Wiyot Tribe
Natural Resources Department

Clean Water Act §319 Nonpoint Source Pollution Control Program

NONPOINT SOURCE MANAGEMENT PLAN

Wiyot Tribe - Table Bluff Reservation

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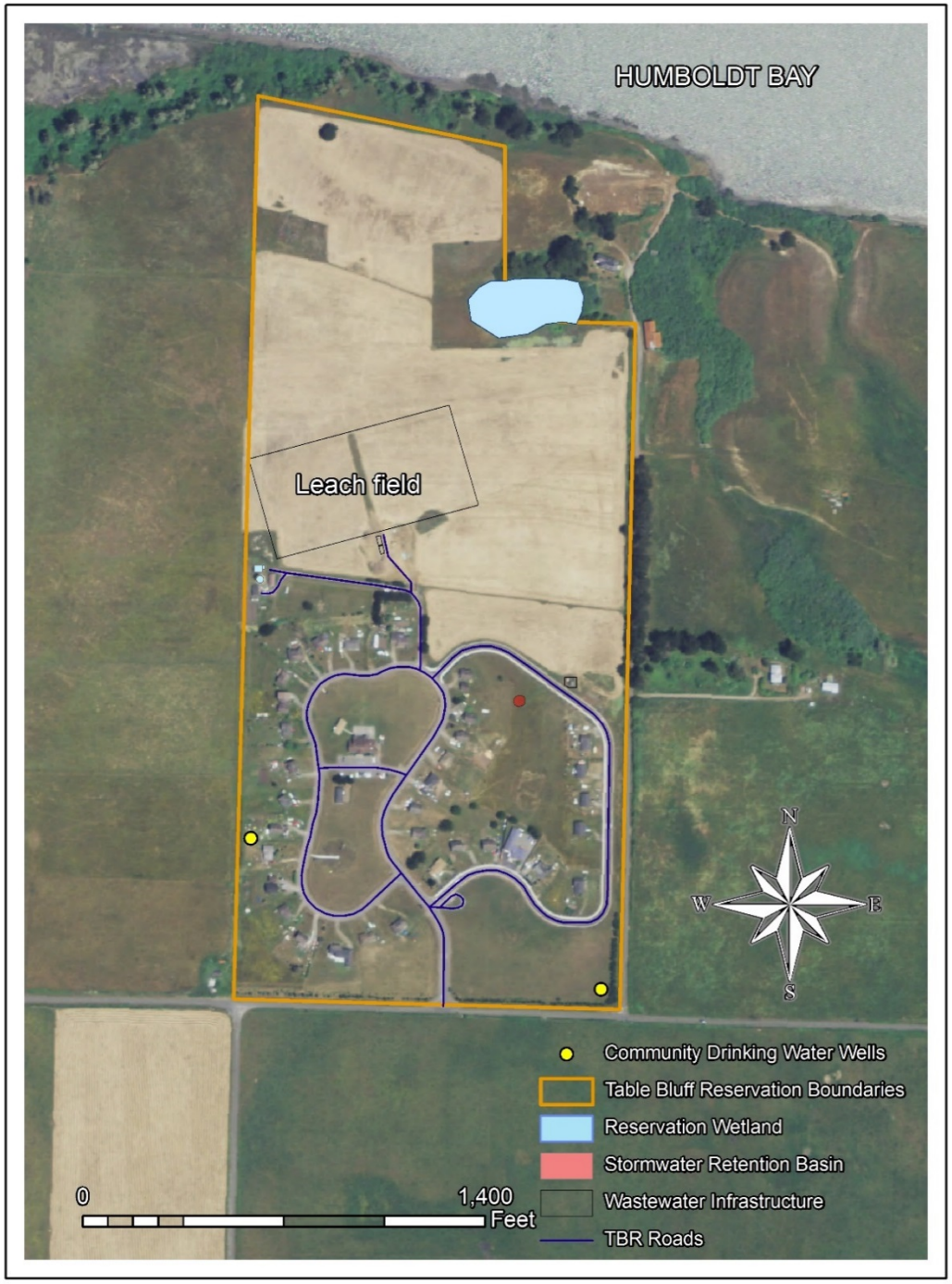
Overview

This document is intended to describe the components of a Nonpoint Source (NPS) Pollution Management Program for waters affecting the Table Bluff Reservation (TBR) of the Wiyot Tribe (hereafter "Tribe"), and to serve as an update to the Tribe's existing NPS Management Plan. The NPS Management Program will continue to help assure that nonpoint sources of pollution do not become a problem on Tribal lands.

