Middle Snake (WRIA 35) Planning Unit
Technical Assessment Overview

Contents of the Technical Assessment

The Watershed Management Act includes requirements regarding the type of information to be included in the technical assessment. The requirements listed in the law, and recommendations for those issues not addressed in the law, are presented in Table 1. These include the four pillars of watershed planning: water quantity, water quality, habitat, and instream flows.

The Watershed Planning and Management law provides a broad description of the information that must be addressed in developing the watershed plan. These descriptions are more specific in the cases of water quantity and water quality, and less specific in the cases of habitat and instream flows (see Table 1). The law does not specify techniques of data collection, level of detail, or methods of analysis to be used in developing this information. Therefore, planning units have considerable latitude to determine what constitutes an adequate technical assessment for purposes of developing the watershed plan. Adequacy will vary from watershed to watershed, depending on issues such as:

- Availability, scope, and quality of existing data, and the infrastructure already in place for data collection and analysis;
- Particular management decisions the planning unit identifies as priorities;
- Extent to which the planning unit wishes to develop short-term strategies, as opposed to long-term strategies;
- Allocation of funding and other resources to the different issues identified for consideration;
- Priorities among sub-basins within the management area;
- Degree of uncertainty associated with key information and projections; and,
- The degree of risk associated with basing decisions on uncertain information.

In order to design and budget for technical assessments, planning units may want to address the following questions for the four primary elements of watershed planning.

1. What are the major areas of uncertainty affecting the watershed, and can the uncertainty be addressed through short-term data acquisition?
2. What is the risk associated with deferring data acquisition or relying on imprecise estimates?

For each element considered, a low degree of uncertainty and low risk would suggest a lesser degree of technical assessment may be adequate to support the watershed plan. A high degree of uncertainty and high risk would suggest more technical assessment is appropriate. For intermediate cases (low risk/high uncertainty; or high risk/low uncertainty), the degree of risk is the primary driver. This framework can be applied to the management area as a whole, or to specific sub-basins.

Table 1 Technical Assessment Requirements of the Watershed Management Act	
Element	**Technical Assessment Requirements if Element is Included in the Plan**
Water Quantity (Required as a condition of grant funding)	❑ Estimate of surface and groundwater present in the management area. ❑ Estimate of the water in the management area represented by claims in the water rights claims registry, water use permits, certificated rights, existing minimum instream flow rules, federally reserved rights, and any other legal rights to water. ❑ Estimate of the surface and groundwater actually being used in the management area. ❑ Estimate of the water needed in the future for use in the management area. ❑ Identification of the location of areas where aquifers are known to recharge surface bodies of water and areas known to provide for the recharge of aquifers from the surface. ❑ Estimate of the surface and groundwater available for further appropriation, taking into account the minimum instream flows adopted by rule or to be adopted by rule under this chapter for streams in the management area including the data necessary to evaluate necessary flows for fish. ❑ Water quantity strategies must ensure that water supply and minimum instream flow needs are both met. Establishment of such strategies does not confer water rights.
Water Quality (Optional)	❑ An examination based on existing studies conducted by federal, State, and local agencies of the degree to which legally established water quality standards are being met in the management area. ❑ An examination based on existing studies conducted by federal, State, and local agencies of the causes of water quality violations in the management area, including information regarding pollutants, point and nonpoint sources of pollution, and pollution-carrying capacity of water bodies in the management area. ❑ The analysis shall take into account seasonal stream flow or level variations, natural events, and pollution from natural sources that occur independent of human activities. ❑ An examination of the legally established characteristic uses of each of the nonmarine bodies of water in the management area; ❑ An examination of the impacts to beneficial or characteristic uses, caused by changes in watershed hydrology.

