Tillamook Bay Watershed Council

Trask Watershed Action Plan

December 1999

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1.0 INTRODUCTION

1.1 Purpose

This document is the Tillamook Bay Watershed Council's (Council) Action Plan for the Trask River Watershed. The purpose of this document is to help guide the Council toward its goals of improving, maintaining and protecting watershed health, and fostering stewardship and understanding of the watershed.

1.2 Background

The Council was formed in February 1998 and was officially designated by the Tillamook County Commissioners in September 1998. The Council is comprised of citizens and representatives from various sectors of the community including agriculture, business, fishing, education, the environment, forestry, and governments. The Council was formed to help address watershed management issues in the Tillamook Bay Watershed, improve and enhance watershed health, and to provide a framework for public participation and education in watershed issues.

The Trask River is one of five rivers within the Tillamook Basin draining to Tillamook Bay. The Trask Watershed encompasses an area of approximately 162 square miles (Figure 1). The Trask River runs approximately east to west through the watershed. Steep, mountainous terrain, vegetated with coniferous forest comprises the eastern 85% of the watershed. The State of Oregon owns the majority of land in the eastern portion of the watershed. The western 15% of the watershed is a floodplain that drains into Tillamook Bay. The floodplain is dominated by dairy farming and urban development.

An assessment of the Trask Watershed was completed in November 1998 by the Tillamook Bay National Estuary Project. The Trask Watershed Assessment including all of the supporting documents (e.g., evaluation forms and maps) is the cornerstone for this Action Plan.

This Action Plan takes a watershed-wide approach and the actions, herein, strive to integrate existing plans and efforts occurring in the watershed, including but not limited to the CCMP (Tillamook Bay Comprehensive Conservation Management Plan) and the Oregon Plan for Salmon and Watersheds. Actions were considered a priority and were included in this Action Plan if they met the following criteria:

- provides opportunity for public education and involvement;

RESERVED FOR FIGURE 1

- addressees a resource issue as identified in the Trask Watershed Assessment;
- adds to existing inventories and databases;
- fulfills practical concerns such as availability of funding or landowner interest and cooperation; and
- provides partnership building opportunities.

The Council considers this Action Plan a "living document" that can be updated, as new information is available. An action plan for each of the other four watersheds in the Tillamook Basin will be formulated as an assessment is completed for each watershed.

2.0 PRIORITY AREAS FOR HABITAT RESTORATION AND PROTECTION

The Trask Watershed Assessment identified areas in the watershed that can be described in four categories:

- Habitat areas that are relatively intact and need to be protected;
- Habitat areas where habitat restoration is feasible with changes in land use activities or at a reasonable cost;
- Habitat areas that could be restored but the cost would be high and the probability of success is low; and
- Habitat areas where restoration is not technically feasible due to stream alteration, degradation, or sociopolitical limitations.

The habitat areas that were considered by the Council as priority areas for habitat restoration and protection, based primarily on the recommendations contained in the Trask Watershed Assessment, are shown in Figure 2 and are discussed below by subwatershed. **These priority areas may be adjusted by the Council upon final approval of the CCMP and resultant coordination efforts with the Performance Partnership[1]**.

[1] The CCMP is a plan which is currently in draft, developed over a five year period by the Tillamook Bay National Estuary Project (TBNEP) Management Committee, which outlines specific actions to improve water quality, enhance critical habitats, reduce sediment loading, and mitigate the effects of floods. The implementation of the final CCMP will be overseen by the Tillamook County Performance Partnership (a local, state, and federal partnership). Since the Council is a member of the Performance Partnership, the Council intends to work cooperatively in the implementation of the final CCMP.

RESERVED FOR FIGURE 2

Tidal Mainstem River Mile (RM) 0–2: All habitat along both branches of the mainstem from RM 0–2 is in need of habitat restoration (riparian planting and addition of large woody debris [LWD]), as is Dougherty Slough (riparian planting and addition of LWD). The only area that is relatively intact and is considered a high priority for immediate protection is Hoquarten Slough, which has intact riparian stands and relatively high habitat values, but some problems with water quality.

