REPORTING WATERSHED IMPROVEMENT

Based on Statistical Evidence of Watershed-wide Improvement (Option 2a)

Watershed Identification

a	Organization	Oregon Department of Environmental Quality (ODEQ)
b	Point of Contact	York Johnson Phone: 503-322-2222 E-mail: johnson.york@deq.state.or.us
c	Project Title	Reducing bacterial contamination in the lower Wilson River watershed, Oregon

Description of 2002 Baseline Condition

d	Watershed(s)	171002030508: Lower Wilson River, part of the Tillamook Bay Watershed in northwest Oregon.
e	2002 Impairments	171002030508, LLID:1238972454917, Lower Wilson River, impaired for bacteria from mouth to river mile 8.5 (Category 4A—TMDL in place)
		171002030508, LLID: 1238972454917, impaired for temperature during the summer (Category 4A—TMDL in place) from river mile 1.7 to 34.4
		171002030508, LLID: 1238972454917, impaired for dissolved oxygen during part of the year (Sep-May)—on 303(d) list from river mile 3.5 to river mile 10.1.
f	Map (optional)	

Evidence of Watershed Approach

g	Area of Effort	The watershed effort took place within the 572-square-mile Tillamook Bay Watershed in northwest Oregon (HUC 17100203). Five major rivers flow into Tillamook Bay: the Miami, Kilchis, Trask, Wilson and Tillamook rivers. Targeted watershed efforts specifically within the Wilson River watershed (1710020305) led to significant improvement in the water quality limited

		portion of the Lower Wilson River sub-basin (HUC 171002030508). See Attachment A for photo and map.
h	Stakeholders Involved and Their Roles	Numerous stakeholders have been involved in cleaning up the Wilson River and Tillamook Bay watersheds, including landowners, businesses and local, state and federal government agencies (see Attachments B and C). Some key stakeholders include: 1. The Tillamook Bay National Estuary Program, now known as the Tillamook Estuaries Partnership (TEP), led efforts to develop and implement watershed management plans for the larger Tillamook Bay watershed and its tributaries. TEP also offers riparian restoration programs for landowners, has facilitated purchases of sensitive wetland areas in the basin, and leads numerous watershed-wide education and outreach programs for all ages. 2. The Tillamook County Performance Partnership was formed to track and help implement the Tillamook Bay Comprehensive Conservation and Management Plan. The Partnership is a group of 120 members representing community leaders, state and federal agencies, citizens, industries and municipalities. 3. The United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) and local Soil and Water Conservation Districts (SWCDs) help private landowners and managers implement accepted conservation practices to improve land stewardship. The NRCS and the Farm Service Agency administer Farm Bill Programs for the North Coast Basin through the USDA Service Center in Tillamook. The SWCDs also work with landowners and conduct education and outreach. 4. Oregon Department of Agriculture (ODA). Oversees the Agricultural Water Quality Management (Senate Bill 1010) program, issues permits and helps producers comply with confined animal feeding water management programs, and provides support to SWCDs. 5. Oregon Department of Environmental Quality (ODEQ). Responsible for protecting Oregon's water quality, maintaining a list of water quality limited streams and developing total maximum daily loads. ODEQ provides Clean Water Act (CWA) section 319 funds to support projects in priority watershed, including the lower Wilson River. 6. The U.S. Fish and Wildlife Service funds projects that protect and restore fisheries and wildlife resources. 7. Oregon Department of Fish and Wildlife (ODFW). Works with landowners to balance protection of fish and wildlife with economic, social, and recreational needs. Advises on habitat protection. Offers technical and educational assistance for habitat and restoration projects. Provides plan review for special property tax assessment for wildlife habitat projects.
i	Watershed Plan	Stakeholders have developed numerous watershed plans that identify problems and recommend activities to improve water quality in the Tillamook Bay and/or Wilson River watersheds. The plans vary according to the focus—some focus on a specific type of problem, goal or watershed—but all build on previous planning efforts. They include: • Tillamook Bay Comprehensive Conservation and Management Plan (1999) (see www.tbnep.org/resource-center/tep-reports/ccmp) • North Coast Agricultural Water Quality Management Area Plan (2000) (see www.oregon.gov/ODA/NRD/water_agplans.shtml) • Tillamook Bay watershed total maximum daily load (TMDL) for temperature and bacteria (2001) (see