Section 319 of the federal Clean Water Act (CWA§319) provides a means for Tribes to address problems associated with nonpoint sources of pollution of Tribal water resources. Since fiscal year (FY) 2005, the Tribe has received CWA§319 monies from the United States Environmental Protection Agency (USEPA) for the purpose of addressing NPS issues on TBR. To continue receiving CWA§319 grant funding, the Tribe regularly updates its NPS assessment report and NPS Management Plan. Certification of Tribal authority for this plan can be found in the Treatment As State (TAS) documentation, in which the USEPA authorized the Tribe's eligibility for funding under the CWA§319 grant program in 2004.

TBR covers 88.5 acres in coastal Northern California and contains both groundwater and wetland water resources. The 1.5 (0.5 acres on TBR) acre seasonal freshwater wetland has designated wildlife habitat and cultural uses. The groundwater beneath TBR is used for drinking water for the reservation community. While water quality at TBR is good and is meeting all applicable standards, there are several NPS threats to water quality. According to USEPA's categories of NPS pollution threats, those most common to occur on TBR include: agriculture, hydrologic/habitat modification, construction, turf management, urban areas, and land disposal/storage/treatment. Because water quality is high, the Tribe's efforts will be placed in prevention of degradation of waters from NPS pollution. Potential and recommended actions are outlined in the NPS assessment report, and expanded in greater detail in this NPS Management Plan. This plan will describe the various elements of the Tribe's NPS management initiatives, including a description of actions and priority for their implementation.

Figure 1. Map of Table Bluff Reservation Water Resources



Introduction

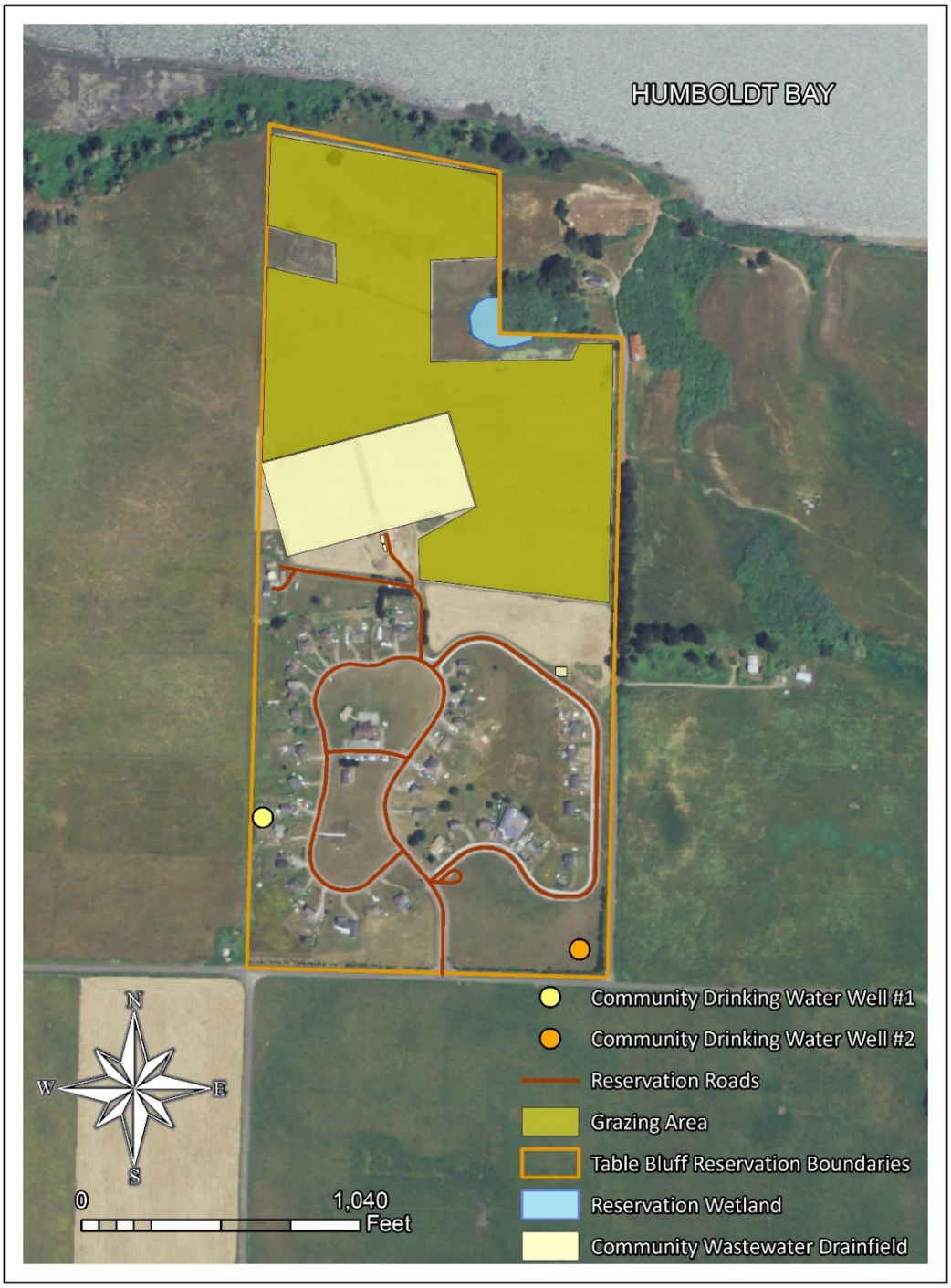
The primary goal of the NPS Management Program is to prevent and control pollution from nonpoint sources and protect water quality on the reservation. This will be accomplished through emphasis on capacity building (e.g., training), habitat restoration, regulation, and preventative education in order to protect and preserve Tribal waters. These goals will be accomplished by devoting CWA§319 program funding to the following objectives:

1. Implement Best Management Practices (BMPs) in an effort to preserve water quality
2. Environmental Education
    - Continue to educate the public by expanding and implementing the NPS Education Program for Tribal youth and adults in the TBR community
3. Expand general habitat protection policies and/or environmental programs
    - Tribe will develop and adopt a Tribal Operations Greening Policy
    - Tribe will develop a Compost and Fats, Oil, and Grease (FOG) Program to divert beneficial waste (e.g., food waste) to be reused as nutrient rich compost and properly dispose of FOG waste that may otherwise be disposed of improperly, leading to septic system issues
4. Expand baseline monitoring in areas of current or likely future NPS pollution input

The NPS Management Program will be implemented on TBR, which is completely trust status land. The reservation water resources include 0.5 acres of seasonal freshwater wetland and two groundwater wells that provide drinking water for the TBR community. The water quality of these resources has been identified as very good, and benefits from protection afforded by a NPS Management Program.

In addition to TBR, the Tribe also owns three fee-simple status properties within its ancestral territory: a one-acre lot on the Old Wiyot Reservation, situated at the northern edge of the Eel River estuary and a mile away from the current reservation; approximately 46 acres of land on Humboldt Bay's Indian Island, which includes the Tuluwat village site, home of the annual Wiyot World Renewal Ceremony until a devastating massacre in 1860; and approximately 104 acres on Cock Robin Island, in the Eel River Estuary. Because the CWA§319 program does not fund activities on non-trust lands, this NPS Management Plan does not apply to these additional fee-simple properties – it pertains solely to TBR.

Figure 2. Map of Table Bluff Reservation's Current NPS Pollution Threats



NPS Management Program Summary

The legal authority for the administration of the Tribe's NPS Management Program is the CWA§319 Treatment-as-State (TAS) approval by EPA legal counsel in 2004. The designated Tribal department that is responsible for program implementation is the Natural Resources Department (hereafter "Department) whom is staffed by the Director, Specialist, two Technicians, and two Water Operators. Departmental staff members are responsible for coordination with agencies.

The Department coordinates with the Wiyot Tribal Council, which provides ultimate oversight on decisions concerning NPS pollution management. Tribal documents that help guide decisions on NPS pollution management issues include:

- Solid Waste Ordinance (2001)
- Solid Waste Management Plan (2001)
- Burn Ordinance (2002)
- Water Pollution Discharge Resolution (2002)
- Water Quality Ordinance (2003)
- Grazing Management Plan (2006)
- Wetland Zone Protection Ordinance (2011)
- Non-operational Vehicle Ordinance (2012)
- Low Impact Development Policy (2014)
- Green Cleaning Policy (2016)
- Pesticide Needs Assessment (2018)

This NPS Management Program is not watershed-based. The reason for this is that, while the reservation lies mostly within the Mad-Redwood Watershed (Hydrologic Unit Code [HUC] 18010102) and partly within the Eel River Watershed (HUC 18010105), waters from those watersheds do not flow onto the reservation. The reservation is situated atop a bluff overlooking both the Eel River and Humboldt Bay estuaries, as well as the Pacific Ocean, but a hydrologic connection between those waters and the waters of the reservation has not been confirmed. Given the hydrologic landscape, NPS management for the Wiyot Tribe should be focused on TBR (Figure 3).

