Total Maximum Daily Loads
Workload Model

Program Definition and Cost

Implementing Section 303(d) of the federal Clean Water Act
In Washington State

Department of Ecology
July 1998

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Executive Summary

Section 303(d) of the Federal Clean Water Act requires states to make a list of polluted waterbodies and develop Total Maximum Daily Loads (TMDLs) to cleanup those waters. There are 666 waterbody segments on Washington's 1996 "303(d) list." In 1997, a consent agreement was entered into federal court, which requires the Department of Ecology to develop TMDLs for all those waterbodies within 15 years.

Concurrently, numerous salmon runs are listed or proposed for listing under the Endangered Species Act in Washington and the state, local and federal agencies are required to take actions to protect those species. Many of the polluted waterbodies on the 303(d) list impair salmon habitat and other beneficial uses. Habitat Conservation Plans have been investigated as means for integrating ESA and Clean Water Act TMDL requires and are critical components to addressing ESA listed salmon. The TMDL program affords the ability to integrate these related but different national laws.

Workload Model is developed

In 1997, Ecology developed a preliminary cost estimate of the TMDL program. That preliminary estimate suggested that the TMDL program would require 62 full-time equivalents (FTEs – annual staff) to implement. At the same time, Ecology estimated that there were about 20 existing staff working on the TMDL program. Thus, about 42 new staff were estimated to be needed to fund the program. This was a rough estimate, which Ecology committed to refining.

This report contains a workload model to more fully evaluate the cost of an adequate TMDL program. The model is a computer-driven spreadsheet that calculates workload estimates (expressed in hours) for a particular activity. Those hours are multiplied by the expected frequency of the activity over the life of a TMDL project. The model does this for each activity then adds to a total of hours and expresses those hours in a portion of a full time equivalent (FTE). An FTE is the amount of staff time a person would be employed working full time on a given activity. 1.0 FTE indicates a full time employee working for an entire year.

Model Estimates 84 FTE Need, 44 of which are New.

The workload model (Appendices A and B) estimates that the total annual cost of the TMDL program is **$6,735,200 (84.19 FTEs).** Of this total, Ecology has about 29 FTEs working on TMDLs.

Additionally, Ecology has determined that another existing 11 FTEs will be redirected to the TMDL program. This redirection of existing staff will impact other important functions and will have the following impacts:

- Reduced nonpoint pollution technical assistance to landowners and policy development;
- Reduced municipal facility compliance tracking;

- Reduced statewide and regional watershed reports and coordination;
- Reduced timber practices watershed analyses and policy development;
- Reduced engineering technical assistance to permit holders and small towns;
- Reduced water quality assessments and coordination with tribes;
- Reduced technical assistance on lakes protection and restoration;
- Reduced technical assistance on groundwater protection;
- Reduced regulatory streamlining and financial assistance program enhancements;
- Reduced aquatic pesticides management.

Critical Assumptions of the Workload Model

There are several critical assumptions of the TMDL Workload Model that, if not realized, significantly impact the cost estimate it derives. If any of these critical assumptions are invalidated, the number of additional new FTEs will increase. These critical assumptions are:

- **The model assumes that local planning units under HB 2514 will conduct water quality planning as offered in the Act.**

- **The model assumes implementation of the Dairy Nutrient Management Act of 1998, when related to TMDL implementation (i.e., issue dairy permits) is fully funded under that Act.**

- **The model assumes continued funding for the existing 29 FTEs in the TMDL program and for the 11 FTEs to be re-directed to TMDL work.**

Other Key Assumptions

- **The model is a full-cost model and captures both direct and indirect costs.**

- **TMDL work is done on a project basis capturing multiple parameters and waterbody segments rather than individual parameters and individual segments.**

- **The model assumes a major paradigm shift occurs from traditional TMDLs to new types of TMDLs.**

- **The model assumes no Flow or Contaminated Sediments TMDLs will be done by Ecology and that this policy determination is supported by EPA.**

- **The model assumes EPA will accept the majority of submitted TMDLs with little to moderate amount of negotiation.**

- **The model assumes a lower threshold of research and analytical work nonpoint source TMDLs (assumed to be Simple TMDL Projects) than TMDLs involving point sources.**

- **The model is designed around the 1996 303(d) list.**

- **The model includes reporting, public reviews, and other processes specified in the Memorandum of Agreement between Ecology and EPA regarding the federal lawsuit.**

- **The model assumes scoping of water quality programs in done on a basin approach rather than incrementally.**

TMDL Workload Model

Introduction and Background

Section 303(d) of the federal Clean Water Act requires states to develop a list of polluted waterbodies every two years. For each of those waterbodies, the law requires states to develop "Total Maximum Daily Loads", or TMDLs. A TMDL is the amount of pollutant loading that can occur in a given waterbody (river, marine water, wetland, stream, or lake) without being polluted. TMDLs are implemented through permits to point source dischargers and through non-regulatory programs for nonpoint sources. A polluted waterbody stays on the "303(d) list" until it is cleaned up – meaning state water quality standards are met or are reasonably expected to be met.

The Clean Water Act has required states to implement Section 303(d) requirements since 1972. However, it was only until the early 1990's when states across the country began to do so. This delay was caused in large part due to national attention on controlling effluent from point source dischargers and integrating water quality-based limits into permits. However, in the early 1990's, interest groups nationwide began to sue EPA and states to require the development of 303(d) lists and total maximum daily loads. Washington State and EPA Region 10 were sued in this manner in 1992.

Washington was ultimately dropped from the federal lawsuit. However, the suit between EPA and the plaintiffs (Northwest Environmental Advocates) continued. During settlement negotiations in 1997, a memorandum of agreement between Ecology and EPA was developed and a court consent agreement was developed between EPA and the plaintiff. The agreement requires Ecology to develop and implement TMDLs for all waterbodies on the 1996 303(d) list within 15 years.

In a preliminary cost estimate of the TMDL program, Ecology estimated that the current program would cost about 62 full-time equivalents (FTEs – annual staff) to implement. At the same time, Ecology estimated that there were about 20 existing staff working on the TMDL program. Thus, about 42 new staff were estimated to be needed to fund the program. This was a rough estimate, which Ecology committed to refining. Additionally, Ecology committed to redirecting existing staff to meet the TMDL workload demand to the greatest extent feasible.

In the 1998 legislative session, Governor Locke requested about $900,000 to begin to phase-in the TMDL program over several years. The funding was not provided.[1] This document fulfills Ecology's commitment to refine total TMDL program cost estimates.

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[1] The Legislature appropriated $250,000 ($125,000 to each house of the Legislature) to conduct a review of the TMDL program. That review began in July 1998.

TMDL Workload Model

How Does the Model Calculate Workload Estimates?

