



Newman Lake
Total Phosphorus
Total Maximum Daily Load

Water Quality Implementation Plan



June 2009
Publication No. 09-10-039

Publication and Contact Information

This report is available on the Department of Ecology's website at <http://www.ecy.wa.gov/biblio/0910039.html>

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Water Quality Implementation Plan

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Executive Summary

Newman Lake has experienced accelerated growth of algae, related blooms, and aquatic plants during the summer months due to elevated phosphorus concentrations. Excessive algae and plant growth reduces water clarity and results in chronic increased oxygen demand in the bottom sediments. This can severely affect coldwater aquatic habitat and, depending on the dominant algae present, pose a human health risk. These conditions can also undermine the recreational uses of the lake such as swimming, boating, and fishing.

Watershed description

Newman Lake is located approximately 26 kilometers northeast of the city of Spokane in Spokane County, Washington. It is at an elevation of 2,000 feet (610 meters) with a volume of 923,263,735 cubic feet (26,146,829 cubic meters), and a maximum depth of 30 feet (9 meters) (Figure 1, Wolcott, 1961). Its surface area is approximately 515 hectares, while the greater watershed area encompasses approximately 7800 hectares (Figure 2). Thompson Creek, draining to the north lobe of the lake, comprises 40 percent of the watershed (3132 ha) and has a dominant effect on the lake's hydrology and water quality.

Primary land uses include forestry (78%), cultivated pastureland (6%) and residential (<1%). While residential land use represents less than one percent of the watershed area, it is mostly concentrated along the lake shore. The population within the watershed can vary considerably, particularly during the summer months when use of the lake is the greatest. During the summer, the population within the watershed is approximately 1,200. With development restrictions in place for the upper watershed, development will continue to be focused on the near-shore parcels.

What is a Total Maximum Daily Load (TMDL)?

Every two years, states are required to prepare a list of water bodies - lakes, rivers, streams or marine waters - that do not meet water quality standards. This list is called the 303(d) list. The Clean Water Act requires that a water quality improvement plan or Total Maximum Daily Load (TMDL) be developed for each of the water bodies on the 303(d) list. A TMDL identifies how much pollution needs to be reduced or eliminated to achieve water quality standards. Then the Washington State Department of Ecology (Ecology) works with advisory groups and other partners to develop a strategy to control the pollution and a monitoring plan to assess effectiveness of the water quality improvement activities. Now that the Environmental Protection Agency (EPA) has approved the TMDL, Ecology is required to develop a detailed water quality implementation plan (WQIP), the subject of this document. Ecology worked closely with the organizations and interests that helped develop the TMDL to develop this WQIP.

Why is a water quality improvement project being done in this watershed?

Water quality data collected from numerous investigations by Washington State University and others led to Newman Lake's inclusion on Washington State Department of Ecology's 1996, 1998, and 2004 303(d) lists for total phosphorus (TP). Total phosphorus is the concentration of phosphorus present in both organic (plants and animals) and inorganic (chemical) forms.

Studies conducted in 1988 and 1998 indicated that lake sediments were a major source of the phosphorus stimulating algae growth. To reduce the release of phosphorus from sediments, a whole lake alum treatment was conducted by Spokane County in 1989 and an oxygenator installed in 1992. In addition, an alum injection system was installed parallel to the oxygenator system in 1997. Both the oxygenator and alum injection system continue to operate.

In 2007, Ecology developed a TMDL report, which EPA approved in February 2008. The focus of the TMDL is on establishing limits for external phosphorus sources, such as on-site wastewater (septic) systems and sediment from upland and shoreline erosion. Management measures to control in-lake phosphorus recycling are currently in place in the form of the oxygenator.

An average summer period TP concentration of 20 micrograms per liter ($\mu\text{g/L}$) is the target determined to be the in-lake concentration necessary to meet biological and recreational beneficial uses. The target concentration is defined as the average concentration observed during the summer period, June through August, within the upper water column (epilimnion), zero (0) to three (3) meters below the water surface. The target is defined for the summer period because this is when environmental conditions favor algae growth, coinciding with peak recreational use of the lake.

To meet the 20 $\mu\text{g/L}$ concentration, total phosphorus load allocations were set for nonpoint sources observed at elevated levels where some control is possible including: the Thompson Creek drainage (365 kg TP), the watershed outside of Thompson Creek drainage (310 kg TP), septic systems (121 kg TP), and internal recycling (264 kg TP). A margin of safety was included so that when the allocations are achieved, the lake's water quality will have improved to a level where all previous beneficial uses are restored. A margin of safety that provides a 90 percent assurance that the target would be met in any given year was used to establish the load capacity.

Who is involved?

An advisory group participated in the development of this WQIP. This group includes landowners along the lake and in the watershed; Spokane County; the Newman Lake Flood Control Zone District (NLFCZD); the Newman Lake Property Owners Association (NLPOA); the Newman Lake Watershed Committee; Inland Empire Paper Company; and the Washington State Department of Natural Resources (DNR).

What will be done?

This WQIP focuses on upland and near-shore phosphorus reduction strategies such as forest management; erosion control in the upper watershed; reduction of septic tank effluent containing phosphorus; and lake shore and riparian restoration. This WQIP carries forward the TMDL recommendation to assess the effectiveness of the oxygenator and alum injection system. The TMDL assumes that over time, with control of external phosphorus sources, the impact to water quality from internal sources will also decline.

How will implementation actions be funded?

Potential funding sources include grants and loans through Ecology's Water Quality Program, the USDA Natural Resources Conservation Service (NRCS) restoration incentive programs, and other private funding sources such as conservation districts.

Measuring progress

Three parties will do the monitoring for this TMDL, depending on available resources: Spokane County in coordination with volunteers in the Newman Lake watershed, Washington State University, and Ecology. Monitoring will consist of watershed, lake, and effectiveness monitoring for nutrients, pH, temperature, and biological and habitat measurements.

Data from all monitoring and implementation activities will be reviewed each year. It is anticipated that each organization will attend an annual meeting, preferably in the summer when more residents are available, to present their data from the previous year. The purpose of these meetings is to review data and determine trends so organizations can decide what actions (if any) are needed to meet water quality standards. These meetings also ensure that the same sites are not monitored by multiple entities, all data collected is comparable, and the community is aware of other monitoring efforts.

Reasonable assurance

Numerous nonpoint source control programs, such as the purchase of land for conservation, controlled access on forest roads, and reductions in livestock grazing, are currently being implemented in the Newman Lake watershed. These activities provide reasonable assurances that the TMDL goal of meeting the water quality standard for total phosphorus will be met in Newman Lake in 20 years. Continued monitoring (depending on available resources) and education of watershed residents provide additional assurances that the TMDL goal will be met.

Public involvement

Ecology employed a variety of public involvement methods to develop the Newman Lake TMDL and this WQIP. For the WQIP, these efforts included public meetings, advisory committee meetings, public mailings, and draft reviews and comment periods.

What is a Total Maximum Daily Load (TMDL)

Federal Clean Water Act requirements

The Clean Water Act (CWA) established a process to identify and clean up polluted waters. It requires each state to have its own water quality standards designed to protect, restore, and preserve water quality. Water quality standards consist of designated uses for protection, such as cold water biota and drinking water supply, as well as criteria, usually numeric criteria, to achieve those uses.

Every two years, states are required to prepare a list of water bodies – lakes, rivers, streams, or marine waters – that do not meet water quality standards. This list is called the 303(d) list. To develop the list, Ecology compiles its own water quality data along with data submitted by local state and federal governments, tribes, industries, and citizen monitoring groups. This is called a water quality assessment. All data are reviewed to ensure that they were collected using appropriate scientific methods before the data are used to develop the 303(d) list. The 303(d) list is part of the water quality assessment.

The water quality assessment tells a more complete story about the condition of Washington's water. The assessment divides water bodies into five categories:

Category 1 – Meets standards for parameter(s) for which it has been tested.

Category 2 – Waters of concern.

Category 3 – Waters with no data available.

Category 4 – Polluted waters that do not require a TMDL because:

4a. – Has an approved TMDL and it is being implemented.

4b. – Has a pollution control plan in place that should solve the problem.

4c. – Is impaired by a non-pollutant such as low water flow, dams, and culverts.

Category 5 – Polluted waters that require a TMDL – the 303d list.

TMDL process overview

The Clean Water Act requires that a Total Maximum Daily Load (TMDL) be developed for each of the water bodies on the 303(d) list. The TMDL identifies pollution problems in the watershed and then specifies how much pollution needs to be reduced or eliminated to achieve clean water. Then, Ecology works with the local community to develop an overall approach to control the pollution, called the Implementation Strategy, and a monitoring plan to assess effectiveness of the water quality improvement activities. Once EPA approves the, a *water quality implementation plan* (Plan) must be developed within one year. This Plan identifies specific tasks, responsible parties and timelines for achieving clean water.

Elements required in a TMDL

The goal of a TMDL is to ensure the impaired water will attain water quality standards. A TMDL includes a written, quantitative assessment of water quality problems and of the pollutant sources that cause the problem. The TMDL determines the amount of a given pollutant that can be discharged to the water body and still meet standards (the loading capacity) and allocates that load among the various sources.

If the pollutant comes from a discrete source (referred to as a point source) such as a municipal or industrial facility's discharge pipe, that facility's share of the loading capacity is called a wasteload allocation. If it comes from a set of diffuse sources (referred to as a nonpoint source) such as general urban, residential, or farm runoff, the cumulative share is called a load allocation.

The TMDL must also consider seasonal variations and include a margin of safety that takes into account any lack of knowledge about the causes of the water quality problem or its loading capacity. A reserve capacity for future loads from growth pressures is sometimes included as well. The sum of the wasteload and load allocations, the margin of safety and any reserve capacity must be equal to or less than the loading capacity.

Identification of the contaminant loading capacity for a water body is an important step in developing a TMDL. EPA defines the loading capacity as "the greatest amount of loading that a water body can receive without violating water quality standards" (EPA, 2001). The loading capacity provides a reference for calculating the amount of pollution reduction needed to bring a water body into compliance with standards. The portion of the receiving water's loading capacity assigned to a particular source is a load or wasteload allocation. By definition, a TMDL is the sum of the allocations, which must not exceed the loading capacity.

TMDL = Loading Capacity = sum of all Wasteload Allocations + sum of all Load Allocations + Margin of Safety

Where We Are in the Process

This document is the Water Quality Implementation Plan (WQIP) to reduce nonpoint sources of phosphorus pollution in Newman Lake. The Newman Lake TMDL was approved by EPA in February 2008 (Appendix B). A 1997 agreement between Ecology and EPA requires the development of WQIPs for approved TMDLs. They include information on the activities that will be used to improve water quality, when those activities will occur, who will do them, and how to measure progress.

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Why Ecology is Conducting a TMDL in This Watershed

Overview

Newman Lake is located in Spokane County, Washington State, 26 kilometers northeast of the city of Spokane (Figure 1). It appears on Ecology's 1996, 1998, and 2004 303(d) lists for total phosphorus (TP) (refer to www.ecy.wa.gov/programs/wq/303d/). Total phosphorus is the concentration of phosphorus present in both organic and inorganic forms.

Newman Lake has, at times, experienced chronically elevated phosphorus concentrations, resulting in an accelerated growth of algae and aquatic vegetation during the summer months. These conditions have undermined the recreational and biological beneficial uses of the lake as defined in the water quality standards (refer to <http://www.ecy.wa.gov/programs/wq/swqs/index.html>).

To address community concerns regarding Newman Lake's impaired water quality, Washington State University conducted studies of the lake in 1974 (Funk et al, 1976) and 1986 (Funk and Moore, 1988). The major objective of that work was to identify the principal sources of TP to the lake and to determine appropriate source control methods. Physical, chemical, and biological parameters were measured in the lake and its principal inflow sources. Ecology used the data collected during the 1986 study, and its principal findings, as the basis for including Newman Lake on the 303(d) list, leading eventually to the TMDL and this implementation plan.

Since the 1988 feasibility study, Washington State University's Water Research Center completed additional water quality work in 1998, contained in the report titled: *Newman Lake Restoration Phase II*" (Funk and Moore 1998). These studies indicated that lake sediments were a major source of the phosphorus that stimulates algae growth. To reduce the release of phosphorus from sediments, a whole lake alum treatment was conducted by Spokane County in 1989, and an oxygenator installed in 1992. In addition, an alum injection system was installed parallel to the oxygenator system in 1997. Both the oxygenator and alum injection system continue to operate.

As of 2006, both Washington State University and lake resident volunteers continue to monitor lake water quality. The data contained within the WSU studies, and subsequent data collection efforts, provides the base from which Ecology conducted the TMDL analysis.

It is anticipated that reduction of nonpoint phosphorus sources will be a long term process (20 years), while riparian restoration projects become established and logged land is reforested. Ecology foresees that the external phosphorus loading may be significantly reduced from current loading in the next ten years, primarily through the following actions:

- Aggressive prevention of shoreline erosion and disturbing lake bottom sediment.
- Correcting the majority of the highest priority road erosion problems.

- Reducing near shore septic system leachate.
- Restoration of wetlands and stream corridors.

Public education and focused implementation of effective erosion control programs should occur over the next two years, with mechanisms identified for continued monitoring and enforcement.

This WQIP addresses methods for reducing total phosphorus. Newman Lake is also listed for PCBs on the 303(d) list. The PCB listing is the result of a statewide sampling effort by Ecology in 2006 which found PCBs in one largemouth bass sample that exceeded the National Toxics Rule criteria for that pollutant (see report “Washington State Toxics Monitoring Program: Contaminants in Fish Tissue from Freshwater Environments in 2006” available at www.ecy.wa.gov/biblio/0803002.html). Further information is necessary to determine the extent and possible sources of PCBs in Newman Lake, which may lead to the development of a TMDL for that parameter.

Table 1. Study area water bodies on the 2004 303(d) list for Total Phosphorus.

Water Body	Parameter	Medium	Listing ID	Township	Range	Section
Newman Lake	Total Phosphorus	Water	6358	26N	45E	11

Table 2. Additional 303(d) listings not addressed by this report.

Water Body	Parameter	Medium	Listing ID	Township	Range	Section
Newman Lake	PCB	Tissue	52674	26N	45E	11

Watershed Description

Newman Lake has a volume of 21,197 acre feet (26,146,829 cubic meters), an average depth of 16.7 feet (5.1 meters), and a maximum depth of 30 feet (9 meters) (Figure 2, Wolcott, 1961). Its surface area is approximately two square miles (515 hectares) and the greater watershed is 30 square miles (7,800 hectares) (Figure 3). Thompson Creek, draining into the north lobe of the lake, comprises 40 percent of the watershed (12 square miles) and has a dominant effect on the lake's hydrology and water quality.

Forestry is the primary land use within the watershed representing approximately 78 percent of the area (Table 3). Cultivated pastureland represents six percent of the watershed area. Residential land use, while representing less than one percent of the watershed area, is concentrated along the lake shoreline. There are 486 residences located in close proximity to the lake shoreline with about 45 percent occupied year round. For this reason, the population within the watershed can vary considerably, particularly during the summer months when use of the lake is the greatest. During the summer, the population within the watershed is approximately 1,200.

The greater watershed is currently zoned as commercial forest lands and rural conservation. Within the rural conservation designated areas, residential development is restricted to one house per 20 acres (or one house per 10 acres with clustering). As of 2007, there are 744 parcels within 1,000 feet (305 meters) of the lake shore, 31 percent (231) of them undeveloped. With development restrictions in place for the greater watershed, development will continue to be focused on the near-shore parcels. Currently, approximately 85 percent of the residential development within the greater watershed occurs within 1,000 feet of the shoreline.

The elevation of Newman Lake is approximately 2,000 feet above sea level (610 meters). Elevations within the watershed vary greatly, particularly for the Thompson Creek drainage. Excluding Thompson Creek, approximately 90 percent or more of the watershed area lies below 3,000 feet (914 meters) (Table 4). While the majority of Thompson Creek's drainage area is also situated below 3,000 feet (88 percent), 12 percent is situated above this elevation with upper elevations extending to approximately 5,500 feet (1676 meters). Thompson Creek's large size and wide range in elevation results in a disproportionate effect on Newman Lake's water quality. One of the primary factors is that during the winter months, precipitation is stored as snow in much of its drainage. The level of snow accumulation and the timing of its eventual spring runoff are major determinants on Newman Lake's summer total phosphorus levels.

