA Tribe WQS	already exceeds WQS
Diss. cadmium (euphotic zone)	only total cadmium measured	0.08 µg/L geomean 0.02-0.20 range	0.19-0.26 µg/L CCC	meet CDA Tribe WQS	already exceeds WQS
Diss. cadmium (1 m off bottom)	only total cadmium measured	0.15 µg/L geomean 0.04-0.40 range	0.20-0.26 µg/L CCC	meet CDA Tribe WQS	already exceeds WQS

For footnotes b – g, see Table 7 for Station C6. Footnote ‘a’ in Table 7 does not apply to Station C5

Table 7. Water quality triggers for Station C6: Chatcolet Lake – Southern Pelagic Site^a

Variable	CY91-92 Condition ^b	WY04-06 Condition ^b	Coeur d'Alene Tribe WQ Standards Criteria ^c	Idaho WQ Standards Criteria (IDAPA 58.01.02)	Desired Condition	Trigger Condition
Total phosphorus (euphotic zone) ^d	9.0 µg/L geomean ^e	18.6 µg/L geomean	Narrative ^c	nutrient narrative (200.06)	no greater than CY91-92 condition	9.0 µg/L annual geomean
Total phosphorus (1 m off bottom)	15.8 µg/L geomean	32.4 µg/L geomean	Narrative	nutrient narrative (200.06)	no greater than CY91-92 condition	9.0 µg/L annual geomean
Dissolved oxygen in hypolimnion	minimum 0.0 mg/L	minimum 0.2 mg/L	minimum >8.0 mg/L	minimum >6.0 mg/L – bottom 20% of depth exempt (250.02.a.iii)	meet applicable WQS	when applicable WQS is exceeded
Chlorophyll <i>a</i> in photic zone	0.70 µg/L (1.22 µg/L) ^f geomean 2.9 µg/L (3.13 µg/L) ^f max	2.57 µg/L geomean (17.9 µg/L) max	Narrative	nutrient narrative (200.06)	no greater than CY91-92 adjusted condition ^f	3.0 µg/L annual geomean 5.0 µg/L max
Blue-green algae (cyanobacteria) blooms	blue-greens minor component	not measured	Narrative	nutrient narrative (200.06)	blue-greens minor component	blue-greens are dominant algal group with seasonal blooms
Eurasian milfoil	Unknown	present	None	none	not present	present
Water clarity Secchi depth July – October	3.1 m geomean	2.5 m geomean	Narrative	none	no less than CY91-92 condition	clarity trigger may reflect chlorophyll <i>a</i> trigger
Dissolved zinc (euphotic zone)	only total zinc measured	1.55 µg/L geomean 0.4-8.0 range	26-37 µg/L CCC ^g	36 µg/L CCC (210.02 & 210.03)	meet applicable WQS	when applicable WQS is exceeded
Dissolved zinc (1 m off bottom)	only total zinc measured	1.97 µg/L geomean 0.4-30.6 range	27-37 µg/L CCC	36 µg/L CCC (210.02 & 210.03)	meet applicable WQS	when applicable WQS is exceeded

Table 7. cont.

Variable	CY91-92 Condition ^b	WY04-06 Condition ^b	Coeur d'Alene Tribe WQ Standards Criteria ^c	Idaho WQ Standards Criteria (IDAPA 58.01.02)	Desired Condition	Trigger Condition
Dissolved lead (euphotic zone)	only total lead measured	0.08 µg/L geomean 0.04-0.23 range	0.39-0.56 µg/L CCC	0.54 µg/L CCC (210.02 & 210.03)	meet applicable WQS	when applicable WQS is exceeded
Dissolved lead (1 m off bottom)	only total lead measured	0.09 µg/L geomean 0.04-0.50 range	0.45-0.55 µg/L CCC	0.54 µg/L CCC (210.02 & 210.03)	meet applicable WQS	when applicable WQS is exceeded
Diss. cadmium (euphotic zone)	only total cadmium measured	0.04 µg/L geomean 0.04-0.15 range	0.19-0.27 µg/L CCC	0.25 µg/L CCC (210.02 & 210.03)	meet applicable WQS	when applicable WQS is exceeded
Diss. cadmium (1 m off bottom)	only total cadmium measured	0.04 µg/L geomean 0.04-0.06 range	0.20-0.27 µg/L CCC	0.25 µg/L CCC (210.02 & 210.03)	meet applicable WQS	when applicable WQS is exceeded