The workload model is a computer driven spreadsheet that calculates workload estimates (expressed in hours) for a particular activity. Those hours are multiplied by the expected frequency of the activity over the life of a TMDL project. The model does this for each activity then adds to a total of hours and expresses those hours in a portion of a full time equivalent (FTE). 1.0 FTE indicates a full time employee working for an entire year on a given activity.

The model makes unique workload assumptions within each category of TMDL projects for TMDL Development, Implementation, Assessment, Appeals, and Data Management. To calculate full cost of the current TMDL program (that based on the existing 1996 303d list and the existing MOA with EPA), model-derived FTEs per TMDL Project[2] Category are multiplied by the number of projects in each category. Table 1 gives the definitions of TMDL Project Categories. Table 2 summarizes TMDL workload estimates for individual TMDL projects over the life span[3] of the project. Table 3 gives the approximate number of projects per category assumed for this workload model and a summary explanation.

The model also makes unique workload assumptions for listing, priority ranking, programmatic appeals, programmatic data management, and program development. Table 4 gives these costs in annual FTEs. Based on the calculated total workload of the program, the model adds in supervision and clerical staff at a rate of 24.8% to meet agency standard direct staff to support staff ratios (8.5 direct to clerical and 7.7 direct to supervisor). (Table 4). The calculated full cost of the TMDL program using the per TMDL Project Category FTE cost times the number of projects within each category is based on a 15-year cost. 15 years was selected because it is the duration of the MOA between EPA and Ecology on the federal court consent agreement to settle the lawsuit. To determine annual costs of the program, the model divides by 15. FTEs are calculated at the rate of $80,000[4] per year (which includes salary, all benefits, and indirect costs). Thus, the formula for calculating program costs is:

 # FTEs per TMDL Project X # of Projects X $80,000 = 15 year Cost of TMDL Project Category

15 year Cost of TMDL Project Category + Cost of All Other Project Categories + Listing + Priority Ranking + Program Appeals + Program Data Management + Program Development + Management & Support = 15 year TMDL Program Cost

15 year TMDL Program Cost / 15 = Annual Cost of TMDL Program

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[2] "TMDL Project" is a grouping of individual water body segments and/or parameters of concern. A project likely contains many individual TMDLs.

[3] Life span of a TMDL project from inception to completion can vary from two to five or more years, based on complexity, number of parameters or waterbody segments, etc.

[4] This is a rough estimate of the total cost of an annual FTE. Based on inflation and increased costs of conducting business, that number can be higher and is actually projected to be about $83,000 for state fiscal year 2000.

TMDL Workload Model

Table 1
TMDL Project Category Definitions

Simple TMDL Project: TMDLs for nonpoint sources that have a limited scope of technical analysis because a high level of rigor is not required to establish a wasteload allocation for a permitted discharge. These TMDLs will be based on limited new monitoring data and will instead rely more heavily on historical data or published literature information. The uncertainty associated with a low level of rigor will be reflected in a larger margin of safety. Allocations to nonpoint sources from Simple TMDLs will be used in the development of implementation plans.

Complex TMDL Project: TMDLs for mixed point and nonpoint sources a high level of technical rigor is conducted to provide equity in the allocation distribution. Since the federal enforcement provisions only apply to permitted dischargers, EPA requires a high degree of reasonable assurance that nonpoint source plans will be successful in order to give relief to point sources bearing an unfair burden of loading reductions. This burden is increased if the TMDL technical analysis has a high degree of uncertainty because of low rigor resulting in a larger margin of safety. Complex TMDLs will be based on newly collected monitoring data and more sophisticated modeling analyses to help reduce the regulatory burdens to permitted dischargers resulting from uncertainty and large margins of safety.

Landscape TMDL Project: TMDLs for nonpoint sources where the technical analysis is conducted using GIS approaches over large areas. Many water quality problems can be clustered into groups with similar characteristics such as river morphology and land uses. Landscape TMDLs will be developed using existing data and published analytical methods. They can be implemented either on a site-specific, basin-specific, or programmatic basis.

Contaminated Sediments TMDL Project: TMDLs involving risk analyses of contaminated sediments, cleanup actions for these sediments and associated source control strategies to prevent recontamination of the sediments.

Flow TMDL Project: TMDLs or other watershed strategies to address minimum in-stream flows where insufficient flow has resulted in a listing for either temperature, low dissolved oxygen or both.

Clean Lakes TMDL Project: TMDLs involving the restoration of lakes to support designated uses. The historic approach has been Phase 2 Cleanup Plans under CWA Section 314.

*   *   *   *   *   *   *   *   *   *   *

Program Component	Simple	Complex	Landscape	Clean Lakes	Flow ***	Contam- inated Sediments ***
Table 2 — Summary of TMDL Workload Model Costs (in Annual Full Time Equivalents – FTEs) Per Project Category and Program Component						
TMDL Development	1.16	3.51	1.21	0.20	2.27	1.39
Implementation of Controls	1.45	5.33	3.96	3.74	7.59	7.79
Assessment of WQ-Based Controls	0.23	0.53	0.19	0.23	0.33	0.62
Appeals	0.04	0.32	0.13	0.13	0.60	0.13
Data Management	0.09	0.13	0.09	0.09	0.09	0.09
TMDL Project Category does not calculate the following Program Components. See Table 4:						
Listing	Table 4	Table 4	Table 4	Table 4	Table 4	Table 4
Priority Ranking and Targeting	Table 4	Table 4	Table 4	Table 4	Table 4	Table 4
Programmatic appeals	Table 4	Table 4	Table 4	Table 4	Table 4	Table 4
Programmatic Data Management	Table 4	Table 4	Table 4	Table 4	Table 4	Table 4
TMDL Program Development / Policy	Table 4	Table 4	Table 4	Table 4	Table 4	Table 4
Management and Support	Table 4	Table 4	Table 4	Table 4	Table 4	Table 4
Total per 1 Project	*2.97*	*9.82*	*5.58*	*4.39*	*10.88*	*10.02*

Over the Project Life							

***Theses are workload estimates only. The model assumes no Flow or Contaminated Sediments TMDL project will be done, due to other available cleanup programs.

Table 3
Estimated Number of Projects[5] per TMDL Project Category[6]

Simple TMDL Projects: 87
- Simple TMDLs Projects representing groups of listed parameter-segment combinations related in geographic scope and likely to be addressed with the same technical analysis and implementation process. These are waters likely affected only by nonpoint sources. Since no reasonable assurance for nonpoint source plans must be established to EPA's acceptance, a less rigorous technical analysis is needed to establish these TMDLs. The statute and regulations do not require that new data be collected to estimate TMDLs. These rules state that uncertainty due to data limitations is to be addressed by providing a margin of safety. A nonpoint source TMDL with a large margin of safety with no legal authorities to leverage just becomes a guide for planning efforts. These TMDLs can be established with literature data and limited sampling.