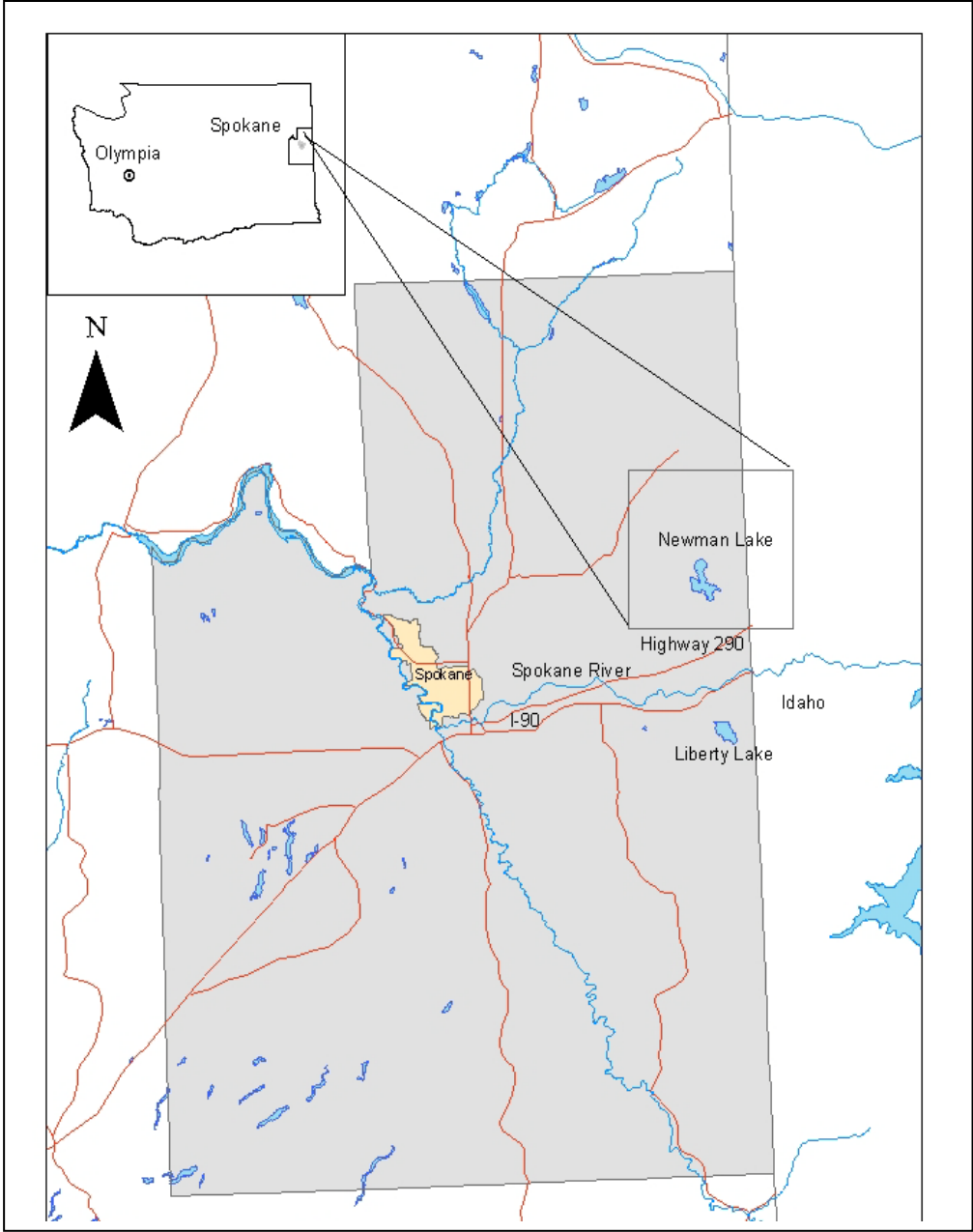


Figure 1. Location map of Newman Lake in Spokane County, Washington.

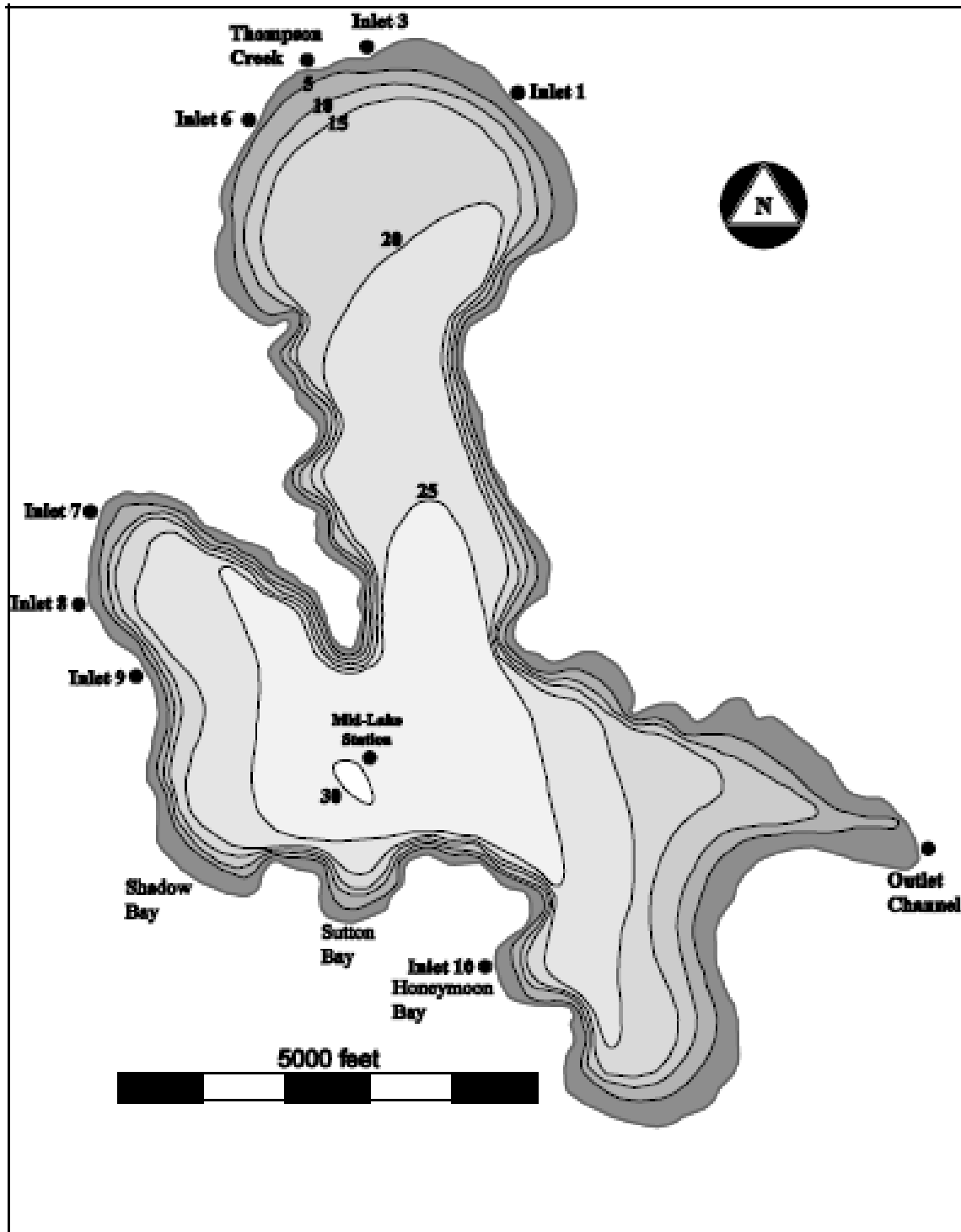


Figure 2. Newman Lake bathymetry along with monitoring locations (Wolcott 1961).

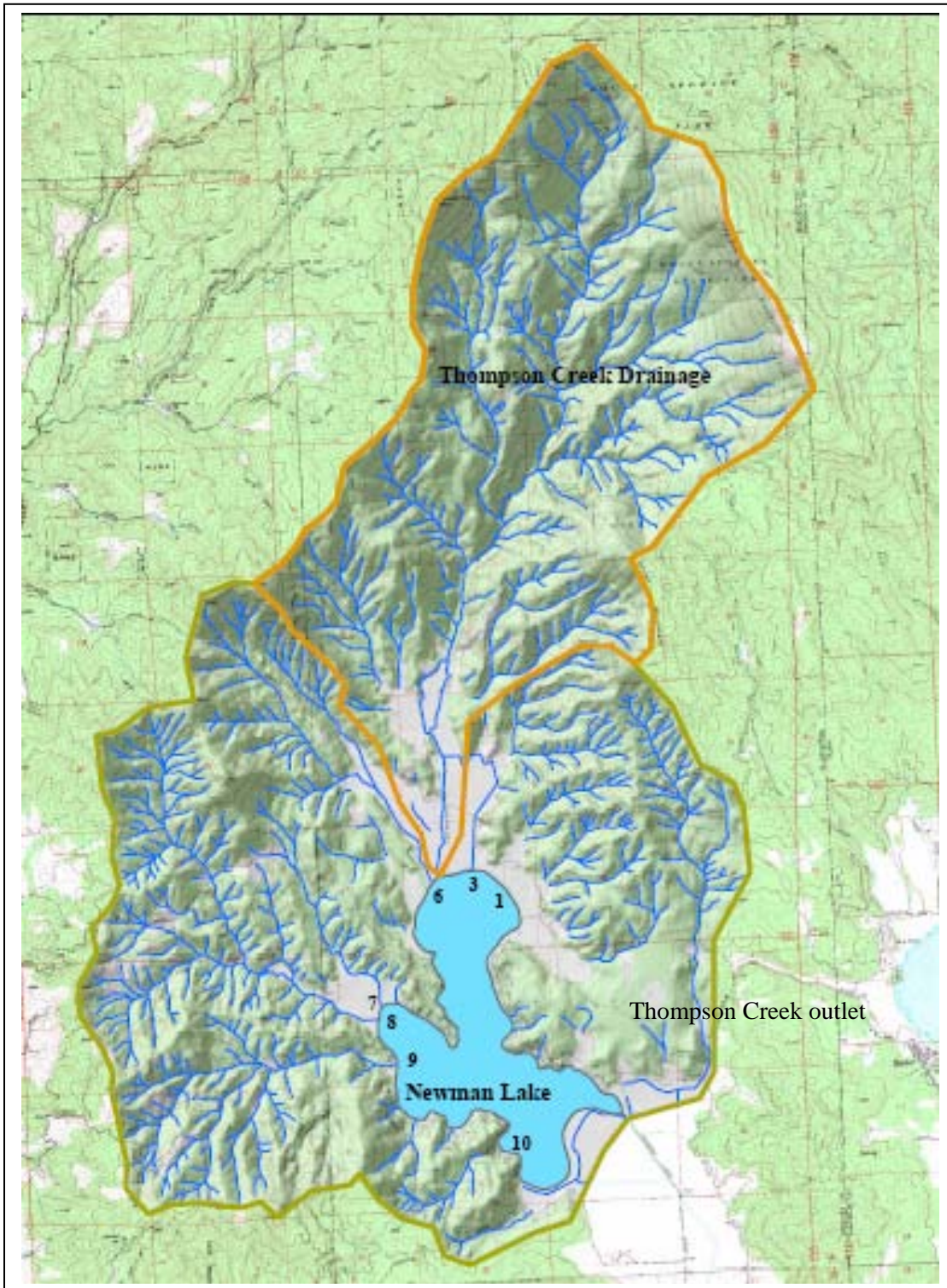


Figure 3. Newman Lake watershed along with monitored inlet locations (numbered).

Table 1. Representation of land use within the Newman Lake watershed.

Land Use Description (1)	Land Use Description (2)	Percent Represented (1)	Hectares (1)	Percent Represented (2)	Hectares (2)
Openwater (Newman Lake)	Open Water	6.01	467.43	6.01	467.43
Low Intensity Residential	Developed	0.13	10.11	0.18	14.16
Commercial / Industrial / Transportation	Developed	0.05	4.05		
Bare Rock / Sand / Clay	Barren	0.01	0.41	10.15	789.17
Transitional (Clearcut)	Barren	10.14	788.76		
Deciduous	Forested Upland	0.03	2.83	67.98	5285.38
Evergreen	Forested Upland	58.57	4553.68		
Mixed Tree Species	Forested Upland	9.37	728.87		
Shrubland	Shrubland	8.10	629.31	8.10	629.31
Grasslands / Herbaceous	Herbaceous Upland	1.18	91.87	1.18	91.87
Pasture / Hay	Herbaceous Planted / Cultivated	3.48	270.34	6.26	492.52
Row Crops	Herbaceous Planted / Cultivated	0.17	13.36		
Small Grains	Herbaceous Planted / Cultivated	1.56	121.01		
Fallow	Herbaceous Planted / Cultivated	1.06	82.15		
Urban / Recreational Grasses	Herbaceous Planted / Cultivated	-	0.41		
Woody Wetlands	Wetland	0.12	9.31	0.14	10.52
Emergent Herbaceous Wetlands	Wetland	0.02	1.21		

Table 2. The representation of various ranges in elevation within the greater Newman Lake watershed and its sub-watersheds.

Elevation Range (ft)	Watershed	Thompson Creek	Inlet 1	Inlet 3	Inlet 6	Inlet 7	Inlet 8	Inlet 9	Inlet 10
2001-2500	42.3	16.7	60.5	59.6	46.6	82.6	39.8	25.0	71.4
2501-3000	29.2	23.6	39.8	35.0	38.3	16.2	52.4	50.7	29.5
3001-3500	16.5	30.3	-	5.1	14.7	1.2	7.9	24.4	0.1
3501-4000	6.5	16.1	-	-	-	-	-	-	-
4001-4500	3.8	9.4	-	-	-	-	-	-	-
4501-5000	1.6	3.8	-	-	-	-	-	-	-
5001-5500	0.1	0.2	-	-	-	-	-	-	-

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What Will Be Done

Implementation strategy (summary of actions)

Past lake water quality restoration activities have been credited with significant reductions in internal phosphorus loading. The lake restoration process is also responsible for the development of several documents containing common strategies for control of external nonpoint sources (Ecology 1992).

Improvements in forest harvest practices, forest road maintenance, and changes in livestock grazing management have occurred in portions of the watershed. However, lake water quality monitoring indicates that the amount of phosphorus in the upper layer of the lake (epilimnion) and average water clarity during the summer have not significantly improved since initiation of the lake restoration activities. This indicates that an emphasis should be placed on less implemented phosphorus control strategies to achieve significant in-lake phosphorus reductions.

The intent of this TMDL implementation plan is to formulate methods of source control to be applied on a watershed-wide scale for long term reductions of phosphorus loading to Newman Lake. The Newman Lake loading capacity analysis shows that the external phosphorus loading needs to be significantly reduced from post-1985 average levels to an annual load of 903 Kg/year to meet an average epilimnion concentration at or below 20 µg/L, 90 percent of the time in the summer. The load allocations for external total phosphorus loading, shown in Table 3, should not increase internal loading from the current estimates. The advisory group refined and prioritized the general strategy elements to reduce phosphorus, summarized in this document as shown in Appendix A.

Table 3. Epilimnion annual load allocations (September through August).
In order to meet these targets, an overall 42 percent reduction in the current (1986-2006) average external load is necessary.

Source	Total Phosphorus (kg)
Thompson Creek Drainage	365
Watershed (outside of Thompson Creek drainage)	310
On-Site Wastewater Systems	121
Precipitation	107*
Internal Recycling	264

* Not a controllable source

It is anticipated that reduction of nonpoint phosphorus sources will be a long-term process and could take up to 20 years while riparian restoration projects become established and roads are rehabilitated. Ecology foresees that the external phosphorus loading may be significantly reduced from current loading in the next ten years by aggressive reduction of near-shore septic system leachate, wetland and riparian restoration efforts, correcting the majority of the highest priority road erosion problems, and reducing shoreline erosion.

The following implementation strategies to reduce phosphorus loading are divided into upland and near-shore categories to reflect the geographic character of the watershed. Several strategies are common to those previously identified and resolved by the Spokane County Commissioners in 1999 for implementation in the Newman Lake watershed. A few others have not been

previously suggested for implementation. It is clear that extensive local government participation, public education, financial assistance, and regulatory enforcement will all be essential for successful implementation of strategies to restore and protect Newman Lake. Actions to address each strategy are provided in the *Pollution sources and organizations, actions, goals, and schedules* section, preceded by a reference to the strategies numbered below. Specific activities organizations will perform to meet each strategy are provided in the table in Appendix A.