Funding plays a crucial role in BMP implementation. The Department is mostly grant funded, thus resources are limited. Tribal BMP priorities don't always align with available funding. USEPA CWA§106, CWA§319, CWA§104, and General Assistance Program (GAP) funds are currently used to develop environmental programs, and to monitor and implement water pollution control projects. Continued reliance on outside sources of funding for NPS program implementation is expected.

Figure 3. Location of Table Bluff Reservation and Bordering Hydrologic Units

NPS Management Program Description

The overall goal of the NPS Management Program is to protect water quality on TBR by preventing and controlling pollution from nonpoint sources. This is achieved by outlining objectives and designing activities that address specific NPS pollution categories, and setting a schedule for fulfilling those objectives and completing planned activities. The Tribe's NPS Management Program, established in 2005, requires regular updating and evaluation in order to continue to meet the program's goal.

Table 1. Schedule of Milestones, General NPS Program

Activity	Year 0 (2020)	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)	Year 4 (2024)	Year 5 (2025)
Submit updated NPS Assessment to USEPA	X					X
Submit updated NPS Management Plan to USEPA	X					X
Submit NPS Assessment & Management Plan to Tribal Council for Approval	X					X
Revise NPS Management Plan as necessary		X	X	X	X	
Submit Progress Reports to USEPA	X	X	X	X	X	X
Convene Natural Resources Department to review NPS program and projects to set priorities for next year		X	X	X	X	X
Incorporate priorities into CWA§319 workplan and submit to USEPA		X	X	X	X	

As discussed in the NPS assessment, the major NPS pollution threat categories on TBR are: agriculture, hydrologic/habitat modification, construction, turf management, urban areas, and land disposal/storage/treatment. Below, goals and activities for addressing NPS pollution are described for each of these specific categories.

NPS Pollution Threat Category: Agriculture
Subcategory: Pasture land

Agricultural runoff resulting from poor cattle grazing management has threatened deposition of nutrients, bacteria, and sediment into the reservation wetland and Humboldt Bay. While many of the impacts have been managed with implementation of structural BMPs including exclusionary fencing, buffering, and establishment of a Grazing Management Plan and Wetland Zone Protection Ordinance for the reservation, continued compliance of BMP measures will help protect the wetland water quality into the future. Agricultural operations occur on 34% (over 30 acres) of the reservation.

NPS Category Goal

Maintenance of water and habitat quality of reservation wetland via compliance of BMPs aimed at agricultural operations

Short Term Objectives

Bolster protection of reservation wetland water quality with regulatory BMPs

- Coordinate with reservation cattle ranchers to assure that Grazing Management Plan guidelines and requirements (e.g., rotational grazing) are adhered to
- Coordinate with Tribal staff and citizens to assure that Wetland Zone Protection Ordinance guidelines are adhered to

Further assess reservation water quality in regards to agricultural operations

- Expand monitoring design to include sampling groundwater for phosphates
- Continue monitoring groundwater to include sampling for nitrate/nitrite, total/fecal coliform, semi-volatile organic compounds (SVOCs), etc.
- Continue monitoring of reservation wetland water to include sampling for nitrate/nitrite, phosphates, total/fecal coliform, SVOCs

Further assess reservation NPS pollution threats via geographic information systems (GIS) capabilities:

- Update Tribe's NPS pollution geodatabase of existing threats on TBR
- Expand geodatabase to include new potential sources of NPS pollution threats

Long Term Objectives

Educate reservation community about NPS issues related to agricultural operations

- Update and expand NPS Pollution Education Program Plan to include additional education/awareness activities relating to agricultural sources of nonpoint pollution
- Implement NPS Pollution Education Program

Table 2. Schedule of Milestones, Agriculture

Activity	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)	Year 4 (2024)
Update GIS database of NPS pollution threats	X			
Expand monitoring design to include sampling for phosphates		X		
Monitor Tribe's groundwater for phosphates			X	X
Ensure compliance with Wetland Zone Protection Ordinance	X	X	X	X
Ensure compliance with Grazing Management Plan	X	X	X	X
Update NPS Pollution Education Program	X	X		
Implement updated NPS Education Program		X	X	