Complex TMDL Projects: 26
- Complex TMDL Projects are based on the assumption of groups of listed parameter-segment combinations related in geographic scope and likely to be addressed with the same technical analysis and implementation process. These are projects where point sources are assumed to have some component of the loading capacity. In these cases, it was assumed that a reasonable assurance for nonpoint source plans must be also established to EPA's acceptance. Two other projects without point source influences were also considered complex: Upper Yakima River pesticides and the Columbia/Snake River total dissolved gas issues.

Landscape TMDL Projects: 12
- Landscape TMDL Projects are based on analyses conducted in a west/east approach and a pilot project for each of four parameters to be addressed. Many of the waters on the 1996 list have been grouped to be addressed through the development of "landscape" TMDLs. These "landscape" TMDLs will be developed using readily available existing data and analytical methods. This process will employ an approach built on preparing a landscape assessment for large areas, which will lead to developing TMDLs for applicable waters and parameters in those areas. Landscape TMDLs can be implemented in 3 general ways: (1) Site Specific; (2) Basin Specific; or (3) Programmatic. Load allocations or key indicator goals could be used to condition permits or activities (e.g. forest practice applications, 401 certifications, mitigated DNS, etc). The conditioning of these activities may also be applied across an entire basin (e.g. silvicultural watershed analysis, watershed plans). If basin specific implementation measures are likely to be similar among many

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[5] Most projects involve multiple individual TMDLs. In total the list of projects here account for about 1554 individual segments-parameter combinations.

[6] These numbers are best estimates at the present time. As each project is scoped for extent, complexity and schedule, changes may occur, i.e., a "clean lakes" project could become a "simple" project or visa versa.

TMDL Workload Model

basins, a programmatic approach may be taken (e.g. policy revision, rule or ordinance adoption).

Clean Lakes TMDL Projects: **48**
- Clean Lakes Projects are based on the assumption of work needed to finish work started in Phase 1 restoration grants or other similar studies. Each restoration lake grant was assumed to be a separate project.

Flow TMDL Projects: **0**
- No TMDLs will be conducted solely for instream flow. Since there is no pollutant defined for these listed waters, a TMDL is not required. Ecology will use existing programs and processes (instream flow rules, Chelan-process, 2514) to address flow issues on listed streams (as described in federal regulations 40 CFR 130.7(b)(1)).

Contaminated Sediments TMDL Projects: 0
- No TMDLs will be conducted for contaminated sediments. Ecology will use existing programs and processes (MTCA and CERCLA) to address contaminated sediment on listed waters (as described in federal regulations 40 CFR 130.7(b)(1)).

*   *   *   *   *   *   *   *   *   *   *   *

Table 4 **Summary of TMDL Workload Model Costs (in Annual Full Time Equivalents – FTEs)** **Per Category-Independent Program Components**	
Program Component	**Annual FTEs**
Listing	1.38
Priority Ranking and Targeting	4.7
Programmatic Appeals	0.14
Programmatic Data Management	1.0
TMDL Program Development/Policy	6.84
Management and Support	15.94***

*** Based on 24.8% additional cost of total TMDL program.

TMDL Workload Model

What are the Major Components and Types of Activities in the Model?

Listing. This is the function of maintaining the 303(d) list for Washington. Activities include data collection, evaluation of water quality problems, and public process of draft list review. Activities also include evaluation of TMDL monitoring data to determine TMDL success, tribal consultations, negotiations with EPA, and providing technical assistance to local planning units under 2514.

Priority Ranking and Targeting. This function is the process of identifying existing water quality data and determining information needs on a basin approach in order to identify priority water quality solutions by basin. Specific activities include scoping (outreach, briefing papers, workshops, needs assessments) on a basin-wide scale, reviews of other agencies' relevant watershed plans, conducting and publishing a scoping document and conducting a public process on a priority list.

TMDL Development.   This function is the research, study, data collection and data analysis process used to determine assimilative capacity and load allocations. Specific activities include research of previous studies and data, coordination with other entities, development of a quality assurance plan, conducting water quality studies, laboratory analytical work, developing monitoring strategies, and providing technical assistance to local planning units who develop TMDLs. Other activities include packaging results into acceptable TMDL format for EPA and responding to and negotiating with EPA over TMDL submittal issues.

Implementation of Control Actions. This function includes the actions taken to effectuate the TMDL developed. Activities include coordination with other entities, public process, site specific monitoring, implementation of best management practices, technical assistance, and where appropriate TMDL-specific revisions to existing wastewater discharge permits or issuance of new permits, implementation of forest practices controls, issuance of grants and loans, compliance inspections, and enforcement.

Assessment of Water Quality-based Control Actions. This function is the collection and analysis of water quality information assessing the effectiveness of TMDL implementation. Activities include TMDL effectiveness monitoring, developing additional controls where needed, and technical assistance to local planning units under 2514.

Appeals. This function is the response to TMDL implementers or third party appeals. There are two main types of appeals. The first type is programmatic and anticipates appeals on components of the overall TMDL program (e.g., listing decisions, load allocation process,

categories, consultation process, etc.). The other is TMDL Project Category appeals (i.e., appeals on individual TMDLs). Specific activities include staff and attorney time on discovery/deposition, case preparation, settlement negotiations, hearings and decrees.

Data Management. This function is the management of TMDL data and its support. There are two types of data management. The first is the development and maintenance of a TMDL database. The second is the day-to-day data entry and data extraction to demonstrate and track trends and compliance.

TMDL Program/Policy Development. This is the support function to ensure balanced and fair treatment of TMDL implementers. Specific activities include coordination and policy development in partners with EPA and Stakeholder groups, and development and maintenance of policies, guidance and resources on listing, prioritization, implementation, technical assistance, TMDL effectiveness assessments, and alternative controls. Other activities maintain TMDL workload model, pertain rules, operator certification, and TMDL and 2514 guidance for local planning units.

Management and Support. This is the supervisor and clerical function support for the TMDL program.

Critical Assumptions of the Model

Some of the key assumptions of the TMDL Workload Model are:

- **The model assumes that local planning units under HB 2514 will conduct water quality planning as offered in the Act.** The model assumes that planning will result in TMDLs for 10% of listed waterbodies. Thus Ecology's share of work for the TMDL development, implementation, and assessment is reduced to reflect this assumption. (In the model this can be seen under the "# of Actions" column as 0.90, or 90% of the time Ecology does). Additionally, where local planning units are assumed to be conducting TMDLs under 2514, the model assumes a technical assistance workload for Ecology. This is shown as 0.10, or 10% of the time Ecology does, under certain line items in the model.

- **The model assumes implementation of the Dairy Nutrient Management Act of 1998, when related to TMDL implementation (i.e., issue dairy permits) is fully funded under that Act.** Hence, coverage actions are shown with "0" number of actions or "0" hours per action.

- **The model assumes continued funding for the existing 29 FTEs in the TMDL program and for the 11 FTEs to be re-directed to TMDL work.** In order for the cost estimate of the TMDL Workload Model to be sustained, existing funding to continue those 40 FTEs (29 existing and 11 redirected FTEs) is needed.