	❑ An examination of any total maximum daily loads (TMDLs) established for nonmarine bodies of water in the management area, unless a total maximum daily load process has begun in the management area as of the date the watershed planning process is initiated under section 2 of [the Watershed Management Act]. ❑ An examination of existing data related to the impact of fresh water on marine water quality. ❑ Water quality strategies must include recommendations for integrating with the TMDL process and monitoring compliance.
Habitat (Optional)	❑ The Watershed Planning Act contains no specific requirements for a habitat technical assessment. However, where habitat restoration activities are being developed under the Salmon Recovery Act (HB 2496) , such activities must be relied on as the "primary nonregulatory habitat component" under the Watershed Management Act. ❑ In addition, coordination with SMA, GMA, forest health practices, & ESA must be addressed. ❑ The Salmon Recovery Act requires analysis of "limiting factors" in developing a habitat project list. Limiting factors are defined as "conditions that limit the ability of habitat to fully sustain populations of salmon.... primarily fish passage barriers and degraded estuarine areas, riparian corridors, stream channels and wetlands" The discussion of the Salmon Recovery Act in the Watershed Planning Act indicates that planning units should rely on studies conducted under 2496 wherever possible, rather than undertaking separate studies.
Instream Flows (Optional)	❑ The Watershed Planning Act contains no specific requirements for an instream flow technical assessment. ❑ If addressed, collaboration with the Dept. of Ecology and affected tribes is vital ❑ Any new minimum flows set in the basin have a priority date of 2 years after the Phase 1 grant is received, unless the Planning Unit agrees to an earlier date. ❑ If the instream flows are not approved within 3 years of receiving the assessment grant, Ecology has an addition 2 years to conduct studies and set a minimum instream flow ❑ Minimum flows cannot affect any existing FERC licenses.

Note: the Watershed Management Act contains additional requirements for strategies and recommendations to be included in the watershed plans, as well as processes for planning and rule adoption.

Developing a Water Balance

Preparation of a "water balance" can assist planning units in addressing the physical aspects of water availability described in Table 1. A water balance is a conceptual tool for understanding the pathways by which water enters, flows through, and leaves a watershed. It can provide a useful starting point for consideration of water quantity, water quality, and habitat issues. Over the past ten years, basin assessments conducted in a number of areas around the State have utilized this approach in determining the physical availability of water.

A water balance can be prepared for an entire WRIA, a sub-basin within a WRIA, or some other geographic area. The key to developing a water balance is the recognition that each component can be estimated to a higher or lower degree of precision, depending on the need and intended application. Higher precision can provide valuable input to decision-making on water quantity issues, but it requires additional data that comes at a correspondingly higher cost. Depending on the circumstances, a relatively low degree of precision may be adequate for decision-making.

The law also calls for consideration of "seasonal and other variations." Addressing seasonal and geographic breakdowns of water balance information can greatly increase the value of the information obtained, particularly since future uses may follow predictable seasonal and geographic patterns. A water balance can be developed by using a combination of available data and estimating techniques. A simplified water balance can be summarized as:

Precipitation = Runoff + Groundwater Recharge + Evapotranspiration

Precipitation: Precipitation includes rainfall, snowfall, and even condensation (which can be a factor in areas subject to lengthy periods of fog. In some cases, artificial importation of water from another WRIA (e,g, importation of water through pipelines or canals), or substantial flows of groundwater across basin boundaries may also represent inputs to the total water entering a WRIA.

Runoff: Runoff is the water that flows overland or in the shallow subsurface and quickly reaches surface water bodies such as streams, rivers, lakes, or the sea.

Groundwater Recharge: This is the portion of precipitation that infiltrates past the root zone and enters aquifers of the groundwater system. Groundwater discharge to a surface water body may occur in the same WRIA, or groundwater may flow into another WRIA. Depending on hydrogeological conditions, groundwater flow to surface water may occur within hours, days, years, centuries or longer.

Evapotranspiration: This is water that is returned to the atmosphere. It consists of two components. First, water may evaporate directly into the atmosphere from surface water bodies or the ground surface. Second, water taken up by plants, including lawns, crops, and forests, is "transpired" to the atmosphere through leaves.