Mainstem RM 2–10: Areas for restoration are: mainstem RM 2–10 (riparian planting and fencing, addition of LWD, and other habitat enhancement projects); Mill Creek and Holden creek (reduce contaminant inputs and riparian planting); an unnamed creek that enters the mainstem at Trask River Road Bridge (riparian planting); and Hanenkrat Creek (riparian planting). Areas in this subwatershed that could be restored, but the costs are high: Gold Creek (restore fish passage at the hatchery and interplant conifers in riparian) and Green Creek (replace culvert for fish passage and plant riparian on floodplain reach).

Mainstem RM 10–confluence with North Fork[2]: The only area that is relatively intact and has need for immediate protection is on the mainstem (approximately RM 10.7–11.7), which has high quality riparian and high quality instream habitat. Habitat areas in need of restoration: mainstem RM 11.7–confluence (interplant conifers in riparian and other habitat enhancement projects), and small, perennial streams (interplant conifers in riparian).

North Fork[3]: Habitat areas for restoration are: entire mainstem of North Fork (interplant conifers in riparian), lower Bark Shanty Creek (instream

[2] The Trask Watershed Assessment identified the streams between Cedar and Burton Creeks (i.e., replace culverts for fish passage under Trask River Road) as an area that could be restored but the costs are high. The council did not rate it as a high priority area due to questionable habitat.

[3] The Trask Watershed Assessment identified a potential project involving the removal of a natural barrier on Bark Shanty Creek at RM 1.5. The Council did not rate it as high priority based primarily upon a recommendation from Oregon Department of Fish and Wildlife.

habitat enhancement projects), and small, perennial streams (interplant conifers in riparian).

North Fork of North Fork: The only area that is relatively intact and has need for immediate protection are the first two miles of the mainstem above the confluence, which has high quality riparian habitat but needs LWD additions to help retain spawning gravels and increase the number of pools. Areas for restoration: mainstem from RM 2–headwaters (interplant conifers in riparian and addition of LWD), and small, perennial streams (interplant conifers in riparian and addition of LWD).

Middle Fork of North Fork[4]: The only area that is relatively intact and has need for immediate protection is the mainstem from RM 3 to Barney Dam, which has both high quality instream and riparian habitat. Areas for restoration: Elkhorn Creek, Cruiser Creek and small, perennial streams (interplant conifers in riparian and addition of LWD).

South Fork: The only area that is relatively intact and has need for immediate protection is the first seven miles of the mainstem above the confluence, which has both high quality instream and riparian habitat. Areas for restoration: Edwards (RM 0–2.5), Joyce (RM 0–2), and Bill (RM 0–0.75 [probable natural barrier at this location]) Creeks and small, perennial streams (interplant conifers in riparian and addition of LWD).

East Fork of South Fork: The only area that is relatively intact and has need for immediate protection is the first seven miles of the mainstem above the confluence, which has both high quality instream and riparian habitat. Areas for restoration: small, perennial streams (interplant conifers in riparian and addition of LWD).

3.0 PRIORITY ACTIONS

[4] The Trask Watershed Assessment identified Barney Reservoir (i.e., add fish ladder to allow fish passage to extensive habitat in upper watershed) as an area that could be restored but the cost is high. The council did not rate it as a high priority area because estimated costs of the project were greater than perceived benefits at this time.

The Council identified 10 priority actions, discussed below, that have a high probability of being successfully implemented or "championed" by a volunteer workforce, and will address resource issues, provide useful data, and provide an opportunity for public education. Each of the 10 priority actions will be implemented as personnel, equipment, and funding allows.

3.1 Habitat Actions

Figure 2 depicts the habitat areas or stream reaches that were identified as high priority for habitat restoration projects (e.g., riparian planting, addition of LWD, and interplanting of conifers in riparian).

Action #1
Title: **Add Large Woody Debris to Stream Channels**

What:

Individual project sites will be selected and plans for adding LWD to stream channels will be developed in consultation with Oregon Department of Fish and Wildlife (ODFW), Bureau of Land Management (BLM), and Natural Resource Conservation Service (NRCS) biologists. Individual site project plans will comply with current regulations and design guidelines for LWD enhancement projects. The Council will coordinate plan funding and implementation.