Other Key Assumptions

- **The model is a full-cost model.** [7] The workload model provides workload estimates for each of the following TMDL program components:
  - ➤ 303(d) listing process
  - ➤ TMDL Development, unique for each TMDL Project Category
  - ➤ Implementation of Controls, unique for each TMDL Project Category
  - ➤ Assessment of WQ-based Controls, unique for each TMDL Project Category
  - ➤ Appeals, programmatic and TMDL Project Category-specific
  - ➤ Data management, programmatic and TMDL Project Category-specific
  - ➤ TMDL Program Development
  - ➤ Management and Support

- **TMDL work is done on a project basis.** Rather than looking at one waterbody segment for one parameter, the model assumes TMDL implementers will assess a broader stretch of a waterbody for all parameters of concern. This is a more efficient and effective way to

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[7] A major difference between the cost estimate Ecology developed in preparation for the 1998 Legislature and that contained in this workload model is that the previous estimate did not include TMDL program costs for the Listing, Priority Ranking and Targeting, Data Management, and Management and Support components. The model is a "full cost model;" however, it is limited by its inherent assumptions and by the policy determinations that are included here.

cleanup polluted waterbodies than the segment-by-segment, parameter-by-parameter approach.

- **The model assumes a major paradigm shift occurs.** The model limits detailed field work, sampling, and modeling workload in each category and includes only the most intensive analytical workload to Complex, Flow, and Contaminated Sediments TMDL projects.

- **The model assumes no Flow or Contaminated Sediments TMDLs will be done by Ecology and that EPA will agree to this policy determination.** The model assumes that existing processes such as instream flow setting, watershed management under HB2514, or Chelan-like processes will address waterbodies listed for low flows. The model also assumes that cleanups under CERCLA, MTCA, (as described in federal regulations 40 CFR 130.7(b)(1)) and Bellingham Bay-like whole bay management processes will address sites listed for contaminated sediments.

- **The model assumes EPA will accept the majority of submitted TMDLs with little to moderate amount of negotiation.** A small amount of time is built into the model anticipating Ecology responses and discussions with EPA on TMDL submittals. However, protracted disagreements would be outside the model's time estimates.

- **The model assumes a lower threshold of research and analytical work on nonpoint source TMDLs (assumed to be Simple TMDL Projects) than TMDLs involving point sources.** The model assumes the need for analysis of existing data, augmented as necessary, and does not require the EPA test of reasonable assurance. The majority of listed water bodies are nonpoint source impacted. Therefore use of existing data will streamline TMDL development and reduce costs. Since no reasonable assurance for nonpoint source plans must be established to EPA's acceptance, a less rigorous technical analysis is needed to establish these TMDLs. The statute and regulations do not require that new data be collected to estimate TMDLs. These rules state that uncertainty due to data limitations is to be addressed by providing a margin of safety. Thus, these TMDLs can be established with literature data and limited sampling, thereby reducing the cost of the analytical work. This assumption includes a risk of potential increased challenge of not collecting additional new data.

- **The model is designed around the 1996 303(d) list.** The model assumes only the workload needed based on the status of existing listed waterbodies and takes into consideration the work already completed on some of those TMDLs. For example, the model accounts for the 18 Simple TMDL Projects on the 1996 303(d) list where developmental work is completed. Additionally, the Clean Lakes TMDL Project category assumes the work needed is that which is needed to finish work started in Phase 1 restoration grants or other similar studies.

- **The model includes reporting, public reviews, and other processes specified in the Memorandum of Agreement between Ecology and EPA regarding the federal lawsuit.**   The MOA specifies several unique public review periods and document preparations. The model includes those requirements.

- **The model assumes scoping of water quality problems is done on a basin approach rather than incrementally.** Specifically, the model assumes that the current basin-wide scoping process (including preparation of issue papers, holding workshops locally, conducting outreach, and preparing basin-specific water quality needs assessments) continues.

Workload Estimates of the TMDL Workload Model, based on the 1996 303(d) List

The workload model estimates the cost of the TMDL program, based on the 1996 303(d) list and the existing memorandum of agreement between Ecology and EPA Region 10 is $6,415,585 (80.19 annual FTEs). This is shown in the attached spreadsheet entitled "*Department of Ecology TMDL Workload Model Summary.*" An additional 4.0 FTEs are required in order to achieve the model's key assumption that local planning units will conduct 10% of the TMDLs under 2514 and thus reduce Ecology's overall workload. This 4 FTE resource amount will be supplemented with existing Ecology resources to provide assistance to 2514 planning units. Thus, total annual cost of the TMDL program is **$6,735,200 (84.19 FTEs).**

Of this total, Ecology has existing staff conducting TMDL work and has decided to redirect other staff to offset impact of this program.

Existing TMDL Resources

In 1998, the Department of Ecology had about 29 FTEs working on TMDLs. This is shown in Table 5. Continued funding of these FTEs is a critical factor in determining the number of additional new resources.

Redirect of Existing Resources

Ecology has determined that 11 FTEs will be redirected to the TMDL program. Continued funding of these FTEs is a critical factor in determining the number of additional new resources. Redirecting this many staff means several key functions will be reduced or eliminated. Specific existing functions to be redirected and implications of that redirection are identified in Table 6.

Cost of Program is based on Conservative Assumptions

The cost estimate provided here are minimums needed and are derived using conservative (low) estimates. For example, the model assumes a much lower rigor of effort for the majority of TMDLs than has been historically the case. Additionally, certain TMDLs are assumed to be

not conducted by Ecology (e.g., contaminated sediments and flow TMDLs), based on the existence of other control practices. Also, others are assumed to conduct TMDLs (e.g., 2514 planning units) and certain implementation actions are assumed addressed elsewhere (e.g., dairy nutrient permitting). See model assumptions, above, for additional key assumptions of the model. All of these conservative assumptions drive down the cost of the TMDL program.

Table 5 *Summary of Existing Ecology TMDL Resources (Annual FTEs)*					
TMDL Program Component	**HQ**	**Regions**	**EILS**	**Others**	**Totals**
Listing	1.3	0.3	0.3	0.1	**2.0**
Priority Ranking and Targeting	0.4	1.0	0.7	0.0	**2.1**
TMDL Development	0.5	4.0	4.2	0.0	**8.7**
Implementation of Control Actions	0.3	4.4	0.5	0.0	**5.2**
Assessment of WQ-based Controls	0.0	0.5	1.0	0.0	**1.5**
Appeals	0.5	0.5	0.3	0.3	**1.6**
Data Management	0.2	0.1	0.0	0.0	**0.3**
Program/Policy Development	1.0	0.0	0.4	0.1	**1.5**
Subtotals	*4.2*	*10.8*	*7.4*	*0.5*	*22.9*
Management and Support**	1.0	2.7	1.8	0.1	**5.7**
TOTAL	**5.2**	**13.5**	**9.2**	**0.6**	**28.6**

**Management and support calculated using standard average ratios as follows:
        Direct staff to supervisors: 7.7 to 1
        Direct staff to support staff: 8.5 to 1
Together, these account for 24.8% additional FTEs (13% for supervision, 11.8% for clerical).