a = DEQ and the Tribe do not agree on the applicable WQS at this station. DEQ and the Tribe recognize that water quality conditions at this station are reasonably representative of water quality in the adjoining nearby TAS area. The listed "desired conditions" for this station therefore reflect the Tribe's WQS that are applicable to the TAS waters for which this station is representative. The "trigger conditions" for this station are the applicable WQS of both the Tribe and the State; the Tribe's WQS as applicable to the TAS area and, as to this station, the State and Tribe each apply their respective WQS.

b = CY91-92 - USGS baseline study, annual sampling from January 1991 – December 1992.
WY04-06 - USGS study, annual sampling from October 2003 – August 2006.

c = Coeur d'Alene Tribe, 2005. Water Quality Standards for Approved Surface Waters of the Coeur d'Alene Tribe. Prepared for the United States Environmental Protection Agency (Region 10).

d = Euphotic zone composite from surface to depth of 1% incident light (PAR).

e = Geometric mean - used by USGS to summarize data in the CY91-92 studies.

f = Chlorophyll *a* analysis methods changed from CY91-92 to WY04-06. Thus, the USGS did a paired study of chlorophyll *a* samples using the two analytical methods and derived a statistical relationship that adjusts the chlorophyll *a* value for the CY91-92 to make the values comparable to the WY04-06 data.

g = CCC is Criterion Continuous Concentration. Toxicity is dependent upon total hardness which ranged from 17.6-25.8 (mg/l) throughout the study periods (Tribal WQS utilizes actual hardness measured when below 25 mg/L to calculate CCC for dissolved metals).

5.4 Objective 4 – Increase Public Awareness of Lake Conditions and Influences on Water Quality

There are *five strategic components*, identified in Section 3.4 to support this objective:

- 1) Conduct a public education and outreach needs assessment
- 2) Develop and implement an education and outreach services plan including Lake*A*Syst
- 3) Establish a lake stewardship center
- 4) Develop and maintain a science and resource library
- 5) Coordinate with schools and youth organizations

Performance Actions for this strategy are:

- Develop a public education and outreach needs assessment survey instrument
- Conduct an assessment to understand community education and outreach service needs
- Evaluate results of needs assessment and determine the scope of public education and outreach plan
- Develop and implement a Lake*A*Syst program
- Establish a lake stewardship center
- Make a science and resource library available for public use
- Promote incorporation of LMP information into school curriculums and youth group organizations

Milestones for this strategy are:

- A needs assessment completed (year one)
- Education and outreach plan completed (year one)
- Lake*A*Syst program developed and implemented (year one)
- A lake stewardship center is established if needs assessment affirms priority
- Information materials developed to support public awareness and understanding
- A science and resource library is established
- Information has been incorporated into school curriculums and youth group organizations

5.5 Objective 5 – Establish Funding Mechanisms to Support the 2009 LMP Goals, Objectives, and Strategies

These *four strategic components* identified in Section 3.5 support this objective:

- 1) Identify core needs
- 2) Prioritize projects
- 3) Identify funding sources and secure commitments
- 4) Demonstrate fiscal accountability

Performance Actions for this strategy are:

- Seek firm funding commitments for Tier I Core program from State and Tribal governments and other available sources (Section 6, Table 8)
- Develop annual and 5-year LMP work plans
- Prioritize projects, based on established criteria (Section 3.5)
- Seek firm funding commitments for Tier II priority projects (Section 6, Table 9)
- Maintain fiscal accountability
- Create and maintain a tracking tool to document funding and project completion status

Milestones for this strategy are:

- Core program funding is obtained
- Project priorities are identified
- Funding requests for Tier II projects are completed
- Annual and 5-year implementation plans to support budget requests are completed
- Annual report on expenditures, as established by State Statute, Tribal Code, or grant conditions completed
- Annual report on project completion

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