Upland phosphorus source reduction strategies

Strategy 1 (S1) *Commercial forest management* – The land use survey reported that forestry land use comprises 78 percent of the Newman Lake watershed. This results in tributary water quality being potentially affected by forest management practices. Logging and road building practices, common throughout the intermountain region from the late nineteenth century through the most of the twentieth century, likely contributed to the degradation of Newman Lake’s watershed. In more recent times, however, implementation of more environmentally sound forest management practices has occurred.

The Forest Practices Act, administered by the Washington Department of Natural Resources (DNR), defines the minimum level of best management practices (BMPs) required to be implemented for commercial timber lands in Washington. It is anticipated that the new road maintenance and abandonment plans (RMAPs along with other BMPs) required by the current forest practices rules will slowly reduce phosphorus export from harvested forests.

The state's forest practices regulations will be relied upon to bring waters into compliance with the load allocations established in this TMDL on private and state forestlands. As part of the 1999 Forests and Fish agreement (www.dnr.wa.gov/forestpractices/rules/forestsandfish.pdf), Ecology agreed to use the forest practices regulations to implement TMDLs. The effectiveness of the Forests and Fish program is being assessed through a formal adaptive management program. The success of this TMDL will be assessed using monitoring data from streams in the watershed.

Ecology is currently evaluating effectiveness of the forest practices program. As part of this review, Ecology will determine if the state's forest practices program can be relied on to bring water quality into compliance with the state water quality standards. If the current program is not found to be adequate, Ecology will suggest any needed changes to the Forest Practices Board, or revise this TMDL implementation plan, as necessary, to achieve compliance.

(S2) *Non-industrial forest management* – Small forest owners are also subject to portions of the Forest Practices Rules including road construction and maintenance rules (RMAPs), unless they are exempted due to size under the 20-acre exempt rules. The Washington

DNR provides technical and financial assistance to small landowners for forest management activities. As forestry land is divided and sold in smaller parcels for residential land uses, planning of these conversions will need to include special road design for conversions of logging roads to permanent roads and to account for cumulative impacts.

- (S3) *Watershed-scale road planning and rehabilitation* – A watershed-scale management survey should inventory ownership and prioritize the total miles of erodible roads and road banks. Watershed-specific implementation plans should be developed based on this survey to reduce miles of erodible roads associated with road construction, road conversions, and maintenance. A watershed database of roads with tracking of BMP implementation is essential for determining success and accountability. Implementation plans should identify opportunities to abandon non-essential roads or restore roads on non-industrial forest lands and other county roads contributing to obvious erosion problems.
- (S4) *Control residential development storm water* – Resources needed to educate citizens and assure compliance with erosion and sediment control standards currently contained in the county ordinance should be identified and funded specially for the Newman Lake watershed. Some of the construction sites will be subject to the National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit when one acre or more of land is disturbed with potential for discharge to surface water. Current regulations do not address property sizes of less than one acre, in particular secondary parcels around the lake. In terms of stormwater impacts regulations need to address all property parcels, since the development of ten small parcels potentially creates far more serious problems in the watershed than the development of one home on one ten-acre parcel.
- (S5) *Restore sediment/phosphorus traps* – Riparian or lakeside landowners are encouraged to identify opportunities and implement plans to restore natural riparian/wetland systems which historically retained sediment and phosphorus in the watershed. For example, landowners could restore degraded natural riparian corridors that were dredged and straightened. Engineered sediment ponds with annual maintenance should also be explored for mitigation of activities contributing to erosion.

Near-shore phosphorus reduction strategies

- (S6) *Eliminate or reduce shoreline septic system leachate where feasible* – Near-shore septic systems are estimated to contribute about 14 percent of the lake's annual external phosphorus load (207 Kg/Year). Most of this load is in the form of biologically reactive phosphorus and is readily available for immediate algal uptake upon reaching the lake. This source can be reliably eliminated by implementing wastewater management that exports the wastewater to upland portions of the watershed less sensitive to phosphorus inputs. Examples are alternative on-site wastewater treatment systems or systems that remove more phosphorus

from the wastewater before it is discharged. Economic and land use planning considerations may prevent the removal of near shore septic systems in some places.

New wastewater management alternatives, such as decentralized septic tank effluent pump (STEP) systems, combined with new designs for small flow treatment technology, can achieve phosphorus concentrations near the target concentration for Newman Lake. Such a decentralized approach can minimize conveyance costs and allow phased implementation for cluster developments. This approach should be evaluated against other traditional wastewater designs. The decentralized approach may also provide some alternative finance and governance solutions not previously considered.

(S7) *Restore degraded wetland/riparian functions* – Lowland streams and wetlands should be restored to more naturally-functioning riparian systems. In a functioning system, high runoff events are dissipated into the wetland, which acts as a phosphorus filter by promoting sedimentation, phosphorus mineralization, and plant uptake. Financial incentives for landowners to participate in restoring wetland areas should be identified and promoted.

(S8) *Reduce shoreline erosion* - During public meetings several citizens raised concerns about shoreline erosion from excessively high boat wakes. Potential methods of controlling shoreline erosion from wave action should be developed and implemented to reduce their impacts:

- Consider controls on excessive boat wakes for sensitive areas of the lake.
- The lake-level management protocols should be reviewed with consideration of lowering the full-pool target to reduce shoreline erosion.
- To help dissipate wave energy, native emergent wetland plants should be reestablished on previously altered shorelines as part of shoreline restoration projects. Consideration should be given to use of organic fiber-based retaining structures or similar methods to ensure plant survivability along the shoreline.
- Lakeshore homeowners should receive focused technical assistance with shoreline landscape design. The departments of Ecology and Fish and Wildlife should work closely with Spokane County and others to develop an integrated template for acceptable shoreline landscape design and shoreline restorations. A well-designed landscape should be aesthetically pleasing while enhancing aquatic habitat, reducing shoreline erosion, and act as a nutrient adsorbing buffer.

(S9) *Control construction erosion* – Identify resources needed to assure compliance with erosion and sediment control plans currently required by county standards. Develop corrections to the perceived lack of effective erosion control and enforcement. Review county ordinances to make sure that all BMPs are included. Because of the watershed’s sensitivity to erosion and phosphorus, near-shore grading projects should be closely scrutinized regardless of size.

(S10) *Control storm water from shoreline roads and driveways* – Spokane County should develop prescriptive design and maintenance standards, including special bank stabilization and re-vegetation requirements. They should also identify mechanisms for assuring

compliance and provide financial resources for education and enforcement. Existing roads and driveways with erosion problems need to be identified and retroactively corrected using financial and technical assistance.

(S11) *Reduce landscape runoff and phosphorus leaching* – Landowners should eliminate unnecessary use of phosphate fertilizer and significantly increase buffer distances between the lake and lawns. Well-designed landscape buffers can take up excess nutrients and water while stabilizing the lakeshore. Develop specific landscape-design recommendations with professional design assistance and possible financial incentives when integrated into a shoreline restoration project. Model shoreline gardens should be developed as examples of preferred designs with hosted public tours.

Internal (in-lake) phosphorus loading control

The control of excessive internal phosphorus loading through the aerator and alum injection is necessary for the continued success of restoring Newman Lake and implementing the TMDL. The aerator and alum injection system is operated by the Newman Lake Flood Control Zone District (NLFCZD). Only the alum injection system component requires an individual NPDES permit issued by Ecology. This permit currently requires the following actions:

- Monitoring and reporting for alum injection into the lake; in-lake monitoring; and lake sediments.
- In-lake and lake sediment monitoring every two weeks during the first month of alum injection; monthly during alum injection; and quarterly during non-application periods.
- An annual ‘State of the Lake Report’ detailing alum injection and lake water quality.

The current permit may be re-issued as an aquatic plant and algae management general NPDES permit by Ecology.

This WQIP carries forward the TMDL recommendation for an independent peer review of the aerator and alum injection system to assess the effectiveness of current practices for controlling internal phosphorus loading and its relationship to summer epilimnetic phosphorus. The peer review should be conducted by nationally-recognized lake restoration experts to evaluate alternative methods to control internal phosphorus loading and reduce lake algae (phytoplankton) growth. The review, which should be combined with a review of external phosphorus reduction actions (see note in Appendix A table), should include a detailed economic analysis of the existing system compared to other alternatives, including evaluations of both short- and long-term funding needs.

Pollution sources and organizational actions, goals, and schedules

Several nonpoint sources of total phosphorus exist in the Newman Lake watershed, including road construction and erosion, septic systems, forest practices, shoreline erosion, and the use of phosphate fertilizers in landscaping. There are some natural conditions, such as geologic formations, that also affect total phosphorus concentrations.

The Newman Lake TMDL advisory committee, which includes property owners; members from the NLFCZD; Newman Lake Property Owners Association (NLPOA); Newman Lake Watershed Committee (NLWC); Spokane County; and some of the groups below are the principal organizations and individuals involved with the implementation of this TMDL (see *Summary of Public Involvement Methods* section for a list of advisory committee members). Other agencies and organizations are listed below, followed by a brief description of their roles as they pertain to the Newman Lake TMDL.

Local governments

Spokane County

- The Flood Control Zone District operates and maintains dikes and the lake outlet gates and aerator.
- Issues erosion and sediment control performance standards for grading construction permits.
- Issues road approach permits and maintains county roads.
- Administers shoreline protection ordinances.
- Collects samples for toxic cyanobacteria (blue-green algae), posts signs and close if toxic cyanobacteria are present.
- Coordinates and conducts water quality sampling with Newman Lake volunteers as resources allow.

Spokane Regional Health District

- Approves individual on-site septic systems with subsurface disposal.
- Issues public health advisories sometimes related to lake water quality, such as blue algae blooms.

Spokane County Conservation District

- Provides natural resource education and technical assistance.
- Potential source of financial assistance.

State agencies

Department of Ecology

- Responsible for developing TMDL Water Quality Implementation Plan.
- NPDES permit for alum injections, nuisance aquatic plant control, construction storm water.
- Oversight of riparian and wetland projects (may issue permits for some projects).
- Approve and permit larger wastewater treatment systems.
- Provides grants and loans.
- Assist with sample collection for toxic cyanobacteria and posting signs if toxic cyanobacteria are present.
- Ecology will also utilize its existing resources and authorities under RCW 90.48 to implement this TMDL.

Department of Fish and Wildlife

- Issues hydraulic project approvals for work below the high water line.
- Manages fisheries.
- Maintains public access.

Department of Natural Resources

- Issues forest harvest and burn permits.
- Assures compliance with forest practices rules.
- Provides assistance to small forest landowners.

Washington State Parks

- Manages public land in northern portion of the watershed.

Department of Health

- Approves medium-size community on-site septic systems with subsurface disposal.

Washington State University

- Performs water quality sampling and analysis.

Federal agencies

Environmental Protection Agency

- Approves TMDLs.
- Oversees NPDES permits.

USDA - National Resource Conservation Service (NRCS).

- Provides resource enhancement cost-share and conservation easement programs.

Newman Lake Residents and Volunteers

- Perform water quality sampling.
- Maintain and upgrade septic tanks as necessary.
- Implement best management practices for erosion control, etc. on upland and shoreline properties.

Specific activities that will primarily be used to implement the TMDL strategies described previously are listed in the next section. These activities should be implemented over the 20-year time period until water quality standards are achieved. The Newman Lake advisory committee was tasked with determining existing programs that address these activities and to recommend additional actions necessary to carry out these activities. These activities and actions are provided in the table in Appendix A. Due to common activities to address certain strategies, several activities have been combined in the table in Appendix A.

Due to the uncertainty of funding to complete implementation projects, the table should be updated every two years. Focusing on projects that will be achieved within the next two years is preferred, since attempting to plan activities beyond this time frame is at best a guess. The Ecology TMDL Coordinator can meet with members of the TMDL advisory committee or others as appropriate every two years to update Appendix A.

Activities to achieve phosphorus reduction strategies in Newman Lake

All pollution sources that affect water quality may not be listed in the implementation activities table in Appendix A at any one time. However, all pollution sources will be addressed throughout the duration of this plan. The sources listed in the table will be addressed during that particular timeframe, while other sources will be addressed in future years.

S 1: Commercial forest management

- Enforce forest practices rules and regulations upon individuals found practicing prohibited activities in riparian areas and streams.
 - Washington DNR
- Manage vehicle access, as was done for the Inland Empire Paper Company's controlled access program, for all motorized vehicles.
 - Inland Empire Paper Co.

S2: Non-industrial forest management

- Develop a watershed database of roads with tracking of BMP implementation to identify opportunities to abandon and restore nonessential roads and correct existing roads that are poorly designed/maintained and contributing to obvious erosion problems.
 - Washington DNR
 - Spokane County
 - NLFCZD
- Manage vehicle access, as was done for the Inland Empire Paper Company's controlled access program, for all motorized vehicles.
 - Washington DNR

S3: Watershed-scale road planning and rehabilitation

- Develop a watershed-scale management survey to inventory ownership and prioritize the total miles of erodible roads and road banks.
 - Spokane County
 - NLFCZD
- Develop a watershed-specific implementation plan to reduce miles of erodible roads with more stringent regulations for road construction, road conversions, and maintenance.
 - Spokane County
 - NLFCZD
- Develop a watershed database of roads with tracking of BMP implementation to identify opportunities to abandon and restore nonessential roads and correct existing roads that are poorly designed/maintained and contributing to obvious erosion problems.
 - Spokane County
 - NLFCZD

S4: Control residential development storm water

- Increase the public's awareness of how they contribute to water quality impairments. Possible education activities include posting signs at boat launches, producing flyers and mailers, placing information on the NLFCZD website, etc.
 - Ecology
 - Spokane County
 - NLFCZD
- Enforce county erosion control ordinances through regular inspections.

- Spokane County
- Enforce NPDES construction stormwater permits if applicable.
 - Ecology
- Provide call-in number to report erosion to NLFCZD. Post call-in number around the watershed.
 - NLFCZD

S5: Restore sediment/phosphorus traps

- Conduct wetland inventory or review existing inventories to identify high-value restoration projects.
 - Spokane County
- Purchase properties or easements in high value restoration areas.
 - Spokane County
- Conduct volunteer restoration planting days.
 - Spokane County
 - NLFCZD
 - NLPOA
 - Spokane County Conservation District (SCCD)
- Approach properties and develop education materials to encourage enrollment in Conservation Reserve Program.
 - Spokane County
 - NLFCZD
 - NRCS
 - SCCD

S6: Eliminate shoreline septic system leachate where feasible

- Conduct feasibility study (dye test and similar methods) on near shore septic systems to identify high-impacting systems and recommend alternative treatment technologies for those systems.
 - Spokane County
- Install decentralize STEP systems, or similar technologies, in high-impact areas.
 - Newman Lake residents
 - NLPOA
 - Washington Department of Health
 - Spokane County

S7: Restore degraded wetland/riparian functions

- Conduct wetland inventory to identify high value restoration projects.
 - Spokane County

- Purchase properties or easements in high value restoration areas.
- Conduct volunteer restoration planting days.
 - Spokane County
 - NLFCZD
 - NLPOA
 - Spokane County Conservation District
- Approach property owners and develop education materials to encourage enrollment in Conservation Reserve Program.
 - Spokane County
 - NRCS
 - NLFCZD
 - SCCD

S8: Reduce shoreline erosion

- Conduct study to identify most erosive shorelines.
 - Spokane County
- Conduct volunteer restoration planting days.
 - Spokane County
 - NLFCZD
 - SCCD
- Adopt ordinances for enforcement of no-wake zones in most sensitive areas.
 - NLFCZD
 - NLPOA
 - Spokane County
- Develop educational materials for lakeshore homeowners on shoreline landscape design.
 - Ecology
 - Spokane County
 - NLFCZD
 - SCCD

S9: Control construction erosion.

- Increase the public's awareness of how they contribute to water quality impairments. Possible education activities include posting signs at boat launches, producing flyers and mailers, placing information on the NLFCZD website, etc.
 - Ecology
 - Spokane County
 - NLFCZD
 - SCCD

- Provide call-in number to report erosion to NLFCZD. Post call-in number around the watershed.
 - NLFCZD
- Enforce county erosion control ordinances through regular inspections.
 - Spokane County
- Enforce NPDES construction stormwater permits where applicable.
 - Ecology

S10: Control storm water from shoreline roads and driveways.