TMDL Workload Model

Function to be Redirected	Number of FTEs	Impacts
	Table 6	
	Summary of Existing Ecology Staff Resources to be Redirected to TMDL Work	
	(Annual FTEs)	
Senior nonpoint source policy implementation	1.0	Reduced regional nonpoint source pollution prevention and partnership development in Northwest Region
Municipal facility compliance	0.3	Reduced non-compliance tracking of municipal wastewater dischargers in Northwest Region
Watershed lead and regional coordination	1.0	Reduced regional coordination of watershed management actions in Southwest Region.
Watershed analysis	1.0	Reduced forest practices watershed analyses in Southwest Region.
Aquatic pesticides	1.0	Reduced short-term modifications and lake protection in Southwest Region.
Watershed coordination	1.0	Reduced statewide watershed coordination from Headquarters.
Watershed management	0.5	Reduced service delivery on watershed approach to water quality management and elimination of watershed reports in Eastern Region.
Nonpoint technical assistance	0.5	Reduced technical assistance to individual landowners (e.g., TFW and agriculture landowner assistance) in Eastern Region.
Point source engineering technical assistance	0.4	Reduced engineering delegations, report reviews, small towns assistance, and sewer extension reviews in Eastern Region.
Water quality assessments and tribal coordination	0.5	Reduced tribal involvement with assessments and watershed activities from Headquarters.
Lake restoration and protection	0.3	Reduced technical assistance on lake protection and restoration from Headquarters.
Groundwater standards technical assistance	0.5	Reduced technical assistance regarding implementation of groundwater standards and reduced coordination on significant statewide groundwater quality issues from Headquarters.
Consolidated and revision of permit rules	1.0	Reduced permit regulations streamlining from Headquarters.
Financial assistance program restructuring	0.4	Elimination of effort to improve grant and loan processes from Headquarters.
Timber/Fish/Wildlife policy development	0.6	Reduction of forest practices and water quality policy and partnerships from Headquarters.
Engineering/technical assistance	1.0	Reduced technical assistance for facility engineering and sewer extension reviews in Central Region.
TOTAL	**11.0**	

TMDL Workload Model

Appendix A

TMDL Workload Model Summary

Department of Ecology TMDL Workload Model Summary

Pure Workload Model Summary, based on 1996 303(d) List

Note: TMDL Projects are Multiple Waterbody Segments and Multiple Parameter Combinations.

Type of TMDL Projects		Number of TMDL Projects	FTEs per TMDL Project	Total FTEs per TMDL Type Project	Additional Program Costs	Total Costs	Costs per Year over 15 years
Listing					20.72	$ 1,657,600	$ 110,507
Priority Ranking and Targeting					70.50	$ 5,640,000	$ 376,000
TMDL Development							
	Simple TMDL Projects	69	1.16	80.04		$ 6,403,200	$ 426,880
	Complex TMDL Projects	21	3.51	73.71		$ 5,896,800	$ 393,120
	Landscape TMDL Projects	12	1.21	14.52		$ 1,161,600	$ 77,440
	Flow TMDL Projects	0	2.27	0.00		$ -	$ -
	Clean Lakes (96 list) TMDL Projects	48	0.20	9.60		$ 768,000	$ 51,200
	Contaminated Sediment Projects	0	1.39	0.00		$ -	$ -
Implementation of Controls							
	Simple TMDL Projects	87	1.45	126.15		$ 10,092,000	$ 672,800
	Complex TMDL Projects	26	5.33	138.58		$ 11,086,400	$ 739,093
	Landscape TMDL Projects	12	3.96	47.52		$ 3,801,600	$ 253,440
	Flow TMDL Projects	0	7.59	0.00		$ -	$ -
	Clean Lakes (96 list) TMDL Projects	48	3.74	179.52		$ 14,361,600	$ 957,440
	Contaminated Sediment Projects	0	7.79	0.00		$ -	$ -
Assessment of WQ-based Controls							
	Simple TMDL Projects	87	0.23	20.01		$ 1,600,800	$ 106,720
	Complex TMDL Projects	26	0.53	13.78		$ 1,102,400	$ 73,493
	Landscape TMDL Projects	12	0.19	2.28		$ 182,400	$ 12,160
	Flow TMDL Projects	0	0.33	0.00		$ -	$ -
	Clean Lakes (96 list) TMDL Projects	48	0.23	11.04		$ 883,200	$ 58,880
	Contaminated Sediment Projects	0	0.62	0.00		$ -	$ -
Appeals							
	Simple TMDL Projects	87	0.04	3.48		$ 278,400	$ 18,560
	Complex TMDL Projects	26	0.32	8.32		$ 665,600	$ 44,373
	Landscape TMDL Projects	12	0.13	1.56		$ 124,800	$ 8,320
	Flow TMDL Projects	0	0.60	0.00		$ -	$ -
	Clean Lakes (96 list) TMDL Projects	48	0.13	6.24		$ 499,200	$ 33,280
	Contaminated Sediment Projects	0	0.13	0.00		$ -	$ -
	Program Appeals				2.10	$ 168,000	$ 11,200
Data Management							
	Simple TMDL Projects	87	0.09	7.83		$ 626,400	$ 41,760
	Complex TMDL Projects	26	0.13	3.38		$ 270,400	$ 18,027
	Landscape TMDL Projects	12	0.09	1.08		$ 86,400	$ 5,760
	Flow TMDL Projects	0	0.09	0.00		$ -	$ -
	Clean Lakes (96 list) TMDL Projects	48	0.09	4.32		$ 345,600	$ 23,040
	Contaminated Sediment Projects	0	0.09	0.00		$ -	$ -
	Program Data Management				15.00	$ 1,200,000	$ 80,000
TMDL Program Development/Policy					102.60	$ 8,208,000	$ 547,200
Management and Support					239.04	$ 19,123,379	$ 1,274,892
Totals		***		752.96	449.96	**$ 96,233,779**	**$ 6,415,585**