Estimating Water Rights and Uses

The question of how much water is available for new uses depends not only on the physical water balance, but on legal rights and uses of water. The requirements spelled out in the Watershed Management Act for the water quantity element (see Table 1) also include estimation of the quantity of water represented by water rights claims, water use permits, certificated rights, minimum instream flow rules, and federally reserved rights. In addition, the law calls for an estimate of the amount of water actually being used in the management area. Data regarding legal rights to water can be found in a variety of sources, including Ecology's digitized database of water rights contained in the Water Rights Information System (WRIS). A primary issue in water rights is consideration of the actual amounts of water used in comparison with documented water rights.

The Technical Assessment Process

The Watershed Management Act specifies the contents of technical assessments, but does not prescribe a particular process for conducting assessments. The approach outlined herein is presented solely to assist the Planning Unit in achieving useful results in an efficient manner. In cases where technical issues are relatively simple and the Planning Unit can readily agree on technical methods, a relatively informal application of these techniques may be adequate. In other cases, a more formal approach may be necessary to clearly delineate methods and objectives of technical assessments, and to provide a means for objective verification of findings.

The technical assessment process associated with watershed planning can be developed in three distinct steps. The first two steps fall under Phase 2 of the watershed planning grants program. The third step is long-term implementation that follows plan adoption. This three-step process allows decision-making to proceed in the short-term, yet recognizes that in the long-term, management actions can be refined as scientific understanding improves under an adaptive management framework.

- Level 1 Assessment: A comprehensive compilation and review of existing data relevant to defined objectives. If the Planning Unit determines that existing data is sufficient to support needed management decisions, they may choose to bypass Level 2 and move straight to plan development and Level 3. This determination could be made separately for various issues being considered, or for different sub-basins.
- Level 2 Assessment: Collection of new data within the time frame of the planning process, to fill critical data gaps and support well-defined decision needs.
- Level 3 Assessment: Long-term monitoring of selected parameters following completion of the initial watershed plan. The data collected over time can be used to improve management strategies in the long-term.

Compile Existing Data

In many cases, existing data may be sufficient - or nearly so - to permit management recommendations. In other cases, existing data will not be sufficient, but systematic compilation and assessment of the existing data can identify data gaps and reduce the cost of the technical assessment.

In general, the following is recommended:

- Identify and compile all watershed scale plans.
- Identify and compile all relevant technical studies and reports – published and unpublished.
- Identify, locate, and determine sources of aerial photographs, printed and digital.
- Identify and compile all relevant geographic information system coverages.
- Identify, compile, and maintain a local expertise directory of individuals with on-the-ground information.
- Identify environmental problems or issues important to local citizens, local government, State, and federal agencies.
- Identify economic projects important to the watershed.

Conduct Level 2 Studies

Depending on the needs and objectives of data collection identified by the planning unit, new, short-term studies may provide a valuable contribution to the planning process. This will generally be the case if the key technical issues affecting plan development can be addressed using a short-term study that can be completed in one to two years. In this case, a Level 2 Assessment (i.e. one or more short-term studies to fill critical data gaps) is appropriate.

Some examples of Level 2 studies are:

- Hydrogeologic studies to determine the extent and characteristics of aquifers in the management area.
- Feasibility Studies to address potential means of increasing storage, potential alterations to reservoir operations, optimizing regional water supplies and minimizing future needs through pipeline interties, water re-use options, potential conjunctive management of surface water and groundwater, etc.
- Cost-benefit analyses to evaluate various options.
- Baseline water quality studies.
- Instream flow studies, such as Instream Flow Incremental Methodology (IFIM) studies.
- Modeling of water quantity, water quality, or habitat conditions.
- Water Source feasibility evaluations (e.g. reuse, recharge enhancement, aquifer storage, and recovery).

If needed, a Level 2 Assessment should be completed prior to completion of the watershed plan. Therefore, studies addressing long-term trends and ongoing monitoring are not appropriate at this stage. Long-term studies should instead be used as part of the process envisioned for implementation of the management program and strategies in Level 3.