- Develop prescriptive design and maintenance standards, including special bank stabilization and re-vegetation requirements.
 - Spokane County
 - NLFCZD
 - SCCD
- Survey existing driveways to identify erosion problems and target for stabilization.
 - NLPOA
- Increase the public’s awareness of how they contribute to water quality impairments. Possible education activities include posting signs at boat launches, producing flyers and mailers, placing information on the NLFCZD website, etc.
 - Ecology
 - Spokane County
 - NLFCZD
- Provide call-in number to report erosion to NLFCZD. Post call-in number around the watershed.
 - NLFCZD
 - Enforce county erosion control ordinances through regular inspections.
 - Spokane County
- Enforce NPDES construction stormwater permits where applicable.*
 - Ecology

S11: Reduce landscape runoff and phosphorus leaching.

- Increase the public’s awareness of how they contribute to water quality impairments. Possible education activities include posting signs at boat launches, producing flyers and mailers, placing information on the NLFCZD website, etc.
 - Ecology
 - Spokane County
 - NLFCZD
 - SCCD

- Develop model shoreline gardens and host public tour.
 - NLPOA
 - Newman Lake residents
 - Spokane County
 - SCCD
- Develop educational materials for lakeshore homeowners on shoreline landscape design.*
 - Ecology
 - Spokane County
 - NLFCZD

Adaptive management

Natural systems are complex and dynamic. The way a system will respond to human management activities is often unknown and can only be described as probabilities or possibilities. Adaptive management involves testing, monitoring, evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings. In the case of TMDLs, Ecology uses adaptive management to assess whether the actions identified as necessary to solve the identified pollution problems are the correct ones and whether they are working. As actions are implemented, the system will respond, and it will also change. Adaptive management allows for actions to be fine-tuned to make them more effective, and to try new strategies if there is evidence that a new approach could help achieve compliance.

TMDL reductions for total phosphorus should be achieved by 2029, allowing time necessary for riparian vegetation to become established and for reforestation. However, external phosphorus loading to Newman Lake may be significantly reduced in ten years by removing failing septic systems and/or installing improved septic systems, correcting significant road erosion problems, reducing shoreline erosion, and through riparian restoration.

If Newman Lake is found to meet water quality standards for total phosphorus but does not meet the load allocations, the objectives of this TMDL will have been accomplished. However, if the load allocations are met but the water quality standards are not met, the TMDL objective has not been satisfied and adaptive management will be applied.

An adaptive management strategy will be used if the approach to improve water quality is not achieving the desired results. The adaptive management strategy includes:

- Evaluating monitoring results.
- Researching and applying new management methods.
- Conducting additional monitoring to identify sources.
- Exploring alternatives such as establishing site specific criteria.
- Determining if conditions are due to natural features.

If implementation activities do not produce expected or required results, Ecology or another organization may choose to conduct additional studies to identify the significant sources of total phosphorus to the lake. If the causes can be determined, implementation of additional BMPs, educational efforts, or a combination of these will likely be taken. However, if some unforeseen event affects the landscape, such as a wildfire, the timelines to meet the load allocations in this TMDL may need modification. It is ultimately Ecology's responsibility to assure that TMDL implementation is actively pursued and water standards are achieved.

See the *Effectiveness Monitoring Plan* section in this report.

Funding Opportunities

Multiple sources of financial assistance for water cleanup activities are available through Ecology’s grant and loan programs, NRCS, local conservation districts, and other sources. Refer to the website (www.ecy.wa.gov/programs/wq/tmdl/TMDLFunding.html) for a list and descriptions of funding sources.

The following table shows some of the potential sources of water cleanup funding. Ecology may work with stakeholders and the EPA Environmental Finance Center (located at Boise State University) to identify additional funding sources and prepare appropriate scopes of work that will help implement this TMDL.

Table 4. Potential funding sources to support TMDL implementation.

Sponsoring Entity	Funding Source	Uses to be Made of Funds
Department of Ecology, Water Quality Program	Centennial Clean Water Fund, Section 319, and State Revolving Fund http://www.ecy.wa.gov/programs/wq/funding/	Facilities and water pollution control-related activities; implementation, design, acquisition, construction, and improvement of water pollution control. Priorities include: implementing water cleanup plans; keeping pollution out of streams and aquifers; modernizing aging wastewater treatment facilities; reclaiming and reusing waste water.
Natural Resources Conservation Service	Environmental Quality Incentive Program http://www.nrcs.usda.gov/programs/eqip/	Voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals; includes cost-share funds for farm BMPs.
Natural Resources Conservation Service	Emergency Watershed Protection http://www.nrcs.usda.gov/programs/ewp/index.html	NRCS purchases land vulnerable to flooding to ease flooding impacts.
Natural Resources Conservation Service	Wetland Reserve Program http://www.wa.nrcs.usda.gov/programs/wrp/wrp.html	Landowners may receive incentives to enhance wetlands in exchange for retiring marginal agricultural land.
Private Funding	Land Trusts and conservation grants	

Sponsoring Entity	Funding Source	Uses to be Made of Funds
Washington State Recreation and Conservation Office	Washington Wildlife and Recreation Program http://www.wildliferecreation.org/wwrp-projects	The Washington Wildlife and Recreation Program (RCW 79A.15) is a state grant program that provides funding to protect habitat, preserve working farms and create new local and state parks. It is administered by a state agency, the Recreation and Conservation Office and funded by the legislature in the state's capital construction budget.

Measuring Progress toward Goals

Performance measures and targets

The activities mentioned in the table in Appendix A will be tracked on an annual basis. As mentioned previously, the goal of meeting water quality standards for total phosphorus in Newman Lake are expected no later than 2029. Tracking the implementation activities (performance measures) is needed to determine:

- What activities were performed and where.
- What practices should be considered for adaptive management, if necessary.
- Whether this implementation plan is adequate to meet water quality standards.

The Ecology TMDL coordinator, as resources allow, can work with Spokane County and Newman Lake organizations and community members to jointly track the progress of this implementation plan to meet the load allocations. The activities to be tracked appear in Appendix A. As mentioned earlier, Appendix A should be updated every two years. To assist in this effort, the organizations listed in Appendix A should report any progress to the Ecology TMDL coordinator annually. The appropriate organizations will review implementation progress with Ecology during annual monitoring and tracking meetings held each year on a date to be determined.

Effectiveness monitoring plan

Future monitoring activities will be essential to the success of this implementation plan. Monitoring water quality trends and improvements are necessary to:

- Show where water quality is improving.
- Determine the overall cumulative effect of implementation.
- Assess where management activities and BMPs should be applied.
- Indicate effectiveness of restoration activities.
- Document achievement of water quality standards.

Three parties will conduct the monitoring for this TMDL as resources allow: Spokane County with the support of volunteers in the Newman Lake watershed, Washington State University, and Ecology. Monitoring will consist of watershed, lake, and effectiveness monitoring as described below.

Watershed Monitoring: This sampling, conducted by Spokane County as resources allow, has been supported by Newman Lake volunteers, the most recent sampling efforts concluding in the fall of 2007. As resources allow, sampling will be conducted as before on a bi-monthly basis and during storm events. The Newman Lake Watershed Monitoring Volunteer Handbook

(Handbook), written with the support of Washington State University, should be reviewed and may require updating of water quality sampling and habitat monitoring protocols to the Newman Lake volunteers.

In past efforts, volunteers conducted monitoring at 12 locations throughout the watershed, conforming to the protocols described in the Handbook. Parameters sampled included total phosphorus, orthophosphorus, nitrogen, dissolved oxygen and temperature. Biological and habitat surveys were conducted on an annual basis. These protocols and parameters should be reviewed and updated as necessary as part of the overall Handbook review and update. Ecology further recommends that Spokane County, as resources allow, combine protocols for watershed and lake monitoring into a single Handbook. This revised Handbook should then be reviewed by Ecology to serve as a Quality Assurance Project Plan (QAPP) for water quality monitoring activities in Newman Lake. Ecology can assist with preparation of this combined Handbook.

Lake Monitoring: Washington State University conducts this sampling twice a month during the ice-free season. The parameters sampled include temperature, dissolved oxygen, conductivity, pH, secchi disk, phosphorus, nitrogen, zooplankton, phytoplankton, and benthic invertebrates. Samples are collected at three locations (north, mid-lake and south) and at three depths. As mentioned previously, Ecology recommends that lake monitoring protocols be combined with watershed monitoring protocols into a single Handbook to serve as a QAPP for water quality monitoring in Newman Lake.

Effectiveness Monitoring: Ecology's Environmental Assessment Program conducts this sampling. The purpose of effectiveness monitoring is to discover if management activities and BMPs are improving water quality. Ecology uses effectiveness monitoring results to determine if water quality standards are being achieved. Ecology usually performs this monitoring five years after the water quality implementation plan is finished. However, management activities or BMPs should have at least one year or more to become established before conducting effectiveness monitoring. In addition, the ability for Ecology to conduct the monitoring in five years depends upon the availability of resources.

Data from all monitoring activities will be reviewed on an annual basis. It is anticipated that each organization will attend an annual meeting, preferably in the summer, to present their data from the previous year. The purpose of these meetings is to review data and determine trends so the appropriate organizations can decide what additional actions (if any) are needed to meet water quality standards. These meetings also ensure that the same sites are not monitored by multiple entities, all data collected is comparable, and that all parties are aware of monitoring efforts. Pending available resources, the Ecology TMDL coordinator can make arrangements for the annual meetings and coordinate communication amongst the organizations.

Reasonable Assurances

When establishing a TMDL, reductions of a particular pollutant are allocated among the pollutant sources (both point and nonpoint sources) in the water body. For the Newman Lake phosphorus TMDL, both nonpoint and storm water sources exist. TMDLs (and related action plans) must show “reasonable assurance” that these sources will be reduced to their allocated amount. Education, outreach, technical and financial assistance, permit administration, and enforcement will all be used to ensure that the goals of this water cleanup plan are met.

Ecology believes that the following activities already support this TMDL and add to the assurance that phosphorus in Newman Lake will meet Washington State water quality standards. This assumes that the activities described below are continued and maintained.

The goal of the Newman Lake water quality improvement plan for phosphorus is for the lake to meet the state’s water quality standards in 20 years. Based on past lake restoration efforts and financial commitments made by the NLFCZD, Spokane County, and citizen volunteer efforts of the Newman Lake Properties Owners Association, there is considerable interest and local involvement toward resolving the water quality problems in Newman Lake.

The citizen associations, forest land owners, local government, and natural resource agencies will continue to actively pursue remedies identified in this water quality implementation plan. The following rationale helps provide reasonable assurance that the Newman Lake nonpoint source TMDL goals will be met by 2029.

1. The following ongoing nonpoint source control programs are currently being implemented:
 - a. The revised forest practices rules have begun to be implemented on the commercial forest land, including some recent changes in road management. New forest practices rules for roads also now apply. These include new road construction standards, as well as new standards and a schedule for upgrading existing roads. Under the new rules, roads must provide for better control of road-related sediments, provide better stream bank stability protection, and meet current best management practices. DNR is also responsible for oversight of these activities.
 - b. Inland Empire Paper Company implemented a controlled-access program at entrances to their forest property to reduce erosion caused off-road recreational vehicles.
 - c. Spokane County purchased 420 acres of conservation land, with 3000 feet of waterfront along the northwest shore of Newman Lake, for \$1.54 million. The purchase of this land will prevent erosion that would likely have been caused by residential development on the property.
 - d. Several private landowners, for practical reasons, reduced the amount of livestock grazing and confined feeding operations historically located along lower portions of the tributaries to the lake.

- e. The NLFCZD is required to implement external phosphorus control strategies in order to receive a NPDES discharge permit for alum injection with the aerator.
2. Ongoing lake monitoring is funded by the flood control district. Through a grant, the NLFCZD completed a multi-year tributary monitoring effort in 2006.
3. Ecology will insure that the TMDL is implemented and will issue construction stormwater permits to land-disturbing activities greater than one acre. Spokane County is responsible for implementing erosion and sediment control practices and enforcement of shoreline protection and critical area ordinances. The Department of Natural Resources is responsible for making sure the Forest Practices Act requirements are implemented.
4. Additional reasonable assurance is provided by the fact that the majority of the forested portions of the Thompson Creek watershed are owned by the Inland Empire Paper Company and Washington State Parks where sound forest management is practiced.
5. The ban on phosphate dishwasher detergents should have a positive effect on Newman Lake water quality by reducing phosphates from septic systems.

While Ecology is authorized under Chapter 90.48 RCW to impose strict requirements or issue enforcement actions to achieve compliance with state water quality standards, it is the goal of all participants in the Newman Lake TMDL process to achieve clean water through voluntary control actions.

It is anticipated that water quality monitoring, combined with tracking implementation of phosphorus-controlling best management practices, will be reported annually. Ecology and the public will receive detailed evaluations every five years as resources allow. Ecology and local groups will use this information for adaptive management and, if necessary, revise implementation strategies. If data clearly shows that water quality standards cannot be met after all achievable pollution remedies are implemented, a use attainability analysis (UAA) may be pursued.

Ecology will consider and issue notices of noncompliance in accordance with the Regulatory Reform Act in situations where the cause or contribution of cause of noncompliance with load allocations can be established.

Summary of Public Involvement Methods

Public review and comment

A 30-day public comment period for this report was held from May 20 through June 24, 2009. A news release was sent to local media serving the watershed. Advertisements about the comment period were placed in the following publications and website locations:

- Spokane Valley News Herald
- Liberty Lake Splash
- NLFCZD website

Responses to the comments are provided in Appendix C.

Public mailings and initial public meeting

Ecology and Spokane County mailed a flier announcing the November 5, 2008 public meeting to every resident in the Newman Lake watershed in October 2008. The flier described the re-formation of the TMDL advisory committee, progress made toward implementing the TMDL (general update), and other activities.

The purpose of the public meeting on November 5, 2008 was to inform the community about the required contents of the Detailed Implementation Plan, request members to participate in the advisory committee, and describe the next steps following completion of the WQIP.

TMDL advisory committee meetings

Ecology requested volunteers for an advisory committee at the first public meeting on November 5, 2008. The committee that was formed following this meeting met three times on February 24, April 7, and May 13, 2009 to develop the TMDL WQIP. The purpose of the meetings was to identify current programs and necessary actions to meet the phosphorus reduction strategies identified in the TMDL. Members of the advisory committee and their affiliation are:

Jacob McCann, Spokane County / NLFCZD	Staci Lehman, NLPOA
Jane Takai for Bob Takai, Property Owner	Lorne Burley, NLFCZD
Lauretta Block, Agriculture	Larry Guthrie, Property Owner
Warren Heylman, NLFCZD	Linda Pool, Watershed Committee
Margo Wolf, Watershed Committee	Juanita Richardson, Property Owner
Dennis Parent, Inland Empire Paper	Lee Tate, Property Owner
Eric Keller, Forestry, WA DNR	Sharon Cusic, Property Owner
Mike Davis, Property Owner	Jeanne Ellern, Property Owner
Robert Anderson, Forestry, WA DNR	Simone Ramel, Property Owner

Kim Jones, NLPOA
Wendy Burley, NLPOA

Laurie Keaton, Property Owner

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Appendices

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Appendix A. Table of organizations' current practices, needed actions, and targets

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Note: Activities in bold represent priorities as identified by members of the Newman Lake advisory committee. After an appropriate interval following implementation of these actions, Ecology recommends an updated review of all in-lake and external sources of phosphorus and BMP alternatives similar to the Robison and Funk Comprehensive Plan (1997). Such a review should focus on current actions, performance, costs, and an analysis of suitable BMP alternatives.