Annual Costs (FTEs): 80.19

Annual Costs ($): $ 6,415,585

***Total Number of TMDLs is 1554 individual segments-parameter combinations.

version 6

Appendix B

TMDL Workload Model

DEPARTMENT OF ECOLOGY TMDL WORKLOAD MODEL

Program Activity				Prorated Workload (X-Categories)				Simple TMDL				Complex TMDL				Landscape TMDL Project				Clean Lakes TMDL (96 list)				Contaminated Sediments TMDL				Flow TMDL			
Life Cycle Total FTEs:			260.09	# of Actions	Hours Each	Total Hours	Project FTEs	# of Actions	Hours Each	Total Hours	Project FTEs	# of Actions	Hours Each	Total Hours	Project FTEs	# of Actions	Hours Each	Total Hours	Project FTEs	# of Actions	Hours Each	Total Hours	Project FTEs	# of Actions	Hours Each	Total Hours	Project FTEs	# of Actions	Hours Each	Total Hours	Project FTEs
Annual FTEs:			52.02																												
TMDL Program Universe			1.00					1.00				1.00				1.00				1.00				1.00				1.00			
Summary						328,234.50	210.95			4,610.60	2.96			15,277.40	9.82			8,683.61	5.58			6,816.26	4.38			15,582.12	10.01			16,946.40	10.89
**LISTING								1.00		0.00	0.00	1.00		0.00	0.00	1.00		0.00	0.00	1.00		0.00	0.00	1.00		0.00	0.00	1.00		0.00	0.00
Collect existing data				7.50	451.00	3382.50	2.17																								
Conduct 2514 TA to locals				7.50	104.00	780.00	0.50																								
Evaluate existing data to characterize water quality problems/sources				7.50	1044.00	7830.00	5.03																								
Evaluate water quality problem to detemine if a listing is appropriate				7.50	612.00	4590.00	2.95																								
Review TMDL monitoring data to determine TMDL success				7.50	80.00	600.00	0.39																								
Prepare first proposed list				7.50	120.00	900.00	0.58																								
Conduct tribal and public comment period				7.50	96.00	720.00	0.46																								
Prepare responsiveness summary				7.50	192.00	1440.00	0.93																								
Conduct internal reviews				7.50	120.00	900.00	0.58																								
Revise preliminary list based on comments				7.50	80.00	600.00	0.39																								
Conduct tribal consultations				7.50	80.00	600.00	0.39																								
Submit draft list to EPA for approval				7.50	8.00	60.00	0.04																								
Respond to EPA requests (e.g. basis for decisions)				7.50	16.00	120.00	0.08																								
Negotiate with EPA over list issues				7.50	160.00	1200.00	0.77																								
Public notice of approved list				7.50	80.00	600.00	0.39																								
Respond to public requests on list				3960.00	2.00	7920.00	5.09																								
subtotal							20.72																								
**PRIORITY RANKING AND TARGETING																															
Conduct basin scoping per watershed approach				60.00	1375.00	82500.00	53.02																								
(outreach, briefing papers, workshops)																															
Review local government's 2514 plans				60.00	40.00	2400.00	1.54																								
Review other agencies watershed plans and priorities				60.00	40.00	2400.00	1.54																								
Prepare scoping document for each basin according to 5-year cycle				60.00	122.00	7320.00	4.70																								
Publish scoping document				60.00	16.00	960.00	0.62																								
Conduct public involvement on scoping document				60.00	40.00	2400.00	1.54																								
Revise scoping document based on comments received				60.00	80.00	4800.00	3.08																								
Develop statewide priority list				15.00	40.00	600.00	0.39																								
Conduct public process on priority list				15.00	40.00	600.00	0.39																								
Prepare responsiveness summary				15.00	40.00	600.00	0.39																								
Establish prioritized list of waterbodies for TMDLs				15.00	8.00	120.00	0.08																								
Establish TMDL annual work plan				15.00	340.00	5100.00	3.28																								
subtotal							70.57																								
TMDL DEVELOPMENT																															
Research past studies/existing data								0.90	34.00	30.60	0.02	0.90	85.00	76.50	0.05	0.90	34.00	30.60	0.02	0.90	16.00	14.40	0.01	0.33	120.00	39.60	0.03	0.50	85.00	42.50	0.03
Site reconnaisance								0.90	26.00	23.40	0.02	0.90	64.00	57.60	0.04	0.90	26.00	23.40	0.02	0.90	8.00	7.20	0.00	0.33	24.00	7.92	0.01	0.50	64.00	32.00	0.02
Interview and coordinate with other agencies and locals								0.90	53.00	47.70	0.03	0.90	132.00	118.80	0.08	0.90	53.00	47.70	0.03	0.90	16.00	14.40	0.01	0.33	120.00	39.60	0.03	0.50	132.00	66.00	0.04
Develop scope of work and cost estimate								0.90	67.00	60.30	0.04	0.90	168.00	151.20	0.10	0.90	67.00	60.30	0.04	0.00	40.00	0.00	0.00	0.33	170.00	56.10	0.04	0.50	168.00	84.00	0.05
Tribal coordination of QA and monitoring								0.90	6.00	5.40	0.00	0.90	16.00	14.40	0.01	0.90	6.00	5.40	0.00	0.00	6.00	0.00	0.00	0.33	8.00	2.64	0.00	0.50	16.00	8.00	0.01
Develop quality assurance plan								0.90	43.00	38.70	0.02	0.90	108.00	97.20	0.06	0.90	43.00	38.70	0.02	0.00	16.00	0.00	0.00	0.33	120.00	39.60	0.03	0.50	108.00	54.00	0.03
EPA review of quality assurance plan								0.90	4.00	3.60	0.00	0.90	8.00	7.20	0.00	0.90	4.00	3.60	0.00	0.00	4.00	0.00	0.00	0.33	8.00	2.64	0.00	0.50	8.00	4.00	0.00
Conduct water quality monitoring surveys								0.90	184.00	165.60	0.11	0.90	920.00	828.00	0.53	0.90	368.00	331.20	0.21	0.00	40.00	0.00	0.00	0.33	160.00	52.80	0.03	0.50	920.00	460.00	0.30