Why:

LWD is important throughout the watershed. LWD in the upper watershed helps to: store and sort spawning gravel and the rest of the bedload; retain organic matter that forms the basis of the aquatic food web; slows water velocity and increases the connectivity

between the channel and the floodplain; and creates structural diversity, such as plunge pools and other types of habitats. LWD in the upper watershed affects flooding through slowing water flows, which can decrease the flood peak in the lower watershed if the streams contain enough LWD and/or boulders. LWD in the main floodplain, tidal channels and the bay helps to provide cover from predators for fry and smolts, supports insect populations that fish eat, and increase habitat complexity. The Trask Watershed Assessment concludes that Trask watershed stream channels are deficient in LWD. This LWD deficiency is due to the Tillamook burns, salvage logging, stream cleaning, snag removal, firewood cutting, cedar salvage, and inadequate recruitment of new LWD.

Where:

Numerous reaches throughout the watershed would benefit from the addition of LWD (Figure 2). The Trask Watershed Assessment concludes that the most benefit will come from adding LWD to all productive flats of channels in the forested uplands (found in channel habitat types MM, MC, and MH[5]), and to channels with rearing habitat (alcoves, sloughs, connected wetlands, swamps, and saltmarsh) in the lowlands. The highest priority reaches[6] per subwatershed include Trask Mainstem RM 0-10 and Dougherty Slough; the entire mainstem of the North Fork of North Fork with emphasis on RM 2-headwaters; Elkhorn and Cruiser Creeks located in the Middle Fork of the North Fork; and Edwards (RM 0-2.5), Joyce (RM 0-2), and Bill (RM 0-0.75) Creeks located in the South Fork subwatershed. Currently, the ODFW has a staff biologist designing enhancement projects for Tillamook State Forest land, and for private timber landowners on the Trask. The Council will coordinate with ODFW, BLM, and NRCS staff to identify specific sites, and design and permit site-specific LWD projects in the watershed.

[5] Channel habitat types (GWEB 1998): MM = broad valley, moderately confined between terraces; MC= gentle to narrow v-shape valley, minimum floodplain; and MH = open v-shape, gentle to moderate land forms or broad drainage divides.

[6] The identified priority areas may be adjusted by the Council based upon information derived from the final CCMP and coordination efforts with the Performance Partnership.

Who and How:

The Council will supply volunteers and coordinate equipment necessary for implementing LWD projects. ODFW, BLM and NRCS staff will help with project design and permitting. Private landowners, and public land managers (Oregon Department of Forestry [ODF] and BLM), will be asked to allow the use of their land for enhancement projects, and to supply the LWD used in the projects. Contractors will be asked to donate tree stems and stumps with root wads. LWD will be transported to the enhancement site by dump truck or helicopter.

When:

Project planning will begin immediately. ODF, ODFW, and BLM have ongoing programs to add LWD to stream channels.

Education Component:

Volunteers who participate in the project will learn about the ecological functions of LWD. A presentation on projects could be developed by the Council and delivered to local watershed councils, science classes in local schools, private landowners, and associations such as the Small Woodlot Owners Association.

Costs:

The primary costs associated with implementation of LWD placement are labor, equipment time, the LWD, and transportation. The actual cost of implementation will depend upon the degree to which these costs are donated. It is the goal of the Council to actively seek the donation of labor, equipment, and LWD to minimize the cost of project implementation.

Action #2

Title: **Plant Native Tree Species in Riparian[7]**

What:

Create functional riparian areas by interplanting conifers and planting native riparian vegetation along stream reaches, and increasing riparian biodiversity by adding native species to existing riparian stands and educating landowners to encourage riparian diversity and use of native vegetation.