Activity	Strategy Addressed	Responsible Orgs.	Current Practices / Programs	Actions	Target Date	Supporting Documents
1. Enforce forest practices rules and regulations upon individuals found practicing prohibited activities in riparian areas and streams.	S1	DNR	<p>The DNR has full authority to regulate forest practice activities on forest land. If there is an active Forest Practices Application (FPA) on the site, the DNR is responsible for enforcement of any prohibited activities. DNR foresters, other agencies, and private citizens help the DNR locate illegal Forest Practice activities.</p> <p>The DNR maintains a database of FPAs that is available to the public. In the Newman Lake watershed, there is a procedure for reporting an approved FPA application so the owner of the land can be contacted for further information. This process is controlled through the FPA's web site. A Username and Password must be set up to access this web site. http://www3.wadnr.gov/dnrapp4/fparsweb/login.aspx?RedirectURL=FPASearch.aspx</p> <p>Inland Empire Paper's Road Management and Abandonment Plan (RMAP) is on schedule and should be in compliance by 2016 (regulated by DNR).</p>	<ol style="list-style-type: none"> 1. Post all active FPAs on the Newman lake web site 2. Develop list of agency contacts (DNR, Ecology, County) to consult on forest land conversions and construction of private roads. 3. DNR Forest Practice Foresters (FPF) investigate any complaint within two business days of receipt. It is also expected that the reporting party hear back from the FPF in a timely manner (if a name and number are left by the reporting party). 	On-going	<ul style="list-style-type: none"> • Thompson Creek Watershed Analysis (DNR 1997) • Washington Forest Practices Rules (WAC 222) • Thompson Creek Inventory Assessment and Geomorphic Stream Classification (Spokane County Conservation District Nov 2000) • Erosion Hazard Inventory /Newman Lake Watershed 2004-05 (Newman Lake Flood Control District and Watershed Committee) • Spokane County Road Standards Feb 2001 <ul style="list-style-type: none"> ○ Relevant sections- Private Roads/pg 3-17, 18 ○ Driveway Approaches pg 3-19, 20, 21

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				4. Continue current practices for RMAP schedule.		
2. Manage vehicle access, as was done for the Inland Empire Paper Company's controlled access program, for all motorized vehicles.	S1, S2	Inland Empire Paper Co. NL Residents (forest owners)	Inland Empire Paper's program has been in existence since 2001 and will continue. The main Thompson gate is closed and locked from December through May. During the remainder of the year, it is open for public access with a permit. Permits can be obtained at the Hauser Junction Smoke Shop on Highway 53. A gate host is available at the entrance and there is random patrolling of the watershed. Smaller landowners can control access if they actively manage their lands. It is a matter of watching and maintaining barricades, gates, and other access points and repairing them quickly when they fail. This is a difficult process with many challenges. Thompson Creek is easier to control because there are fewer access points. Controlling access to the remainder of the subwatersheds in Newman Lake is much more difficult.	Continue current practice for IEP. Encourage private forest owners to control access through education efforts.	On-going	<ul style="list-style-type: none"> Thompson Creek Watershed Analysis (DNR 1997) Erosion Hazard Inventory /Newman Lake Watershed 2004-05 (Newman Lake Flood Control District and Watershed Committee)

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Activity	Strategy Addressed	Responsible Orgs.	Current Practices / Programs	Actions	Target Date	Supporting Documents
<p>3. Develop a watershed-scale database and management survey to inventory ownership and prioritize the total miles of erodible roads, road banks, and driveways and track BMP implementation.</p> <p><i>Note: Surveyors will not trespass on private property.</i></p>	S2, S3, S10	Spokane County DNR NLFCZD NLPOA NLWC	<p>No watershed database has been developed specifically for county roads and/or BMP implementation.</p> <p>The DNR regulates all forest land roads during timber harvest and enforces the rules using "stop work" orders, fines, and court proceedings as necessary.</p> <p>All large landowners through Road Maintenance and Abandonment Plan (RMAP) are required to inventory, schedule and fix their forest roads to avoid sediment delivery and provide for fish passage on or before 2016. State law (RCW 76.09) and rules (WAC 222-24) require forest roads to comply with the Clean Water Act and endangered species Act. RMAP law was passed in 1999 and the road inventories and repairs started in 2001 by large landowners. The program is managed and enforced by the DNR. A large landowner as defined by RMAP is one who harvests at least 2,000,000 board feet per year. The only large landowners in the Newman Lake watershed are</p>	<ol style="list-style-type: none"> 1. Develop survey. Utilize existing reports where appropriate (Erosion Hazard Inventory for example). 2. Spokane County, in consultation with responsible organizations, hire consultant to develop a database based on survey findings and supporting documents and current inspections. For non-industrial forest roads, request that DNR construct a general database to determine mileage. 3. Perform ground reconnaissance survey on erodible 	2014	<ul style="list-style-type: none"> • Thompson Creek Watershed Analysis (DNR 1997) • Washington Forest Practices Rules (WAC 222) • Thompson Creek Inventory Assessment and Geomorphic Stream Classification (Spokane County Conservation District Nov 2000) • Erosion Hazard Inventory /Newman Lake Watershed 2004-05 (Newman Lake Flood Control District and Watershed Committee) • Spokane County Road Standards Feb 2001 • Watershed Survey – Miles of roads by section (2004)

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Activity	Strategy Addressed	Responsible Orgs.	Current Practices / Programs	Actions	Target Date	Supporting Documents
			<p>IEP and Stimson.</p> <p>The RMAP program requires the landowner to inventory the roads, locate all culverts, bridges, road grades, and other features with erosion potential. All these potential erosion issues must be prioritized and repaired by 2015. This timed process is about half completed.</p> <p>The DNR keeps all records for the RMAP process. Each landowner reports to the DNR annually with a list of the work done. The remaining work to be completed and its priority are also reviewed annually with DNR and Ecology.</p> <p>Small forestland owners are more of a challenge. Their responsibility is to inventory and repair roads only <i>for a specific FPA</i>. There is a responsibility by all landowners to maintain <i>any</i> forest road on their land to avoid actual sediment delivery.</p>	roads based on database findings.		
4. Develop prescriptive design and maintenance standards and a	S3, S10	Spokane County NLFCZD NLPOA NLWC	See current practices in Activity 3 for forest roads. There are currently no such requirements or plans for county roads but the following county ordinances partly	1. Draft standards for county roads and implementation	2014	<ul style="list-style-type: none"> Newman Lake Stormwater Control Plan (Robison and Funk 1997). Erosion hazard Inventory for

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watershed specific implementation plan to reduce miles of erodible road. Standards for general construction should include special stream and lake bank stabilization and re-vegetation requirements.			<p>address this activity:</p> <ul style="list-style-type: none"> • Critical areas ordinance (Spokane County Code 11.20) • Erosion and sediment control performance standard (multiple permits; http://www.spokanecounty.org/bp/data/Brochures/bp19_Erosion.pdf) • Shoreline master program (in development – SCC 1.42) 	<p>plan.</p> <ol style="list-style-type: none"> 2. Develop standards specific to county roads in Newman Lake watershed based on supporting documents and existing programs. 3. Develop county road rehabilitation, abandonment and maintenance plan based on findings of Activity 3 and in conformance with Action 2 in Activity 4. 		<p>Newman Lake Watershed</p> <ul style="list-style-type: none"> • Lake Book & Naturally Newman (NL Watershed Committee) • NL Phase I & II Restoration Studies (WSU Water Research Center) • NL Restoration Feasibility Study (WSU) • NL Water Quality Surveys) • 2004 Watershed Survey by NL Residents: Land Use Study identifying residential, forestry, miles of road by section and agricultural land uses in the NL Watershed, NL Shoreline Survey Report & CD, and NL Watershed Erosion Survey summary & pictures of erosion problems along county roadways at Newman Lake. • Erosion & Sediment Control Techniques (Spokane County) • Revised Guidelines for Storm-water mgmt (Spokane County)

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Activity	Strategy Addressed	Responsible Orgs.	Current Practices / Programs	Actions	Target Date	Supporting Documents
						<p>Public Works)</p> <ul style="list-style-type: none"> • Spokane County Stormwater Utility • Homeowner's Guide to Grassy Swales – (Spokane Co. Dept. of Engineering & Roads) • Comprehensive Plan of Development for Stormwater Control in the NL Watershed 1997 (WSU Water Research Center) • Citizen's Guide to Understanding & Monitoring Lakes & Streams (Ecology) • Stormwater Management manual for Eastern, WA (Ecology) • DNR Forest Practices Ace & Manual • DFW Educational Brochures • EPA Lake & Reservoir Restoration & Guidance Manual. • WA Dept of Transportation Erosion and Sediment Control

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Activity	Strategy Addressed	Responsible Orgs.	Current Practices / Programs	Actions	Target Date	Supporting Documents
						Training Manual <ul style="list-style-type: none"> 2006 Watershed Plan
5. Increase the public's awareness of how they contribute to water quality impairments. Possible education activities include posting signs at boat launches, producing flyers and mailers, placing information on the NLFCZD website, etc.	S4, S9, S10, S11	Ecology Spokane County USDA-NRCS Newman Lake residents and organizations NLWC NLFCZD	United States Department of Agriculture (USDA) <ul style="list-style-type: none"> Natural Resource Conservation Service (NRCS) and Department of Natural Resources (DNR-Forestry) offers education and technical assistance with best management practices to improve water quality. Contact Rich Edlund 924-7350 Ecology <ul style="list-style-type: none"> Provides information about stormwater management on their website http://www.ecy.wa.gov Education and outreach on water quality: Brook Beeler 329-3478 Spokane County <ul style="list-style-type: none"> Spokane county website: http://spokanecounty.org 	1. Develop erosion inspection and reporting procedures as described in Activity # 7 to provide the community members a way to report violations and areas of concern and follow-up with what was done by the appropriate agencies or contractors. 2. Continue to place information on the NLFCZD website, include links to Spokane County, State (including Ecology), and	2011	Same as Current Practice

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			<ul style="list-style-type: none"> • Newman Lake Flood Control District (NLFCZD) website http://www.nlfczd.org & newsletter • The <u>Lake Book</u> addresses stormwater management issues and gives many suggestions how to improve water quality impairments. http://www.nlfczd.org • B-19a Erosion and Sediment Control Techniques (Division of Building and Code Enforcement) • SW-2 Grassy Drainage Swale In Residential Developments (Division of Engineering and Roads/Stormwater Section) • Homeowner's Guide to Grassy Swales (Division of Engineering and Roads/Stormwater Section) 	<p>Federal sources.</p> <ol style="list-style-type: none"> 3. Update the <u>Lake Book</u> with current department addresses, phone numbers and email addresses. Update Stormwater control methods. 4. Develop and post signs at boat launches and other public places (marina, etc.) 5. Hold workshops on shoreline landscaping, boater education (to prevent shoreline erosion), erosion control on driveways, native planting, etc., and on the new RSMP Revised Shoreline Master Program 		

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			<p>NLPOA</p> <ul style="list-style-type: none"> • Welcome baskets that include Lake Book <p>Private Engineering Firms:</p> <ul style="list-style-type: none"> • Review project and client lists 	<p>when passed by the Board of County Commissioners.</p> <p>6. Produce flyers and mailers as part of Newman Lake newsletter.</p> <p>7. Develop a diagram showing which permits are necessary (and which agency is responsible) for new development or redevelopment similar to Okanogan County Office of Planning and Development.</p> <p>8. Prepare annual "State of the Lake Report" that includes a summary of water quality monitoring results and all watershed</p>		

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				<p>improvement efforts. Report also can include locations of BMPs, violations, and enforcement actions and forwarded to Ecology.</p> <p>9. Provide “Lakeside Living” or similar video with handouts specifically for Newman Lake to homeowners.</p> <p>10. Revise Liberty Lake’s Watershed Pledge booklet for Newman Lake and conduct a Watershed Pledge event at Newman Lake.</p>		
6. Enforce county erosion control ordinances through regular	S4, S9, S10	Ecology Spokane County NLPOA NLFCZD	<ul style="list-style-type: none"> Spokane County Building & Planning: David Jensen 477-3675 	1. Publish and distribute (to community members and	2011	<ul style="list-style-type: none"> Ecology guidance document to assist with permit compliance

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inspections.		NLWC	<ul style="list-style-type: none"> • Code enforcement/violations: http://spokanecounty.org • County erosion control ordinances: http://www.municode.com/Resources/gateway.asp?pid=16337&sid=47: Title 9, Chapter 9.14: Roads Approach; and Chapter 9.14.185: Erosion and sediment. 	<p>government agencies) a guide/manual specific to the Newman Lake watershed area which contains guidelines for reviewing construction stormwater permits and erosion field inspections.</p> <ol style="list-style-type: none"> 2. Implement Activity 8 (call-in number) 3. Develop or borrow inspection checklist for community members. 4. For apparent violations, notify Ecology or Spokane County inspectors (numbers in 		<ul style="list-style-type: none"> • Ecology site inspection checklist • Ecology stormwater monitoring guidance document. • Phase I on Newman Lake’s water quality (WSU Water Research Center) • Construction Stormwater General Permit: http://www.ecy.wa.gov • Construction NPDES permit: http://www.ecy.wa.gov/program/wq/stormwater/construction • Underground Injection Control (dry wells) http://www.ecy.wa.gov/programs/wq/grndwtr/uic/index

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				<p>inspection form).</p> <p>5. Publish the results of the inspections which involve Newman Lake water quality on the NLFCZD website.</p> <p>6. Schedule regular meetings with County and Ecology stormwater inspectors to share information and develop common understanding on Newman Lake issues.</p>		
7. Enforce NPDES construction stormwater permits if applicable. (Applies to new construction on land over 1 acre	S4, S9, S10	Ecology	Ecology investigates construction stormwater permit violations that are reported to them.	Same as Activity 6.	2011	Same as Activity 6

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in size)						
8. Provide call-in number to NLFCZD to report erosion from construction. Post call-in number around the watershed.	S4, S9, S10	NLFCZD	Inspections by Ecology and County staff as resources and time allow.	<ol style="list-style-type: none"> 1. Designate an existing number for community members to report suspected violations for follow-up inspection. 2. Follow-up all calls with an inspection as described in Activity 6. 	2011	
9. Conduct wetland inventory or review existing inventories to identify potentially high value restoration projects across all land uses.	S5, S7	Spokane County	<ul style="list-style-type: none"> • Newman Lake Watershed wetlands maps (Spokane County) • Spokane County wetland inventory (2008-09) • National Wetland Inventory on Google Earth 	<ol style="list-style-type: none"> 1. Conduct wetland survey. Survey will appropriately rank wetlands in the Newman Lake watershed <u>OR</u> 2. Utilize findings from Spokane County wetland survey (PBS&J consultant report) and other supporting 	2014	<ul style="list-style-type: none"> • Thompson Creek Watershed Analysis (WA DNR 1997) • Thompson Creek Inventory Assessment and Geomorphic Stream Classification (WSU Water Research Center) • Spokane County Planning Department and Spokane County Conservation District. • Newman Lake watershed wetland maps (Spokane County) • The National Wetlands Inventory at http://www/fws.gov/wetlands

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				documents (including TMDL) specific to Newman Lake.		<ul style="list-style-type: none"> Spokane County Utilities wetland inventory
10. Purchase properties or easements in high value restoration areas.	S5, S6	Spokane County USDA-NRCS	<ul style="list-style-type: none"> In 2004 the McKenzie Conservation Area was purchased by Spokane County Parks and Recreation with Conservation Futures Funds. The Conservation Area is located on the NW shores of Newman Lake, contains 421 acres, has 3,000 feet of shoreline, wetlands cover about 1/3 of the property and 3 streams flow through the land. A Conservation Easement from Inland Northwest Land Trust (INLT) exists on approximately 200+ acres NW of Newman Lake that lies within the watershed with streams that feed into Thompson Creek. 	<ol style="list-style-type: none"> Conduct survey / outreach to identify private wetland/riparian owners to learn what motivates them, find common ground, and determine financial incentives. Develop restoration design report based on information from surveys, working with willing landowners. Support passage of Conservation Futures funding in the future. Ask INLT to 	On-going	<ul style="list-style-type: none"> Inland Northwest Land Trust has been active in the Inland NW creating Conservation Easements. INLT has come to Newman Lake in the past to give an informative presentation to willing landowners about conservation easements. Two easements were instigated from this presentation Staff from NRCS and SCCD have talked to individual land owners about the federal Wetland Reserve Program (WRP) and the Conservation Reserve Program (CRP).