DEPARTMENT OF ECOLOGY TMDL WORKLOAD MODEL

	Prorated Workload (X-Categories)				Simple TMDL				Complex TMDL				Landscape TMDL Project				Clean Lakes TMDL (96 list)				Contaminated Sediments TMDL				Flow TMDL			
Life Cycle Total FTEs: 260.09																												
Annual FTEs: 52.02	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project
Program Activity	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs
Laboratory analytical work					0.90	234.00	210.60	0.14	0.90	1167.00	1050.30	0.68	0.25	467.00	116.75	0.08	0.00	16.00	0.00	0.00	0.33	2334.00	770.22	0.50	0.50	1167.00	583.50	0.38
Estimate pollutant loadings from all sources					0.90	96.00	86.40	0.06	0.90	240.00	216.00	0.14	0.90	96.00	86.40	0.06	0.00	40.00	0.00	0.00	0.33	200.00	66.00	0.04	0.50	240.00	120.00	0.08
Estimate assimilative capacity					0.90	96.00	86.40	0.06	0.90	240.00	216.00	0.14	0.90	96.00	86.40	0.06	0.00	40.00	0.00	0.00	0.33	300.00	99.00	0.06	0.50	240.00	120.00	0.08
Use predictive modeling to determine total allowable pollutant loads					0.90	384.00	345.60	0.22	0.90	960.00	864.00	0.56	0.90	384.00	345.60	0.22	0.90	40.00	36.00	0.02	0.33	400.00	132.00	0.08	0.50	960.00	480.00	0.31
Prepare and review TMDL technical report					0.90	48.00	43.20	0.03	0.90	120.00	108.00	0.07	0.90	48.00	43.20	0.03	0.90	48.00	43.20	0.03	1.00	120.00	120.00	0.08	0.50	120.00	60.00	0.04
Communicate results to public; develop solutions with stakeholders					0.90	476.00	428.40	0.28	0.90	1190.00	1071.00	0.69	0.90	476.00	428.40	0.28	0.90	80.00	72.00	0.05	1.00	240.00	240.00	0.15	0.50	1190.00	595.00	0.38
Develop summary implementation strategy					0.90	38.00	34.20	0.02	0.90	96.00	86.40	0.06	0.90	38.00	34.20	0.02	0.90	24.00	21.60	0.01	1.00	48.00	48.00	0.03	0.50	96.00	48.00	0.03
Develop TMDL effectiveness monitoring strategy					0.90	42.00	37.80	0.02	0.90	104.00	93.60	0.06	0.90	42.00	37.80	0.02	0.90	16.00	14.40	0.01	1.00	96.00	96.00	0.06	0.50	104.00	52.00	0.03
Provide TA to local TMDL development efforts (2514, others)					0.10	204.00	20.40	0.01	0.10	511.00	51.10	0.03	0.10	204.00	20.40	0.01	0.10	204.00	20.40	0.01	0.10	160.00	16.00	0.01	0.50	511.00	255.50	0.16
Review and approve locally-developed TMDLs					0.10	112.00	11.20	0.01	0.10	280.00	28.00	0.02	0.10	112.00	11.20	0.01	0.10	112.00	11.20	0.01	0.10	80.00	8.00	0.01	0.50	280.00	140.00	0.09
Package into a TMDL for EPA approval					1.00	22.00	22.00	0.01	1.00	56.00	56.00	0.04	1.00	22.00	22.00	0.01	1.00	22.00	22.00	0.01	1.00	56.00	56.00	0.04	1.00	56.00	56.00	0.04
Respond to EPA requests					1.00	13.00	13.00	0.01	1.00	32.00	32.00	0.02	1.00	13.00	13.00	0.01	1.00	13.00	13.00	0.01	1.00	32.00	32.00	0.02	1.00	32.00	32.00	0.02
Negotiate with EPA over submittal issues					1.00	96.00	96.00	0.06	1.00	240.00	240.00	0.15	1.00	96.00	96.00	0.06	1.00	16.00	16.00	0.01	1.00	240.00	240.00	0.15	1.00	240.00	240.00	0.15
subtotal								1.16				3.51				1.21				0.20				1.39				2.27
IMPLEMENTATION OF CONTROL ACTIONS																												
Work with local watershed & resource agencies					1.00	200.00	200.00	0.13	1.00	500.00	500.00	0.32	1.00	200.00	200.00	0.13	1.00	200.00	200.00	0.13	1.00	500.00	500.00	0.32	1.00	500.00	500.00	0.32
Develop draft implementation plan					0.90	172.00	154.80	0.10	0.90	429.00	386.10	0.25	0.90	172.00	154.80	0.10	0.90	172.00	154.80	0.10	0.90	429.00	386.10	0.25	0.50	429.00	214.50	0.14
Conduct public involvement					0.90	40.00	36.00	0.02	0.90	100.00	90.00	0.06	0.90	40.00	36.00	0.02	0.90	40.00	36.00	0.02	0.90	100.00	90.00	0.06	0.50	100.00	50.00	0.03
Develop final implementation plan					0.90	32.00	28.80	0.02	0.90	80.00	72.00	0.05	0.90	32.00	28.80	0.02	0.90	32.00	28.80	0.02	0.90	80.00	72.00	0.05	0.50	80.00	40.00	0.03
Report and engineering reviews for TMDL implementation					1.00	378.00	378.00	0.24	3.00	126.00	378.00	0.24	1.00	378.00	378.00	0.24	0.00	126.00	0.00	0.00	1.00	378.00	378.00	0.24	1.00	378.00	378.00	0.24
Issue/Reissue permits with additional TMDL requirements					0.00	850.00	0.00	0.00	1.00	850.00	850.00	0.55	1.00	850.00	850.00	0.55	1.00	850.00	850.00	0.55	1.00	850.00	850.00	0.55	1.00	850.00	850.00	0.55
Revise general permit coverages for basin					0.00	32.00	0.00	0.00	0.33	80.00	26.40	0.02	0.33	32.00	10.56	0.01	0.33	32.00	10.56	0.01	0.33	80.00	26.40	0.02	0.33	80.00	26.40	0.02
Issue dairy nutrient permits					1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Establish TFW perscriptions and habitat					1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Grants/loans application reviews					1.00	48.00	48.00	0.03	3.00	16.00	48.00	0.03	1.00	48.00	48.00	0.03	1.00	48.00	48.00	0.03	1.00	48.00	48.00	0.03	1.00	48.00	48.00	0.03
Grants/loans administration					1.00	900.00	900.00	0.58	3.00	300.00	900.00	0.58	1.00	900.00	900.00	0.58	1.00	900.00	900.00	0.58	1.00	900.00	900.00	0.58	1.00	900.00	900.00	0.58
Conduct site specific monitoring					1.00	40.00	40.00	0.03	1.00	8.00	8.00	0.01	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03
Laboratory analytical work					0.90	56.00	50.40	0.03	0.90	140.00	126.00	0.08	0.25	56.00	14.00	0.01	0.90	56.00	50.40	0.03	0.90	140.00	126.00	0.08	0.50	140.00	70.00	0.04
Track BMP implementation					1.00	8.00	8.00	0.01	1.00	8.00	8.00	0.01	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03
Review dairy nutrient inspection plans					1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Conduct dairy inspections					1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Conduct tech assistance ps and nps					1.00	311.00	311.00	0.20	1.00	4668.00	4668.00	3.00	1.00	3110.00	3110.00	2.00	1.00	3110.00	3110.00	2.00	1.00	7780.00	7780.00	5.00	1.00	7780.00	7780.00	5.00
Conduct compliance inspections and actions					1.00	64.00	64.00	0.04	1.00	160.00	160.00	0.10	1.00	320.00	320.00	0.21	1.00	320.00	320.00	0.21	1.00	800.00	800.00	0.51	1.00	800.00	800.00	0.51
Conduct formal enforcement					1.00	32.00	32.00	0.02	1.00	80.00	80.00	0.05	1.00	32.00	32.00	0.02	1.00	32.00	32.00	0.02	1.00	80.00	80.00	0.05	1.00	80.00	80.00	0.05
subtotal								1.45				5.33				3.96				3.74				7.79				7.59
ASSESSMENT OF WATER QUALITY-BASED CONTROL ACTIONS																												
Conduct TMDL Effectiveness Analysis																												
- collect wq data					0.90	64.00	57.60	0.04	0.90	160.00	144.00	0.09	0.90	64.00	57.60	0.04	0.90	64.00	57.60	0.04	1.00	160.00	160.00	0.10	0.50	160.00	80.00	0.05
- laboratory analytical work					0.90	78.00	70.20	0.05	0.90	194.00	174.60	0.11	0.25	78.00	19.50	0.01	0.90	78.00	70.20	0.05	1.00	389.00	389.00	0.25	0.50	194.00		
- assess BMP effectiveness					1.00	40.00	40.00	0.03	1.00	100.00	100.00	0.06	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03	1.00	80.00	80.00	0.05	1.00	100.00	100.00	0.06
- coordinate and track land use changes					0.90	32.00	28.80	0.02	0.90	80.00	72.00	0.05	0.90	32.00	28.80	0.02	0.90	32.00	28.80	0.02	1.00	80.00	80.00	0.05	0.50	80.00	40.00	0.03
- review data and assess TMDL effectiveness					0.90	48.00	43.20	0.03	0.90	120.00	108.00	0.07	0.90	48.00	43.20	0.03	0.90	48.00	43.20	0.03	1.00	160.00	160.00	0.10	0.50	120.00	60.00	0.04
- develop additional controls if needed					0.50	128.00	64.00	0.04	0.50	320.00	160.00	0.10	0.50	128.00	64.00	0.04	0.50	128.00	64.00	0.04	0.50	160.00	80.00	0.05	0.25	320.00	80.00	0.05
Provide assistance to locals under 2514					0.10	96.00	9.60	0.01	0.10	240.00	24.00	0.02	0.10	96.00	9.60	0.01	0.10	96.00	9.60	0.01	0.10	160.00	16.00	0.01	0.50	240.00	120.00	0.08
Assess dairy implementation plans and permits					1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03	1.00	40.00	40.00	0.03	0.00	40.00	0.00	0.00	1.00	40.00	40.00	0.03
subtotal								0.23				0.53				0.19				0.23				0.62				0.33
APPEALS																												
Discovery/deposition	3.00	320.00	960.00	0.62	0.10	109.00	10.90	0.01	0.50	272.00	136.00	0.09	0.50	109.00	54.50	0.04	0.50	109.00	54.50	0.04	0.50	109.00	54.50	0.04	1.00	272.00	272.00	0.17
Case preparation	3.00	640.00	1920.00	1.23	0.10	128.00	12.80	0.01	0.50	320.00	160.00	0.10	0.50	128.00	64.00	0.04	0.50	128.00	64.00	0.04	0.50	128.00	64.00	0.04	1.00	320.00	320.00	0.21