Why:

Riparian stands are an important component of a healthy environment. Riparian stands stabilize stream banks, moderate the impact of solar radiation, trap sediment, filter pollutants, provide wildlife habitat, provide detritus (organic material) to the stream for food production (aquatic insects), retain humidity, reduce evaporation, and are an important source of LWD. A healthy riparian stand can also reduce the impact of flooding by slowing the floodwaters, and keeping flood transported debris in the channel. The Trask Watershed Assessment concluded that many of the rivers and streams in the watershed lack a healthy and diverse riparian area and existing riparian areas are often degraded, and lack biodiversity.

Where*:*

The Trask Watershed Assessment described the health and diversity of riparian stands as varying throughout the watershed. In the upland forested portions of the watershed riparian stands often lack

[7] Merriam Webster's Collegiate Dictionary, 10th Edition, defines "riparian" as "relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater." A riparian area is defined as a geographic area containing an aquatic ecosystem and adjacent upland areas that directly affect it. This includes floodplain, woodlands, and all areas within a horizontal distance of approximately 100 feet from the normal line of high water of a stream channel or from the shoreline of a standing body of water (FEMAT 1993). A riparian zone is defined as those areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables and soils which exhibit some wetness characteristics. Riparian zone is normally referred to the zone with within which plants grow rooted in the water table of rivers, streams, lakes, ponds, reservoirs, springs, marshes, seeps, bogs, and wet meadows (FEMAT 1993).

conifers. In the agricultural lowlands many of the stream reaches lack riparian stands composed of native riparian vegetation. The highest priority reaches[8] per subwatershed include Trask Mainstem RM 0-10, Dougherty Slough, Mill Creek, Holden Creek, Hanenkrat Creek, Gold Creek, and Green Creek; Trask Mainstem RM 11.7-confluence; entire mainstem of North Fork; North Fork of North Fork mainstem from RM 2-headwaters; Elkhorn and Cruiser Creeks located in the Middle Fork of the North Fork; and Edwards (RM 0-2.5), Joyce (RM 0-2), and Bill (RM 0-0.75) Creeks located in the South Fork subwatershed.

Who and How:

There are several ongoing riparian planting projects in the watershed. The Council will support these projects by coordinating volunteers, equipment, and the materials necessary for planting native riparian tree species on stream banks[9]. ODF and ODFW biologist will help with project design and permitting. OSU Extension Agents and BLM staff may also help plan riparian restoration projects. Private landowners and public land managers (ODF, BLM), will be asked to allow the use of their land for riparian planting projects. The Council may also submit written requests to landowners within the identified riparian enhancement priority areas for action to be taken to restore and protect riparian areas.

When:

Riparian planting projects in the watershed are ongoing. Coordination, establishing partnerships, and implementation can begin immediately.

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[8] The identified priority areas may be adjusted by the Council based upon information derived from the final CCMP and coordination efforts with the Performance Partnership. For instance, "Summit Creek" from South Fork Trask River upstream 342 feet was identified as a priority 1 action in the July 1999 draft CCMP. If this action remains a priority 1 action in the final CCMP, the Council would pursue this project with the landowner, Simpson Timber Company (e.g., determine if landowner is interested in implementing this project; determine extent of involvement by landowner, Council, and others; etc.).

[9] The Council will identify sources of native tree species and procurement lead time in order to effectively implement this action within the watershed.

Education Component:

The Council will oversee the development of a seminar to explain the benefits and importance of healthy native riparian stands to the watershed. Key components of the seminar will be exotic vegetation identification, vegetation removal strategies, and tree planting techniques. This seminar will be offered through local watershed councils, school groups, and local associations.

Costs:

The primary costs associated with planting native riparian and conifer tree species on stream banks are labor, equipment time, and planting stock. The actual cost of implementation will depend upon the degree to which these costs are donated. It is the goal of the Council to actively seek the coordination and donation of labor, equipment, and native riparian tree species to minimize the cost of project implementation.

Action #3
Title: Build Stream-Side Fencing and Develop Off-Stream Watering Sites

What:

Protect healthy riparian areas, promote restoration of damaged areas, and improve water quality by supporting installation of stream-side fencing and off-stream watering facilities.

Why:

Unrestricted livestock access to streams can lead to fecal contamination of the water, erosion of the streambank, and loss of riparian vegetation. Through fencing, providing off-stream watering for livestock, and restoring riparian vegetation, these impacts can be minimized.