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			<ul style="list-style-type: none"> Spokane County Engineering Dept is planning to replace the Thompson Creek crossing at Muzzy Road, and is looking at the potential of coordinating with other stakeholders to assess the viability of relocating the crossing to the natural low point further east. This would require a re-routing of Thompson Creek. Contact has been made between the property owner and Spokane County to discuss options. 	<p>make a presentation to interested landowners.</p> <ol style="list-style-type: none"> Invite private wetland owners to a presentation to learn about WRP and CRP. Contact Spokane County Parks and Recreation to learn ways to restore the northern wetlands and associated riparian areas in the McKenzie Conservation Area. This has high potential because this land is already publicly owned. 		
11. Conduct volunteer restoration planting days	S5, S7, S8	Spokane County NLFCZD NLPOA NL	<ul style="list-style-type: none"> There have been at least two recent projects; First project planted native trees and plants to replace 	<ol style="list-style-type: none"> Contact outside organizations (boy scouts, churches, 	On-going First VRD by 2014	<ul style="list-style-type: none"> Turf Tree and Landscape conference – for more information, contact Simone

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		Volunteers NLWC SCCD	<p>those lost in a 1991 firestorm. Plants were donated by NRCS and Plants of the Wild. Boy Scouts helped local volunteers. The goal was 50% survival and tree thinning was included.</p> <ul style="list-style-type: none"> • The second project goal was to stabilize the outlet channel along Eller's airstrip with plants purchased by the county and volunteers provided by NL residents and Shamrock Acres. • Wetland restoration at Starr and E. Newman Lake. NRCS provided restoration plan and plants and Boy Scouts did the planting. • Volunteers have thinned the N side of the public boat launch access parking lot and have held annual clean-up days in the watershed. These activities indicate a strong interest 	<p>students, etc.) to collaborate on these issues. Local high school students can work on NLPOA projects to fulfill their volunteer hours for graduation. Establish "pipeline" with local schools through presentations, field trips, and similar forms of outreach.</p> <ol style="list-style-type: none"> 2. Prepare comprehensive list of best plants for our area and other possible stabilization opportunities and resources to provide plants and materials. 3. Determine if grant 		<p>Ramel: simone@maplesuite.com</p> <ul style="list-style-type: none"> • "Restore your Shore" CD ROM (MN DNR 2002).

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			from the community in potentially assisting with future planting days if implemented.	money is available and pursue. Also determine if any resources can be donated from local organizations (plants, stabilization materials, etc.) 4. Develop restoration planting plan and schedule volunteer restoration days.		
12. Approach properties and develop education materials to encourage enrollment in Conservation Reserve Program	S5, S4	Spokane County NLFCZD NLPOA USDA-NRCS NLWC SCCD	Properties that have participated in the Conservation Futures program: McKenzie property	Same as Activity 10.	2011	NRCS Conservation Reserve Program Website: http://www.nrcs.usda.gov/programs/CRP/
13. Conduct feasibility study on near shore	S6	Spokane County NLFCZD	<ul style="list-style-type: none"> SRHD recommendations and approvals for OSS are determined by the 	1. Develop report (through consultant or	2014	<ul style="list-style-type: none"> Newman Lake Septic System Survey and Testing – 1991 by

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<p>septic systems to identify high-impacting systems (through dye testing and similar methods) and recommend alternative treatment technologies for those systems.</p>			<p>Washington State Board of Health guidelines set forth in the Rules and Regulations of the State Board of Health “On-site Sewage Systems”, Chapter 246-272A WAC.</p> <ul style="list-style-type: none"> All alternate OSS system treatment and distribution products listed and registered by the Rules and Regulations of the State Board of Health “On-site Sewage Systems”, Chapter 246-272A WAC are allowed to be considered by the SRHD for acceptable solutions at Newman Lake residences. <p>SRHD recommends that property owners contact one of the approved OSS designers to evaluate their actual conditions for system options.</p> <ul style="list-style-type: none"> Spokane County currently 	<p>university) identifying problem systems and give homeowner information / conduct workshops and classes on available options. Emphasis must be on education and resource assistance to resolve problem systems.</p> <p>2. Work with SRHD and Spokane County Building and Planning for more stringent regulations and enforcement of existing regulations at Newman Lake. Special attention should be directed at “grandfathering”</p>		<p>Spokane County Health District.</p> <ul style="list-style-type: none"> Newman Lake Watershed Land Use Survey – 2004. Newman Lake Shoreline Survey – 2004. Newman Lake TMDL Study – 2008

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			requires that any construction that requires a building permit also needs to have the septic system approved by the Spokane Regional Health District, in particular if there will be added bedrooms and bathrooms.	<p>exceptions for seasonal to year-round conversions.</p> <p>3. Create a reporting system to make sure permits are issued for remodeling.</p> <p>4. Create a method by which a previously seasonally used residence that is now a full time residence can be required to upgrade the septic system.</p>		
14. Install decentralize STEP systems, or similar technologies, in high-impact areas	S6	Newman Lake residents NLPOA WA Department of Health Spokane County		<p>1. Obtain funding for these systems based on information from Activity 13.</p> <p>2. Construct systems where there are willing and</p>	N/A	Same as Activity 14.

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				interested parties.		
15. Conduct study to identify most erosive shorelines and causative factors for shoreline erosion.	S8	Spokane County	None	1. Obtain funding for and develop study.	2014	<ul style="list-style-type: none"> Newman Lake Watershed Land Use Survey – 2004. Newman Lake Shoreline Survey – 2004. Newman Lake TMDL Study – 2008
16. Adopt ordinances for enforcement of no-wake zones in most sensitive areas.	S8	NLFCZD NLPOA Spokane County	None	1. Draft ordinance for no-wake zones based on information from Activity 15. Ordinance must include provision for enforcement similar to language in Activity 6.	2019	Same as Activity 16.
17. Develop educational materials for	S8	Ecology Spokane County NLFCZD	See Activity 5, 12 and 13.	1. Develop a user-friendly guide to shoreline	2012	<ul style="list-style-type: none"> Turf Tree and Landscape conference – for more information, contact Simone

Note: Activities in bold represent priorities as identified by members of the Newman Lake advisory committee. After an appropriate interval following implementation of these actions, Ecology recommends an updated review of all in-lake and external sources of phosphorus and BMP alternatives similar to the Robison and Funk Comprehensive Plan (1997). Such a review should focus on current actions, performance, costs, and an analysis of suitable BMP alternatives.

Activity	Strategy Addressed	Responsible Orgs.	Current Practices / Programs	Actions	Target Date	Supporting Documents
lakeshore homeowners on shoreline landscape design.		NLPOA NLWC SCCD		<p>landscaping specific to Newman Lake or regional lakes. Include list of native plants, area consultants specializing in shoreline landscaping, and potential funding sources.</p> <p>2. Obtain funding to develop model shorelines (residential or parkland) and host public tour.</p> <p>3. Revise Liberty Lake Shoreline Landscaping booklet for Newman Lake.</p> <p><i>Many of the actions in Activity 5 can address this activity as well.</i></p>		<p>Ramel: simone@maplesuite.com</p> <ul style="list-style-type: none"> • “Restore your Shore” CD ROM (MN DNR 2002). • Lakeside Living Video – King County Water & Land Resources Division/DNR

Note: Activities in bold represent priorities as identified by members of the Newman Lake advisory committee. After an appropriate interval following implementation of these actions, Ecology recommends an updated review of all in-lake and external sources of phosphorus and BMP alternatives similar to the Robison and Funk Comprehensive Plan (1997). Such a review should focus on current actions, performance, costs, and an analysis of suitable BMP alternatives.

Activity	Strategy Addressed	Responsible Orgs.	Current Practices / Programs	Actions	Target Date	Supporting Documents
18. Survey and define loadings from stormwater outfalls and drywells.	S10	Spokane County	No outfall survey or stormwater sampling has been conducted in Newman Lake to date.	<ol style="list-style-type: none"> 1. Map stormwater conveyances and outfalls. 2. Determine phosphorus loading from stormwater system (sampling, dye test, etc). 	2019	<ul style="list-style-type: none"> • Spokane County Phase II Municipal NPDES permit (reference only; permit coverage does not apply to Newman Lake)

Appendix B. Newman Lake TMDL EPA approval letter

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

DEPARTMENT OF ECOLOGY

FEB 29 2008

WATER QUALITY PROGRAM

Reply To: OWW-134

FEB 27 2008

David C. Peeler
Water Quality Program Manager
Department of Ecology
PO Box 47600
Olympia, Washington 98504-7600

Re: EPA approval of the Newman Lake Total Phosphorus Total Maximum Daily Load

Dear Mr. Peeler:

Following our review and evaluation of the Newman Lake Total Phosphorus Total Maximum Daily Load (TMDL) developed by Washington Department of Ecology (Ecology), the U.S. Environmental Protection Agency (EPA) Region 10 is pleased to approve one TMDL for Newman Lake. This TMDL was submitted to EPA by Ecology on December 19, 2007.

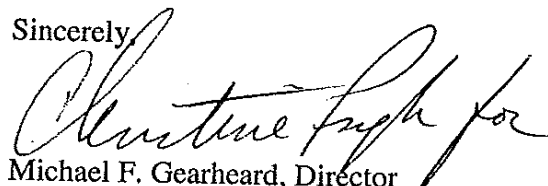
This approval includes all load allocations established in the TMDL, since all of these allocations are necessary in order to attain applicable water quality criteria in the waterbody. Our review indicates that these allocations have been established at a level that, when fully implemented, will lead to the attainment of the water quality criteria addressed by these TMDLs. Therefore, the Department of Ecology does not need to include these waterbodies on the next 303(d) list of impaired waters for the pollutants covered by this TMDL.

For the purposes of tracking approved TMDLs, pursuant to EPA's 1998 settlement agreement, which is based on the 1996 303(d) list, this TMDL contains one waterbody segment.

The December 19, 2007, submittal also includes an Implementation Plan which was developed and submitted pursuant to 40 CFR 130.6(e) and the October 29, 1997, Memorandum of Agreement between EPA and Ecology. EPA has no duty to approve or disapprove implementation plans under Section 303(d) of the Clean Water Act (CWA) and therefore, EPA is taking no action to approve or disapprove the Implementation Strategy.

By EPA's approval, this TMDL is now incorporated into the State's Water Quality Management Plan under Section 303(e) of the CWA. We appreciated the opportunity to work with your staff throughout the development of this TMDL, and look forward to continuing to work collaboratively on water quality issues in the Newman Lake watershed. If you have any questions, please feel free to call me at (206) 553-7151, or Martha Turvey of my staff at (206) 553-1354.

Sincerely,



Michael F. Gearheard, Director
Office of Water and Watersheds

cc: Anthony Whiley, Ecology
Helen Bresler, Ecology

Appendix C. Response to comments

Responses to comments are provided below followed by individual response letters, meeting note cards and emails received by Ecology during the public comment period for this WQIP (May 20 through June 24, 2009).

1. Draft Figure 3: Map fails to identify Thompson Creek (inlet 4)

Response: Map has been modified to identify Thompson Creek.

2. “Google Earth Wetland Inventory” should read “National Wetland Inventory on Google Earth”

Response: Text change has been made.

3. Funding sources: add Washington Wildlife and Recreation Program (WWRP)

Response: Information has been added to Table 6.

4. Education is the key

Response: Implementation measures for education are provided in the Appendix A table under Activity 5.

5. We can’t restrict, avoid, prevent, require, etc.

Response: Assuming this comment is directed at language in the table in Appendix A, all actions identified are based on recommendations from the TMDL and TMDL advisory committee to improve water quality in Newman Lake. Language has been modified throughout the report to reflect the desire that existing groups be responsible for carrying out the measures identified in the table. Regardless of the language in this plan, any efforts to improve water quality will only be successful given the willingness of landowners and the commitment by the responsible organizations.

6. We can’t make people do or don’t because we don’t have any enforcement so I would suggest those areas be re-worded in a more positive format i.e., Best Management Practices “Encourage, educate...” This is on many pages throughout the document.

Response: Please refer to the response for comment 2.

7. From our discussion tonight, it seems you have a consensus, at least from this group, to do some minor re-wording around NOT forming a new committee and lets go the organizations already in place. I hate to ask you to re-write but please do some re-wording around this issue. This is a “button pusher” and the folks who feel strongly were here tonight.

Response: Ecology never intended to replace, but rather enhance the functions of existing groups. Based on the negative response to this idea by the TMDL advisory committee, however, inferences to this idea have been changed to reflect the preference by most of the members to have existing groups as identified in the table for Appendix A carry out the WQIP.

8. Would still like to see NLFCZD as the lead agency. Committees could be formed from the District – asking all residents to participate through newsletter and website requests for volunteers.

Response: See Response to comment 7. Ecology does not recommend any particular organization as the lead but rather has attempted to identify which groups are responsible for (i.e., have a legal mandate to carry out some of the activities, code enforcement, etc.) or have an interest in carrying out the activities (NLPOA for example).

9. The study states “Newman Lake has experienced accelerated growth of algae, related blooms and aquatic plants during the summer months due to accelerated phosphorus concentrations.” This is not true. The water quality and clarity has consistently improved. See Washington State Water Research Dept. data 1986-2006, plus 2007.

Response: The statement in question is based on data collected and analyzed for the TMDL, completed in November of 2007, which serves as the foundation for this WQIP. Issues pertaining to data that was used and analyzed for the TMDL are addressed in the response to comments for that document.

10. WSU research shows the total phosphorus concentration on a yearly and seasonal basis is on a decline. This included the summer period.

Response: Please see response to comment 9. Issues of data use and quality are addressed in the TMDL response to comments.

11. There appears to be confusion in the external phosphorus source reductions required to meet the 20 micrograms per liter target and the current counts. The WSU record show the trend for the past 10 years has been decreased TP. In fact the 20 µg/L level has been attained under the direction of Barry Moore’s PhD guidance. Logic says “don’t tinker with success.” The WSU program has succeeded – keep it up.

Response: Please see response to comments 9 and 10.

12. “Advisory Group” should not and legally cannot be chiefly responsible for carrying out the actions contained within the plan. The 200 plus taxpayers, that pay the majority of the \$200,000+ look to the County Commissioner to be responsible for spending their assessment dollars.

Response: Please see response to comments 7 and 8.

13. The NLFCZD is a taxing district that spent many tax dollars on the aerator and micro-floc injection system with proven positive results. A state employee threatening to withhold the NPDES permit could display a lack of “good judgment.”

Response: Please see section of WQIP that discusses the aerator and alum injection system under the heading “Internal (in-lake) phosphorus loading control.” Ecology does not understand the last statement as there are no plans to withhold permits.

14. Page 9 – I would recommend that the annual meeting be held in the summer rather than spring [or] fall as most of the property owners are more available at that time of year.

Response: Language has been changed in the Executive Summary and Effectiveness Monitoring Plan sections of the WQIP that describes the preference for holding annual meetings in the summer.

15. Page 29 – Another function of the DNR is issuance of burning permits. They typically inspect the planned burn site and include restriction on the permit before the burning permit is issued.

Response: Burn permits have been added as a DNR function under the Pollution sources and organizational actions, goals, and schedules section of the WQIP.

16. The only area I see as a possible enhancement to Appendix A is to survey the direct storm water drains which go under the beaches directly to the lake and also dry wells which allow storm water a short cut to the lake water. I know of about 10 of these dry wells or direct discharge pipes around the lake. I would like to see a dye test on these installations as part of this TMDL project.

Response: Activity 18 has been added to the table in Appendix A to characterize the loading from municipal stormwater.

17. As mentioned at our last draft committee meeting on May 13th (2009), the effect of the ban on high phosphate detergents in Spokane County for the last eleven months has reduced Spokane’s Riverside Park Water Reclamation Facility’s phosphate level by 10%. In my discussions yesterday with Spokane County resource specialist, with better non-phosphate detergents, it could be as high as 15% reduction and that it could be as high as 20% reduction in lakes like Newman. In the draft it said that septic tanks are only 14% of the total phosphate loading. Newman Lake has no sewers so a 20% reduction of the 14% is substantial.

Response: Ecology agrees that the dishwasher phosphate detergent ban should have a beneficial impact on septic tank effluent but recommends caution in applying numbers obtained by sampling influent wastewater to a treatment plant (which is where a

reduction was observed based on limited data) to septic tank effluent. While every bit helps, it may not be as drastic a reduction as one would hope. What would be equally, if not more beneficial are reductions in phosphate fertilizer use, particularly in landscaping in close proximity to the shoreline, as described in the table Appendix A (can be covered under activities 5 and 17).