		www.deq.state.or.us/WQ/tmdls/northcoast.htm) • Watershed Plan/Environmental Assessment for the Lower Tillamook Bay watershed (2001) (not available online) • Wilson River Watershed Assessment Report (2001) (see https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?pn=viewrecord&XMLname=274.xml) • Wilson River Watershed Analysis (2008) (see www.oregon.gov/ODF/STATE_FORESTS/watershed.shtml#Wilson_Watershed_Analysis)
j	Restoration Work	Since 2002,diverse efforts included restoring riparian areas, fencing livestock away from waterways, implementing various agricultural best management practices, acquiring sensitive wetland parcels for permanent protection, and upgrading a wastewater treatment plant (see Attachments A, B and C). The Tillamook County SWCD worked directly with landowners to evaluate and address problems with manure application/storage, runoff and erosion. In the lower Wilson River watershed, the SWCD helped landowners install 9 wet storage manure tanks, 2 dry storage manure tanks, 4 off-channel watering stations, and 9 buried manure mainlines. These projects were funded in part using at least $13,000 in CWA section 319 grant funding. Landowners also adopted rotational grazing plans on 3 farms. The SWCD conducts numerous educational and outreach activities in the Wilson Rivers and greater Tillamook Bay watersheds, including distributing fact sheets, holding workshops, and publishing articles in local newspapers. TEP and its partners have spent more than $1.4 million restoring and protecting the lower Wilson River watershed. TEP worked with landowners to complete more than 20 on-the-ground habitat and riparian restoration/protection projects in the lower Wilson River (see Attachments A, B and C) at a cost of $68,000, which included $26,000 in CWA section 319 funds provided by ODEQ; $13,000 in matching funds from Oregon Watershed Enhancement Board; and a variety of other federal, state, private and in-kind funds.TEP acquired $1.3 million, mostly through USFWS grant programs, to purchase three sensitive wetland tracts. TEP then gave these parcels to Tillamook County for permanent protection. TEP also conducts numerous education programs, including hosting an annual Children's Clean Water Festival, developing Clean Water Education kits for classroom use, and leading field trips, workshops and classroom-based discussions on water quality and environmental protection. A local business, the Tillamook County Creamery Association, upgraded its wastewater treatment plant to reduce the amount of bacteria released to the lower Wilson River. ODEQ worked with the City of Tillamook to develop a stormwater management plan (see www.tillamookor.gov/departments/stormwater.html). Efforts are underway to better control stormwater inputs to local rivers, including the lower Wilson and nearby Trask rivers.

Evidence of Watershed-wide Improvement

k	Impairments Removed (if applicable)	Not applicable; waters have met standards for bacteria since 2005, but ODEQ has not yet removed the impaired designation because of a data processing delay.

l	Statistical Results	TEP has collected detailed monitoring data from throughout the Tillamook Bay watershed since 1997, including at eight stations throughout the lower Wilson River, extending from the river's mouth to its confluence with the Little North Fork Wilson River at mile 8.5 (the uppermost extent of the river segment that is designated as impaired for bacteria). ODEQ performed a Seasonal Kendall trend analysis test on the data from monitoring station WR6 (at Highway 101, river mile 1.8), which showed with a 95% confidence level that mean bacteria count has decreased by 1 count/100 mL per year for the past 10 years (see graph in Attachment A). The data no longer include widely fluctuating values—this has allowed the Wilson River to meet the two-part recreational use water quality standard since 2005. Data are collected at 7 additional monitoring stations along the impaired section of the lower Wilson River, ranging from river mile 0.0 to river mile 8.6 (see map in Attachment A). Bacteria levels at all stations have stabilized since 2005 and now consistently meet water quality standards. These data have been submitted for upload to LASAR, Oregon's publicly available online water quality database (http://deq12.deq.state.or.us/lasar2).
m	Environmental Significance	The statistical results show that the watershed plans' multi-faceted efforts to reduce bacteria levels are working. Nonpoint source pollution reduction efforts by multiple stakeholders in the Wilson River watershed included fencing livestock away from the river, better managing manure, restoring riparian areas and restoring wetland areas. Point source reductions included upgrading a wastewater treatment plant. By tackling diverse pollution sources through a variety of means, watershed partners have reduced the amount of bacteria reaching the river, which has allowed bacteria levels to drop significantly and stabilize over time (fluctuations have decreased). Additionally, as the new riparian vegetation matures over time, it should provide long term benefits for seasonal problems with temperature and dissolved oxygen. See Attachments B and C
n	Photos/Graphics (optional)	See Attachment A