Where:

Livestock have unrestricted access to many stream reaches in the lowlands.

Who and How:

A successful streamside fencing and off-stream water program is currently funded and implemented through a Tillamook County Creamery Association (TCCA) and NRCS/SWCD (Tillamook County Soil and Water Conservation District) partnership. The Council will support this program by identifying critical stream reaches, coordinating volunteers, and soliciting donations of materials and native riparian vegetation. Existing streamside fencing projects are not available to all landowners. The Council will identify excluded landowners and coordinate funding and implementation of streamside fencing and off-stream watering projects.

When:

The Council currently supports ongoing streamside fencing and off-stream watering projects.

Education Component:

The Council, in conjunction with TCCA and NRCS/SWCD, will develop a streamside fencing and off-stream watering seminar which could be presented to local watershed councils, schools groups, and private landowners. This seminar will outline the importance of riparian areas in the watershed, and explain how these areas will benefit from streamside fencing and off-stream water facilities. Volunteers in the construction of streamside fencing, riparian planting, and off-site watering facilities will be trained prior to project implementation.

Cost:

The primary costs associated with implementation of streamside fencing and off-stream watering are labor, equipment rental, fencing and off-stream watering materials, and native riparian vegetation.

Funding currently exists for qualifying projects. It is the goal of the Council to actively seek the donation of labor, equipment, and materials to expand the scope of project implementation.

Action #4
Title: **Add Salmon Carcasses to Stream Channels**

What:

The ODFW has developed a program to collect salmon carcasses at the Trask River Hatchery and deposit them into stream channels in the upper portion of the Trask watershed.

Why:

Decomposing salmon carcasses add important nutrients to the watershed. Due to the low numbers of returning salmon, these important nutrients are often absent from stream channels in the upper watershed. Placing salmon carcasses into the upper watershed can replace the nutrients formerly supplied by dead salmon.

Where:

Salmon carcasses collected at the Trask River hatchery are added to stream channels throughout the upper watershed.

Who and How:

A successful carcass placement program is currently implemented through volunteers and hatchery staff, with some ODFW guidance[10]. The Council will support this program by identifying critical stream reaches, and coordinating volunteers for carcass placement.

When:

[10] A Department of Environmental Quality permit is required for this action. In the past, ODFW has obtained permits for a few tributaries.

Adding salmon carcasses to the upper portions of the Trask watershed is an ongoing annual program.

Education Component:

Volunteers who participate in the project will learn about the ecological impact of salmon carcass placement in the upper watershed.

Cost:

The primary costs associated with implementation of salmon carcass addition to stream channels are labor and transportation. The actual cost of implementation will depend upon the degree to which these costs are donated. It is the goal of the watershed council to actively seek the donation of labor and transportation to minimize the cost of project implementation.

Action #5

Title: **Survey and Repair/Replace/Remove Salmon Migration Barriers**

What:

Support ongoing culvert and tidegate surveys. Review the existing database and identify omissions in data collection (e.g., areas not yet surveyed, insufficient information concerning the current and historic habitat condition and use behind the barrier). Projects to address identified migration barriers will be developed and implemented in consultation with landowners (e.g., private, Tillamook County, ODF, BLM).

Why:

Poorly designed or failing culverts and tidegates prevent fish from reaching upstream habitat, and may contribute to localized flooding. The Trask Watershed Assessment identified a need for a systematic

survey of culverts throughout the watershed to determine if they pose barriers to fish migration. Once identified, failing culverts and tidegates can be repaired, replaced, or removed.

Where and Who and How:

The TCCA and several other agencies and groups are currently conducting culvert and tidegate surveys. The Council will review these ongoing surveys and solicit volunteers to help fill the data gaps. The Performance Partnership Scientific/Technical Advisor will incorporate survey results into a Geographic Information System (GIS) layer. The Council will be an advocate for remedial work on identified migration barriers and will assist in project implementation (e.g., actively seek the donation of labor, equipment, and/or materials to minimize the cost of project implementation). The highest priority reaches[11] to restore fish passage include Gold Creek and Green Creek in the Trask Mainstem RM 2-10.