18. In regards to clean dishes, I'm finding that my dishes come out cleaner using no phosphate detergent because Newman Lake water quality is very soft. There are very few wells on Newman Lake so most of us pump from the lake getting the soft water for our domestic use. As quoted in the attached article, "Back in the homes of Spokane residents, one of the problems in getting clean dishes is that the water is very hard." I believe as a committee member, the more education we can provide to our watershed property owners on all aspects of phosphate control, the water quality at Newman Lake will improve greatly over the next 20 years.

Response: Please see response for 18. Ecology agrees that education is important to provide Newman Lake watershed residents with all necessary information to make choices that benefit Newman Lake water quality (see activity 5 in the Appendix A table).

19. I am writing in regard to the Water Quality Implementation Plan for Newman Lake. Newman Lake like any other water body has had a long history of land use impacts. The Newman Lake community has had a similarly long history of concern and initiative in trying to address the challenges and opportunities along the way. Like all knowledge, especially that pertaining to natural systems, there has been an ongoing evolution of understanding, still unfolding.

The TMDL is another step in this process. The Water Quality Implementation Plan is a good product and captures the strengths and weaknesses in the watershed and compiles many goals articulated over the years. As the previous chairperson of the Watershed Committee, I have long recognized the potential for our community to create and support best management practices due in part to the stakeholders, land use and the rural character of our community. This document and more recent proposed projects (stream and wetland restoration) validate my assessment of that potential.

There are many vital pieces to this plan, one of which is the recommendation for an independent peer review of the current in lake treatment. The details of the plan are good in addressing many of the high phosphorous impacts in the watershed. I have been eager for a comprehensive plan for intervention and yet the realities of cost and the felt constraint of time lead me to suggest that known, plausible plans be initiated as soon as possible. For instance a comprehensive study and additional assessment of the roadways is ideal but any sediment reducing intervention on streamside adjacent roads or road crossings, especially along Thompson Creek would be advantageous in reducing phosphorous load into the stream. Geologically poor sites for septic systems, such as Honeymoon Bay area, certain aged residences especially if they are occupied year long;

reconstructed/ remodeled older structures would seem the highest priority for septic assessment and intervention. Conservation measures for the streams, wetlands and shoreline should remain a top priority.

A meeting to prioritize and delegate tasks in the community and with partner agencies would be helpful. Having a neutral facilitator would be recommended. What will likely be the biggest challenge is to find, create, and encourage community partners to take on these tasks.

Response: Ecology agrees a comprehensive review of the oxygenator as described in the plan is important and that on-the-ground improvement of erodible roadways is a high priority. The actions to accomplish the latter activity in the Appendix A table are organized such that high risk sites can be identified so appropriate resources are put towards improving these areas.

20. The NLFCZD has an existing Citizen Advisory Board that is well diversified. There are eight members representing Agriculture, Forestry, Seasonal and Year-Round Lakeshore property owners, and other Newman Lake Watershed residents' interests.

It is important to use a permanent ongoing Advisory Board like the NLFCZD Board as temporary committees lose interest and may disband. The Board membership will change, but there will always be a Board to help plan and coordinate tasks.

We envision that this group along with interested citizens and volunteers from the community would review the DIP priorities and discuss tasks to begin work on. As projects are implemented we would naturally gather new volunteers at workshops, etc. to tackle further goals. Probably the first task should be an educational workshop to provide information about goals and what we are hoping to accomplish.

People would come and go on committees as projects dealt with their particular interests and time commitments. Hopefully most Newman Lake residents would seize the opportunity to participate as educational information is disseminated.

The NLFCZD could coordinate the planning and grants, but the implementation would be completed by volunteer organizations and committees. We would like to see all active projects and plans subject to public input with no “executive session” meetings being held that could exclude prospective participants. Keep the process open so that everyone feels they are included.

Response: Please see response 7 and 8.

21. Conduct Educational activities as listed in the Plan. We need to hold many educational workshops dealing with the topics covered in the DIP Plan where print information can be distributed and explained with on the ground examples available.

Response: Comment noted. See Appendix A table.

22. Have the NLFCZD coordinate the implementation of the TMDL DIP Plan, along with NLPOA and interested individuals and community organizations. Dr. Barry Moore and WSU should be part of the implementation program planning to help determine the most cost-effective solutions.

Response: Please see response 7 and 8.

23. Investigate the causes of lakeshore erosion and complete shoreline erosion restoration projects. It will take time to determine which solutions work the best and then promote their use with tax incentives or cost-sharing.

Response: This activity is identified in the Appendix A table. Ecology agrees this and other implementation activities will take time to identify where resources should be applied and for those actions to yield positive results.

24. Conduct erosion control inspections (using maps and aerial photos when needed to avoid conflicts on private lands) and encourage enforcement of regulations for new building, old and new driveways, and all county and private roads. Use education as a primary tool and enforcement as secondary. Have informational brochures available in Building and Planning.

Response: Comment noted. Please see Appendix A table.

25. Complete a wetland and riparian inventory and address restoration where possible. The McKenzie property could be the first focus since it is publicly owned and later projects could be done on private properties where owners are willing to participate.

Response: Comment noted. The County is currently exploring the possibility of restoring wetlands on the McKenzie property and will pursue similar opportunities where they arise from willing landowners.

26. Hold septic education workshops in cooperation with the Spokane Regional Health District and local engineers to offer best alternative systems and options for Newman Lake area residents. There have been previous studies that provide enough information to know where the problem areas exist. Education will be the most valuable tool, rather than spending another \$100,000.00 on testing.

Response: Comment noted. Please see Appendix A table for activities discussing septic systems and educational activities.

27. Sometimes the most effective solutions do not require a lot of funding. Last Saturday was NLPOA's Annual Spring Clean-Up Day and it was one of the most productive community building efforts recently held at Newman Lake. Over one hundred and fifty people of all ages participated. Everyone had fun, met their neighbors, enjoyed good

food, picked up free trees to plant at their homes, and expressed their willingness to participate again. There are a lot of both new and old friends that are anxious to see more successful activities offered to Newman Lake residents.

Response: Comment noted. Ecology feels that improvements in Newman Lake water quality will require cooperation by all watershed residents and is encouraged that activities such as the Annual Spring Cleanup will help facilitate information sharing and overall community building.

28. A Shoreline Workshop, the Watershed Pledge Program, or others similar programs would be good starting places to reintroduce what we are trying to accomplish. Once people see positive efforts in action they always want to become part of what we are working toward. Post flyers around the community and on reader boards and people will attend if the subject matter is of interest to them.

Response: Comment noted. Please see Appendix A table actions for educational activities.

29. The public participation program is extensive, although it missed some property owners who lived outside Spokane or Spokane Valley. These property owners do not receive the newspapers you used for notices of public meetings or request for comments. The best way to reach property owners outside Spokane is by mail. Does your mailing list contain names of Newman Lake property owners residing outside the Newman Lake area? We first heard of the TMDL this week when received the Newman Lake Property Owners Newsletter.

Response: Ecology regrets the fact that some residents have not been adequately informed of the TMDL implementation plan development but feels there has been a good faith effort to inform all residents of the project based on a variety of methods. Ecology used the mailing list provided by Spokane County to announce the initial kick-off meeting for all watershed residents, when invitations to serve on the advisory committee were offered after an overview of the TMDL implementation process. In addition, meeting announcements were placed in the Newman Lake newsletter and website for all advisory meetings and the public comment period in addition to the newspaper announcements.

30. (S8) We support the inclusion of reducing shoreline erosion in the TMDL. Some of the native trees along the lake are over 100 feet high. We have observed the roots of some of these trees are being eroded by high water from the high level of the lake and excessive boat wakes. There are trees leaning toward the lake that may eventually fall into the water. Lowering the lake to a level below the exposed tree roots would protect the trees and minimize the amount of exposed soils going into the lake. Lake front property owners along the lake should be encouraged to install protective bulkheads, rip rap, etc. to reduce shoreline erosion.

Response: Ecology agrees that reducing shoreline erosion is an important strategy and feels Activities 15 and 16 from the Appendix A table provide a logical step-wise process for identifying and reducing these causes. As a result of the findings from these actions, all potential methods should be explored to reduce shoreline erosion, which may or may not include wake ordinances, shoreline restoration, and similar management practices.

31. At some phase of the study, cost and benefit of the projects should be included. This should include disaggregating the costs between property owners and public agencies.

Response: The note in Appendix A table has been modified by recommending a revised comprehensive plan (last done in 1997) to assess current practices and cost effectiveness of internal and external phosphorus control strategies. Activity costs will also be assessed for effectiveness during the grant development and review process.

32. Monitoring, as mentioned in some areas of the Plan (draft pp. vii, 29, 30), addresses past or current sampling parameters that may or may not be applicable in the future. While the District does see monitoring as a critical part of the WQIP, we suggest adding flexibility to the language to all for changes in strategies or actions
i.e. Monitoring will consist ofdepending on available resources.

Response: Language has been added to clarify that watershed monitoring may be modified from past efforts and will be conducted as resources allow.

33. Specific to Watershed Monitoring (draft pp. 29-30), the language should reflect the past tense as said monitoring ceased in the fall of 2007. New language can again reference that County and Ecology.

Response: Language has been added to clarify that watershed monitoring was last conducted in 2007 and that future monitoring may be different and will be conducted as resources allow.

34. The internal (in-lake) phosphorus loading control section (draft pg 17) states that “The aerator and alum injection system is operated by the NLFCZD under an individual NPDES permit issued by Ecology.” While the alum injection system is operated under said permit, the operation of the oxygenator itself is not regulated under NPDES.

Response: This section has been modified to reflect that the NPDES permit only applies to the alum injection system component of the oxygenator, and not the oxygenator itself.

LGC

Larry Guthrie Company

General Contractor

MAY 29, 2009

RECEIVED

JUN 01 2009

DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

13411 32nd Avenue, Suite A
Spokane, WA 99216
(509) 922-6121
Fax (509) 924-8041
skyview@skyview-storage.com

JACOB MCCANN
WATER RESOURCES COORDINATOR
SPOKANE COUNTY DIVISION OF ENGINEERING AND ROADS
1026 W. BROADWAY AVE
SPOKANE, WA 99260

RE: NEWMAN LAKE PHOSPHATE

DEAR JACOB

AS I MENTIONED AT OUR LAST DRAFT COMMITTEE MEETING ON MAY 13TH, THE EFFECT OF THE BAN ON HIGH PHOSPHATE DETERGENTS IN SPOKANE COUNTY FOR THE LAST ELEVEN MONTHS HAS REDUCED SPOKANE'S RIVERSIDE PARK WATER RECLAMATION FACILITIES PHOSPHATE LEVEL BY 10%.

IN MY DISCUSSIONS YESTERDAY WITH SPOKANE COUNTY RESOURCE SPECIALIST, WITH BETTER NON-PHOSPHATE DETERGENTS IT COULD BE AS HIGH AS 15% REDUCTION AND THAT IT COULD BE AS HIGH AS 20% REDUCTION IN LAKES LIKE NEWMAN.

IN THE DRAFT IT SAID THAT SEPTIC TANKS ARE ONLY 14% OF THE TOTAL PHOSPHATE LOADING. NEWMAN LAKE HAS NO SEWERS SO A 20% REDUCTION OF THE 14% IS SUBSTANTIAL.

IN REGARDS TO CLEAN DISHES, I'M FINDING THAT MY DISHES COME OUT CLEANER USING NO PHOSPHATE DETERGENT BECAUSE NEWMAN LAKE WATER IS VERY SOFT. THERE ARE VERY FEW WELLS ON NEWMAN LAKE SO MOST OF US PUMP FROM THE LAKE GETTING THE SOFT WATER FOR OUR DOMESTIC USE. AS QUOTED IN THE ATTACHED ARTICLE "BACK IN THE HOMES OF SPOKANE RESIDENTS, ONE OF THE PROBLEMS IN GETTING CLEAN DISHES IS THAT THE WATER IS VERY HARD."

I BELIEVE AS A COMMITTEE MEMBER, THE MORE EDUCATION WE CAN PROVIDE TO OUR WATER SHED PROPERTY OWNERS ON ALL ASPECTS OF PHOSPHATE CONTROL, THE WATER QUALITY AT NEWMAN LAKE WILL IMPROVE GREATLY OVER THE NEXT 20 YEARS.

I APPRECIATE THE MANY HOURS YOU AND DAVID MOORE HAVE SPENT ON THE WATER QUALITY IMPLEMENTATION PLAN FOR NEWMAN LAKE.

SINCERELY



LARRY GUTHRIE
WATER FRONT OWNER
P.O. BOX 95
NEWMAN LAKE, WA 99025

Comments From
Linda Pool

① Pg. 13 - Draft Figure 3:
Map fails to identify Thompson Creek. (Inlet #4)

② Pg 12 - Appendix #9
"Google Earth wetland inventory" should
read "National Wetland Inventory" on
Google Earth"

③ Funding Sources:
Add: Washington Wildlife and Recreation
Program (WWRP)

Implementation Plan:

① Would still like to see
NLFLCD as the lead
Agency. Committees
could be formed from
the District - asking
all residents to
participate through
newsletter & website
requests for volunteers.

From our discussion tonight,
it seems you have a
~~Committee~~ consensus, at least from
this group, to do some minor
rewording around NOT
forming a new committee. I
let's go with the organization
already in place.
I want to ask you to re-write,
but please do some re-wording,

around this voice.

This is a "Button Pusher" +
the folks who feel strongly
were here tonight.

Jawetta

Education is the Key.

We can't restrict, avoid,
prevent, require, etc -

We can't make people do or don't
because we don't have any
enforcement

So I would suggest those areas
be rewarded in a move →

Positive formats

ie Best Management Practices

Encourage

Educate

This is on many pages #1 p 5, #2 p 17
Throughout the document,

Jamilla Block
Lauretta Block



HEYLMAN
MARTIN &
ASSOCIATES

Architecture
Planning
Interior Design

North 100 Stevens
Parkade Plaza
Spokane, WA 99201

Members, A.I.A.
Ph. (509) 838-2707
Fax (509) 838-2785

Newman Lake TMDL
Water Quality Implementation Plan
Review Comments 5-13-2009

To: David Moore
TMDL Advisory Group

Enclosed is a "Cut & Paste" review of the May 2009 Draft

1. The Study states "Newman Lake has experienced accelerated growth of algae, related blooms and aquatic plants during the summer months due to elevated phosphorous concentrations." This is not true. The water quality and clarity has consistently improved. See Washington State Water Research Dept. data 1986-2006, plus 2007.
 - Provide D.O.E. data showing W.S.U. data
2. W.S.U. research shows the total phosphorus concentration on a yearly and seasonal basis is on a decline. This included the summer period.
 - Provide D.O.E. data showing a trend of increased TP site authority and data
3. There appears to be confusion in the external phosphorus source reduction required to meet the 20 micrograms per liter (mg/L) target and the current counts. The W.S.U. record show the trend for the past 10 years has been decreased TP. In fact the 20 mg/L level has been attained under the direction of Barry Moore's PhD guidance. Logic says "Don't tinker with success." The W.S.U. program has succeeded – keep it up.
4. "Advisory Group" should not and legally cannot be chiefly responsible for carrying out the actions contained within the plan. The 200 plus taxpayers, that pay the majority of the \$200,000+ look to the County Commissioner to be responsible for spending their assessment dollars.
5. The NLFCDZ is a taxing district that has spent many tax dollars on the aerator and micro-floc injection system with proven positive results. A State employee threatening to withhold the NPDES permit could display a lack of "good judgment."

Respectfully submitted,

Warren Heylman

May 25, 2009

Washington State Department of Ecology
Eastern Regional Office
ATTN: Dave Moore
4601 North Monroe
Spokane, Washington 99205

RECEIVED

MAY 27 2009

DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE


Re: Comments on Draft Water Quality Implementation Plan (WQIP) for Newman Lake
Total Phosphorus TMDL

Dear Mr. Moore:

Thank you for the opportunity to comment on the Newman Lake WQIP as well as my being able to participate in the WQIP process. I think the draft WQIP for Newman Lake identifies the most important causes for phosphorus levels and includes reasonable implementation strategies. I have two comments:

1. Page 9 – I would recommend that the annual meeting be held in the summer rather than spring for fall as most of the property owners are more available at that time of year.
2. Page 29 – Another function of the DNR is issuance of burning permits. They typically inspect the planned burn site and include restriction on the permit before the burning permit is issued.