DEPARTMENT OF ECOLOGY TMDL WORKLOAD MODEL

				Prorated Workload (X-Categories)				Simple TMDL				Complex TMDL				Landscape TMDL Project				Clean Lakes TMDL (96 list)				Contaminated Sediments TMDL				Flow TMDL			
Life Cycle Total FTEs:			260.09																												
Annual FTEs:			52.02	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project	# of	Hours	Total	Project
Program Activity				Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs	Actions	Each	Hours	FTEs
Settlement process				3.00	80.00	240.00	0.15	0.10	240.00	24.00	0.02	0.25	600.00	150.00	0.10	0.25	240.00	60.00	0.04	0.25	240.00	60.00	0.04	0.25	240.00	60.00	0.04	0.50	600.00	300.00	0.19
Hearing				3.00	24.00	72.00	0.05	0.10	64.00	6.40	0.00	0.25	160.00	40.00	0.03	0.25	64.00	16.00	0.01	0.25	64.00	16.00	0.01	0.25	64.00	16.00	0.01	0.25	160.00	40.00	0.03
Consent decree				3.00	24.00	72.00	0.05	0.10	16.00	1.60	0.00	0.13	40.00	5.00	0.00	0.13	16.00	2.00	0.00	0.13	16.00	2.00	0.00	0.13	16.00	2.00	0.00	0.13	40.00	5.00	0.00
Subtotal							2.10				0.04				0.32				0.13				0.13				0.13				0.60
DATA MANAGEMENT																															
Develop TMDL data base				1.00	2088.00	2088.00	1.34																								
Modify permit data bases for WLAs				1.00	480.00	480.00	0.31																								
Maintain TMDL/303(d) data base				15.00	1385.00	20775.00	13.35																								
Data entry								60.00	1.00	60.00	0.04	60.00	2.00	120.00	0.08	60.00	1.00	60.00	0.04	60.00	1.00	60.00	0.04	60.00	1.00	60.00	0.04	60.00	1.00	60.00	0.04
Compliance and Trends Report								10.00	8.00	80.00	0.05	10.00	8.00	80.00	0.05	10.00	8.00	80.00	0.05	10.00	8.00	80.00	0.05	10.00	8.00	80.00	0.05	10.00	8.00	80.00	0.05
Subtotal							15.00				0.09				0.13				0.09				0.09				0.09				0.09
**TMDL PROGRAM/POLICY DEVELOPMENT																															
Coordinate with EPA on TMDL program issues				15.00	522.00	7830.00	5.03																								
Work with stakeholders on TMDL program issues				15.00	1044.00	15660.00	10.06																								
Develop/maintain listing guidance/policy (e.g. data QA)				15.00	209.00	3135.00	2.01																								
Develop/maintain prioritizing guidance/policy				15.00	522.00	7830.00	5.03																								
Develop/maintain implementation guidance/policy				15.00	522.00	7830.00	5.03																								
Develop/maintain technical guidance				15.00	522.00	7830.00	5.03																								
Develop/maintain public involvement guidance				15.00	522.00	7830.00	5.03																								
Develop/maintain BMP effective analysis guidance				15.00	522.00	7830.00	5.03																								
Develop/maintain alternative control methods				15.00	522.00	7830.00	5.03																								
Develop/maintain TMDL workload model				15.00	522.00	7830.00	5.03																								
Develop/maintain 303d/TMDL/WQS rules				15.00	3132.00	46980.00	30.19																								
Maintain operator certification for TMDL-required projects				15.00	1556.00	23340.00	15.00																								
Develop TMDL/2514 guidance for locals				15.00	522.00	7830.00	5.03																								
Subtotal							102.56																								
**MANAGEMENT AND SUPPORT																															
Clerical support (@ 8.5 direct to clerical)																															
Supervision (@7.7 direct to supervisor)																															
Portion of cost allocation																															
Subtotal (calculated after all above @ + 24.8% additional)							0.00																								

**Indicates prorated workload, based on number of TMDLs and staff required to implement assigned functions.