When:

Culvert and tide gate surveys are ongoing. The Council will solicit volunteers and coordinate training immediately. The Council will also coordinate with landowners (e.g., Tillamook County) to develop projects and obtain funding to provide fish passage at known barrier sites.

Education Component:

Volunteers will be trained to rate culverts and tidegates for fish and flood water passage. The Council, in conjunction with the Performance Partnership Scientific/Technical Advisor, will develop a report that delineates the status of culverts/tidegates in the watershed and prioritizes them for rehabilitation. The Council will develop a seminar to explain to landowners how culverts, tidegates, and other barriers impact fish passage, and the benefits of remediation.

[11] The identified priority areas may be adjusted by the Council based upon information derived from the final CCMP and coordination efforts with the Performance Partnership.

Costs:

The primary costs associated with conducting surveys are labor, equipment, photocopying, and transportation. The actual cost of implementation will depend upon the degree to which these costs are donated.

Action #6
Title: **Monitor Invertebrate Populations in the Streams**

What:

Invertebrate populations will be monitored in streams throughout the Trask watershed.

Why:

The draft CCMP identified a need to monitor invertebrate populations. Invertebrate populations respond rapidly to changes in the environment, and can provide valuable insight into the health of a stream. Documenting the diversity and quantity of invertebrates in a stream will provide baseline data from which the impact of future stream restoration projects can be assessed.

Where:

Invertebrates will be collected in stream reaches throughout the mid- and upper-watershed.

Who and How:

The Council will coordinate the solicitation and training of volunteers to collect invertebrates. Invertebrate collection will be coordinated with the Performance Partnership Scientific/Technical Advisor. Invertebrates collected during the survey will be sent to a commercial laboratory for identification.

When:

Volunteer solicitation and training can begin immediately.

Education Component:

Volunteers will be trained to properly identify, collect, and handle invertebrates. The results of the invertebrate survey will be presented in a seminar that explains how invertebrate communities are indicative of stream health. This seminar, developed by the Council in coordination with the Performance Partnership Scientific/Technical Advisor, will be presented to local watershed councils, schools, and landowner associations.

Cost:

The primary costs associated with monitoring invertebrate populations are sample collection, and sample identification. The cost of sample collection will depend upon the degree to which labor is donated. Invertebrate identification by an outside laboratory ($100-$120 per sample) will likely require grant funding.

3.2 Water Quality Actions

Action #7
Title: **Survey Roads and Trails**

What:

Support ongoing road and trail surveys.

Why:

The Trask Watershed Assessment identified that five of the eight subwatersheds have high road densities (i.e., greater than 2 miles/square mile) which may be contributing significant sediment

loads to streams. For turbidity and sediment, the mainstem of the Trask is listed by Oregon Department of Environmental Quality (DEQ) as a waterbody of concern from the confluence of the North and Middle Forks of the North Fork all the way down to the bay.

Where and Who and How:

The ODF is currently conducting road and trail inventories to determine the condition of those facilities. Those facilities determined to be contributing excessive amounts of sediment are undergoing corrective measures. The Council will encourage other landowners and holders of rights-of way to undertake similar actions, particularly those within the East Fork of the South Fork and the South Fork subwatersheds. These subwatersheds have high fish habitat values that would benefit from road remediation work.

When:

Road and trail surveys are ongoing. The Council will contact landowners and holders of rights-of-way within the watershed to encourage them to evaluate their transportation system and undertake corrective measures to reduce the potential for sediment delivery to streams[12].

Education Component:

This is an education action.

Costs:

No direct costs.

Action #8

Title: **Monitor Temperature in Streams**

[12] The Council may directly approach the landowners or may request the Performance Partnership to pursue contacting landowners.

What:

Water temperatures will be monitored at multiple locations in the Trask watershed.

Why:

Several streams, and portions of the Trask mainstem, have been placed on DEQ's 303(d) list for high temperatures. Monitoring water temperature at multiple locations on the listed streams will identify areas where restoration efforts are most needed.