Sincerely,


Kim Jones
13620 N. Peninsula Drive
P.O. Box 93
Newman Lake, Washington 99025

June 9th, 2009

Water Quality Program
Eastern Regional Office
4601 N. Monroe
WA State Department of Ecology
Spokane, WA 99205-1295

Dear Dave Moore,

I am writing in regard to the Water Quality Implementation Plan for Newman Lake. Newman Lake like any other water body has had a long history of land use impacts. The Newman Lake community has had a similarly long history of concern and initiative in trying to address the challenges and opportunities along the way. Like all knowledge, especially that pertaining to natural systems, there has been an ongoing evolution of understanding, still unfolding.

The TMDL is another step in this process. The Water Quality Implementation Plan is a good product and captures the strengths and weaknesses in the watershed and compiles many goals articulated over the years. As the previous chairperson of the Watershed Committee, I have long recognized the potential for our community to create and support best management practices due in part to the stakeholders, land use and the rural character of our community. This document and more recent proposed projects (stream and wetland restoration) validate my assessment of that potential.

There are many vital pieces to this plan, one of which is the recommendation for an independent peer review of the current in lake treatment. The details of the plan are good in addressing many of the high phosphorous impacts in the watershed. I have been eager for a comprehensive plan for intervention and yet the realities of cost and the felt constraint of time leads me to suggest that known, plausible plans be initiated as soon as possible. For instance a comprehensive study and additional assessment of the roadways is ideal but any sediment reducing intervention on streamside adjacent roads or road crossings, especially along Thompson Creek would be advantageous in reducing phosphorous load into the stream. Geologically poor sites for septic systems, such as Honeymoon Bay area, certain aged residences especially if they are occupied year long; reconstructed/ remodeled older structures would seem the highest priority for septic assessment and intervention. Conservation measures for the streams, wetlands and shoreline should remain a top priority.

A meeting to prioritize and delegate tasks in the community and with partner agencies would be helpful. Having a neutral facilitator would be recommended. What will likely be the biggest challenge is to find, create, and encourage community partners to take on these tasks.

I want to thank Dave Moore and Jacob McCann from The NLFCZD, for being helpful, respectful, professional, knowledgeable leaders in this task.

Respectfully Submitted,

Margo Wolf

PO Bx 719
Newman Lake, WA 99025-0719

April 22, 2009

Dave Moore
Dept. of Ecology

Dear Dave:

Thank you for your comments on the priorities for the TMDL DIP Plan.

The NLFCZD has an existing Citizen Advisory Board that is well diversified. There are eight members representing Agriculture, Forestry, Seasonal and Year-Round Lakeshore property owners, and other Newman Lake Watershed residents' interests.

It is important to use a permanent ongoing Advisory Board like the NLFCZD Board as temporary committees lose interest and may disband. The Board membership will change, but there will always be a Board to help plan and coordinate tasks.

We envision that this group along with interested citizens and volunteers from the community, would review the DIP priorities and discuss tasks to begin work on. As projects are implemented we would naturally gather new volunteers at workshops, etc. to tackle further goals. Probably the first task should be an educational workshop to provide information about goals and what we are hoping to accomplish.

People would come and go on committees as projects dealt with their particular interests and time commitments. Hopefully most Newman Lake residents would seize the opportunity to participate as educational information is disseminated.

The NLFCZD could coordinate the planning and grants, but the implementation would be completed by volunteer organizations and committees. We would like to see all active projects and plans subject to public input with no "executive session" meetings being held that could exclude prospective participants. Keep the process open so that everyone feels they are included.

Sincerely,

Wendy and Lorne Burley
TMDL Advisory Committee

April 21, 2009

Dave Moore
DOE

Dear Dave -

The following ideas are what we would recommend for the TMDL DIP Priority List:

1. Conduct Educational activities as listed in the Plan. We need to hold many educational workshops dealing with the topics covered in the DIP Plan where print information can be distributed and explained with on the ground examples available.
2. Have the NLFCZD coordinate the implementation of the TMDL DIP Plan, along with NLPOA and interested individuals and community organizations. Dr. Barry Moore and WSU should be part of the implementation program planning to help determine the most cost-effective solutions.
3. Investigate the causes of lakeshore erosion and complete shoreline erosion restoration projects. It will take time to determine which solutions work the best and then promote their use with tax incentives or cost-sharing.
4. Conduct erosion control inspections (using maps and aerial photos when needed to avoid conflicts on private lands) and encourage enforcement of regulations for new building, old and new driveways, and all county and private roads. Use education as a primary tool and enforcement as secondary. Have informational brochures available in Building and Planning.
5. Complete a wetland and riparian inventory and address restoration where possible. The McKenzie property could be the first focus since it is publicly owned and later projects could be done on private properties where owners are willing to participate.
6. Hold septic education workshops in cooperation with the Spokane Regional Health District and local engineers to offer best alternative systems and options for Newman Lake area residents. There have been previous studies that provide enough information to know where the problem areas exist. Education will be the most valuable tool, rather than spending another \$100,000.00 on testing.

Sometimes the most effective solutions do not require a lot of funding. Last Saturday was NLPOA's Annual Spring Clean-Up Day and it was one of the most productive community building efforts recently held at Newman Lake. Over one hundred and fifty people of all ages participated. Everyone had fun, met their neighbors, enjoyed good food, picked up free trees to plant at their homes, and expressed their willingness to participate again. There are a lot of both new and old friends that are anxious to see more successful activities offered to Newman Lake residents.

A Shoreline Workshop, the Watershed Pledge Program, or others similar programs would be good starting places to reintroduce what we are trying to accomplish. Once people see positive efforts in action they always want to become part of what we are working toward. Post flyers around the community and on reader boards and people will attend if the subject matter is of interest to them.

Jacob – just a note. There are people willing to help on milfoil surveys as we have discussed earlier. We would like to go with you and Jane whenever you make a trip to the lake with the District boat. We do also have Craig and Staci who want to do the water quality testing this summer along with other volunteers. Let's try to get that going early in the season if possible. How many people can the boat safely carry?

Dave and Jacob - Thank you for your hard work on the DIP and the TMDL. We look forward to continuing progress for Newman Lake.

Regards,

Wendy and Lorne Burley
TMDL Advisory Committee



DIVISION OF ENGINEERING AND ROADS

A DIVISION OF THE PUBLIC WORKS DEPARTMENT

June 23, 2009

David Moore
Water Quality Program
Eastern Regional Office
Washington State Department of Ecology
4601 N Monroe, Suite 202
Spokane, WA 99205

RE: Newman Lake Total Phosphorus Total Maximum Daily Load-Water Quality Implementation Plan

This letter is provided as comment to the *Newman Lake Total Phosphorus Total Maximum Daily Load-Water Quality Implementation Plan* (WQIP) on behalf of the Newman Lake Flood Control Zone District (the District).

The District would like to acknowledge the efforts by the Washington Department of Ecology (Ecology) in putting forth a plan that recognizes the varied stakeholders and assesses the potential for each group individually and in concert to help benefit Newman Lake. We support the aim of the WQIP, as it addresses many external source control issues that can help to bolster the current in-lake management strategy and provide further improvements in overall lake water quality. The District also recognizes that our role as the primary governmental entity involved with Newman Lake water quality improvements puts us in a leadership role for the implementation of many of the tasks set forth by the WQIP.

Since the District will have a leadership role in helping to make this plan a success, there are some points of clarification in the existing plan that can help us achieve results with varying levels of resource availability. Under the current budget, the District contracts Washington State University to conduct the majority of in-lake monitoring, with volunteer-conducted sampling supplementing that of the University. The data received from this monitoring and the associated analyses and reports prove an invaluable tool for judging the progress of lake restoration activities. However, the scope of the current monitoring regime is closely related to the NPDES permit for the alum-injection system, and should permit requirements change monitoring parameters may adjust accordingly depending upon available resources.

Likewise, District coordination of volunteer monitoring will also prove a valuable source of data for gauging the effectiveness of the TMDL, and it is wisely included in the WQIP. However, as with in-lake monitoring, future sampling parameters may differ from past practices. The *Quality Assurance Project Plan* (QAPP) will be adjusted accordingly with input from appropriate Ecology staff.

With a recognition of varied levels of funding and volunteer availability, the District suggests that the Effectiveness monitoring plan section (pp 29-30) include built-in flexibility in monitoring strategies that differentiates between current and past monitoring parameters and allows for changes in practice that still provide meaningful data for measuring success in reaching TMDL goals.

Overall, the District supports this WQIP and its aims to further water quality improvement efforts at Newman Lake. We also anticipate being a leader in efforts addressed in this plan, and look forward to a partnership with Ecology and other stakeholders in achieving the goals of the TMDL. With the addition of some flexibility in the monitoring requirements outlined in the WQIP, this plan will provide a feasible outline for defining future strategies and actions.

WQIP Comments • 1026 WEST BROADWAY AVENUE • SPOKANE, WA 99260-0170 • 6/24/2009
PHONE: (509) 477-3600 • FAX: (509) 477-7655 • TDD: 509-477-7135

Thank you for the opportunity to comment on the *Newman Lake Total Phosphorus TMDL, Water Quality Improvement Plan*. Please contact me if there are any questions.

Sincerely,



Marianne Barrentine, P.E.
Environmental Programs Manager

Enclosure: Detailed Comments on WQIP

Detailed Comments on WQIP-Newman Lake Flood Control Zone District (the District):

We appreciate the considerable efforts exerted by Ecology in the compilation of the *Newman Lake Total Phosphorus Total Maximum Daily Load-Water Quality Improvement Plan*. Since this plan will form the basis for future activities, it is important that certain responsibilities in relation to the District are clarified. The following comments are an attempt to address issues that have potential impacts toward the overall goals of this process and should therefore be addressed.

1. Monitoring, as mentioned in some areas of the Plan (pp. vii, 29, 30), addresses past or current sampling parameters that may or may not be applicable in the future. While the District does see monitoring as a critical part of the WQIP, we suggest adding flexibility to the language to allow for changes in strategies or actions.
i.e. *Monitoring will consist of..... depending on available resources.*
This can be reflected in all mentions of District, Volunteer, or WSU monitoring activities. It may be beneficial to add that District and Ecology staff will coordinate on appropriate sampling protocols and update the *Newman Lake QAPP* as needed.
2. Specific to Watershed Monitoring (pp 29-30), the language should reflect the past tense as said monitoring ceased in the fall of 2007. New language can again reference that County and Ecology
3. The Internal (in-lake) phosphorus loading control section (pg 17) states that "The aerator and alum injection system is operated by the NLFCZD under an individual NPDES permit issued by Ecology." While the alum injection system is operated under said permit, the operation of the oxygenator itself is not regulated under NPDES.

To: David Moore
Water Quality Program
Washington State Department of Ecology
4601 N Monroe Street
Spokane WA 99205

REC-1000
JUN 22 2009
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

From: Paul and Nancy Burton
4619 NE 195th Street
Lake Forest Park WA 98155
nancybur@prodigy.net

Re: Comments for Newman Lake Total Phosphorus TMDL
Water Quality Implementation Plan
Draft

Public Comments

The Public Participation Program is extensive, although it missed some property owners who lived outside Spokane or the Spokane Valley. These property owners do not receive the newspapers you used for notices of public meetings or request for comments. The best way to reach property owners outside Spokane is by mail. Does your mailing list contain names of Newman Lake property owners residing outside the Newman Lake area? We first heard of the TMDL this week when we received the Newman Lake Property Owners Newsletter.

Near Shore Phosphorus Reduction Projects

(S8) We support the inclusion of reducing shoreline erosion in the TMDL. Some of the native trees along the lake are over 100 feet high. We have observed the roots of some of these trees are being eroded by high water from the high level of the lake and excessive boat wakes. There are trees leaning toward the lake that may eventually fall into the water. Lowering the lake to a level below the exposed tree roots level would protect the trees and minimize the amount of exposed soil going into the lake. Lake front property owners along the lake should be encouraged to install protective bulkheads, rip rap, etc. to reduce shoreline erosion.

Funding Measure

At some phase of the study, cost and benefit of the projects should be included. This should include disaggregating the costs between property owners and public agencies.

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Appendix D. Tables of listings, load allocations, and water bodies

Water Body	Parameter	Medium	Listing ID	Township	Range	Section	Load Allocation
Newman Lake	Total Phosphorus	Water	6358	26N	45E	11	An average summer period (June – August) total phosphorus concentration of 20 micrograms per liter ($\mu\text{g/L}$) within the upper water column (epilimnion), zero (0) to three (3) meters below the water surface.

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Appendix E. Glossary and Acronyms

303(d) List: Section 303(d) of the federal Clean Water Act requires Washington State periodically to prepare a list of all surface waters in the state for which designated uses of the water – such as for drinking, recreation, aquatic habitat, and industrial use – are impaired by pollutants. These are water quality limited estuaries, lakes, and streams that fall short of state surface water quality standards, and are not expected to improve within the next two years.

Best Management Practices (BMPs): Physical, structural, and/or operational practices that, when used singularly or in combination, prevent or reduce pollutant discharges.

Clean Water Act (CWA): Federal Act passed in 1972 that contains provisions to restore and maintain the quality of the nation’s waters. Section 303(d) of the CWA establishes the TMDL program.

Designated Uses: Those uses specified in Chapter 173-201A WAC (Water Quality Standards for Surface Waters of the State of Washington) for each water body or segment, regardless of whether or not the uses are currently attained.

Existing Uses: Those uses actually attained in fresh and marine waters on or after November 28, 1975, whether or not they are designated uses. Introduced species that are not native to Washington, and put-and-take fisheries comprised of nonself-replicating introduced native species, do not need to receive full support as an existing use.

Extraordinary primary contact: Waters providing extraordinary protection against waterborne disease or that serve as tributaries to extraordinary quality shellfish harvesting areas.

Geometric Mean: A mathematical expression of the central tendency (an average) of multiple sample values. A geometric mean, unlike an arithmetic mean, tends to dampen the effect of very high or low values, which might bias the mean if a straight average (arithmetic mean) were calculated. This is helpful when analyzing bacteria concentrations, because levels may vary anywhere from ten to 10,000 fold over a given period. The calculation is performed by either: (1) taking the nth root of a product of n factors, or (2) taking the antilogarithm of the arithmetic mean of the logarithms of the individual values.

Load Allocation (LA): The portion of a receiving waters’ loading capacity attributed to one or more of its existing or future sources of nonpoint pollution or to natural background sources.

Loading Capacity: The greatest amount of a substance that a water body can receive and still meet water quality standards.

Margin of Safety (MOS): Required component of TMDLs that accounts for uncertainty about the relationship between pollutant loads and quality of the receiving water body.

National Pollutant Discharge Elimination System (NPDES): National program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements under the Clean Water Act. The NPDES program regulates discharges from wastewater treatment plants, large factories, and other facilities that use, process, and discharge water back into lakes, streams, rivers, bays, and oceans.

Nonpoint Source: Pollution that enters any waters of the state from any dispersed land-based or water-based activities, including but not limited to atmospheric deposition, surface water runoff from agricultural lands, urban areas, or forest lands, subsurface or underground sources, or discharges from boats or marine vessels not otherwise regulated under the NPDES program. Generally, any unconfined and diffuse source of contamination. Legally, any source of water pollution that does not meet the legal definition of “point source” in section 502(14) of the Clean Water Act.

Pollution: Such contamination, or other alteration of the physical, chemical, or biological properties, of any waters of the state. This includes change in temperature, taste, color, turbidity, or odor of the waters. It also includes discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state. This definition assumes that these changes will, or is likely to, create a nuisance or render such waters harmful, detrimental, or injurious to (1) public health, safety, or welfare, or (2) domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or (3) livestock, wild animals, birds, fish, or other aquatic life.

Primary Contact Recreation: Activities where a person would have direct contact with water to the point of complete submergence including, but not limited to, skin diving, swimming, and water skiing.

Surface waters of the state: Lakes, rivers, ponds, streams, inland waters, saltwaters, wetlands and all other surface waters and water courses within the jurisdiction of the state of Washington.

Total Maximum Daily Load (TMDL): A distribution of a substance in a water body designed to protect it from exceeding water quality standards. A TMDL is equal to the sum of all of the following: 1) individual wasteload allocations (WLAs) for point sources, 2) the load allocations (LAs) for nonpoint sources, 3) the contribution of natural sources, and 4) a Margin of Safety to allow for uncertainty in the wasteload determination. A reserve for future growth is also generally provided.

Watershed: A drainage area or basin in which all land and water areas drain or flow toward a central collector such as a stream, river, or lake at a lower elevation.