Where:

DEQ and the Performance Partnership have eight proposed locations in the Trask Watershed for temperature monitoring: Trask River at the Trask Fish Hatchery, mouth of the North Fork of Trask River, Trask River downstream of Bark Shanty Creek, Trask River downstream of Clear Creek, mouth of the East Fork of the South Fork of Trask River, South Fork of the Trask River upstream from the East Fork of the South Fork, mouth of the Middle Fork of the North Fork of the Trask River, and the mouth of the North Fork of the North Fork of the Trask. In addition, other locations may be monitored as advised by the Performance Partnership Scientific/Technical Advisor.

Who and How:

The Council will coordinate with DEQ and the Performance Partnership to determine stream reaches where the temperature monitors should be placed. The DEQ will train volunteers to place, and maintain the temperature monitoring equipment. The Council will coordinate volunteers to place the sensors in the specified stream reaches. Volunteers will check and maintain the sensors throughout the summer and remove them in the fall. Data will be stored using the DEQ template.

When:

Sensors will be placed into streams in May of each season, monitored until September, and then removed.

Education Component:

Based upon the collected data, a seminar will be developed to explain the impact of stream temperatures on fish populations in the watershed. This seminar will be presented to local watershed councils, schools, fishermen groups, and landowners.

Cost:

The primary costs associated with monitoring temperatures in streams are the placement, maintenance, and retrieval of the monitoring equipment. The actual cost of implementation will depend upon the degree to which labor is donated. It is the goal of the watershed council to actively seek the donation of labor to minimize the cost of project implementation.

Action #9
Title: **Monitor Bacteria in Streams**

What:

Support the long-term water quality monitoring plan implemented by the Performance Partnership.

Why:

Bacteria levels in the Trask watershed sometimes exceed water quality standards for water contact recreation. Bacteria levels in Tillamook Bay can exceed federal standards for commercial shellfish harvest. Monitoring bacteria levels throughout the watershed will

help document an important water quality parameter and help prioritize areas for remediation.

Where:

Collect water samples as requested by the Performance Partnership Scientific/Technical Advisor.

Who and How:

The Performance Partnership Scientific/Technical Advisor is coordinating a multi-basin long-term bacteria monitoring program. This monitoring program coordinates the efforts of several diverse groups including, the DEQ, ODA, FDA, the Port of Tillamook Bay, and the TCCA. The Council will solicit volunteers to support the ongoing monitoring program through sample collection, and possibly sample analysis.

When:

Bacteria monitoring is ongoing. Sampling can begin immediately and continue year around.

Education Component:

Prior to beginning fieldwork, volunteers will be trained to collect and test water samples for bacteria content. Based upon this data, the Council will prepare a seminar on the sources of bacterial contamination in the watershed. This data may be used by other interested parties to developed related seminars and action plans.

Cost:

The primary costs associated with the implementation of bacteria monitoring in streams are labor, transportation, processing bacteria samples and laboratory supplies. The actual cost of implementation will depend upon the degree to which these cost are donated. Full participation in the ongoing bacteria monitoring program is likely dependant upon receiving a grant for the purchase of laboratory supplies or to pay for bacteria sample processing.

3.3 EDUCATION ACTIONS

Action #10
Title: **Form an Education Committee**

What:

Form an education subcommittee of the Council to oversee implementation of the education components identified in this document.

Why:

Each action identified in this action plan includes an important education component. The education subcommittee will work to make this action plan a "living document" by developing seminars that educate and inform the public and local agencies about actions taken in their watershed.

Where:

The education subcommittee of the Council will meet locally as necessary to develop reports and seminars.

Who and How:

The Council will establish an education subcommittee at a regularly scheduled council meeting. Participation on the education subcommittee is not limited to members of the Council. The education subcommittee will coordinate/collaborate with other watershed councils.

When:

The education subcommittee can be formed immediately[13].

Education Component:

This is an education action.

Cost:

No direct cost.

[13] Individuals interested in this action item attended a meeting in the summer of 1999. Leo Adams, Trask River representative on the Council, is the contact for information concerning the status of the education subcommittee.