Utilizing Geographic Information System (GIS) capabilities to continue monitoring all the Tribe's NPS pollution threats can be a valuable tool as the precision and data collection of such instruments shows either time lapsed improvements/declines. Such information can be used to help managers prioritize projects based on the severity of the pollution threat and continue to maintain satisfactory water quality, adequate habitats, increased biodiversity, etc. Past projects have included training Tribal staff to create a NPS pollution geodatabase and generate maps of threats. Though extremely helpful for locating and identifying initial NPS threats, past projects utilized Global Positioning System (GPS) equipment that lacked the capabilities of sub-meter accuracy and the ability to collect long-term data (e.g., photos, pre-/post-data, etc.). Since prior GIS projects, the Tribe has secured a sub-meter Trimble® GPS unit capable of bolstering both the short and long-term success of monitoring NPS pollution threats via GIS methods.

Phosphates are pollutants associated with fertilizer application; application by both Tribal operations and neighboring farmers and in conjunction with large storm events or generalized irrigation can carry built-up pollutants into surface waters or they eventually infiltrate into the ground water. The Tribe's NPS pollution control program will benefit from increased evaluation of potential impacts of pollutants originating from agricultural operations to both surface and ground water. While groundwater under the reservation has been tested extensively, it has yet to be evaluated for contamination from phosphates. Further assessment of the Tribe's water resources for pollution from phosphates may indicate what additional NPS pollution control activities targeting agricultural pollutants need to take place on the reservation.

Past milestones aimed at improving water quality in regards to NPS pollution as a result of agricultural operations were met by the creation of regulatory BMPs. For example, the Wetland Zone Protection Ordinance will impose liability for monitoring, investigation, cleanup, and enforcement costs, together with activities resulting in damages to Tribal wetland resources. Ensuring that this ordinance and others protective of water quality are enforced will provide assurance that all reasonable efforts are being made to protect the Tribe's water

resources. Coordinating with cattle ranchers to ensure that the ordinances and the Grazing Management Plan are adhered to will help protect the wetland from NPS pollution. Because structural and regulatory BMPs have already been utilized to protect the wetland from NPS pollution, educational BMPs are the most inexpensive, logical extension of measures protective of water quality on the reservation.

To the Wiyot Tribe, one of the most valuable methods of protecting all natural resources is education. Expanding awareness and understanding of environmental issues and concerns is a powerful means of instilling stewardship values in people. Therefore, long-term education programs aimed at increasing community understanding regarding NPS pollution issues is a highly regarded investment for maintaining good water quality, on the reservation and off. The Tribe has been implementing a NPS education program since 2010, and will continue it for the duration of the period covered by this plan, 5 years. The NPS education program will continue to be aimed at the Wiyot community, both young and adult, but the target audience will also include any person, company/representative, etc. who may be responsible for any and all agriculture operations on the reservation and will be extended to include neighboring landowners.

Funding sources for these BMPs will include federal programs, particularly the CWA§319 NPS program. For expanded water quality monitoring activities (e.g. phosphate monitoring), funding will likely come from the Tribe's CWA§106 Water Pollution Control Program. Tribal staff, specifically the Natural Resources Department, will be responsible for the implementation and oversight of specified BMPs. The primary measure of success for these additions to the agricultural operations and NPS education programs will be the implementation of the specified BMPs. Another measure will be the maintenance of existing high water quality in the wetland, relative to agricultural NPS pollutants (nutrients, pathogenic bacteria).

In carrying out these activities, the Tribe will look to outside knowledge and expertise to assist in achieving the best outcome. Potential partners, consultants, or resources for monitoring phosphates will include: USEPA, Indian Health Service (IHS), and North Coast Laboratories (NCL).

Potential partners, consultants, or resources for ensuring compliance with regulatory BMPs include: USEPA and Humboldt County Sheriff's Office.

Potential partners, consultants, or resources for updating the GIS geodatabase of the Tribe's NPS pollution threats include: Bureau of Indian Affairs (BIA) Office of Trust Services Geospatial Support (OTSGS).

Potential partners, consultants, or resources for expanding the NPS education program include: USEPA, Humboldt State University (HSU), University of California Cooperative Extension (UCCE), and the Natural Resources Conservation Service (NRCS).

NPS Pollution Threat Category: Hydrologic/Habitat Modification
Subcategories: Draining/filling of wetlands

The modification of vital habitats such as wetlands can have drastic impacts on associated habitats within a watershed. Past and continued development/redevelopment on TBR, denuding of wetland vegetation via domestic animals (e.g., cattle), and invasive species are modifications that can pose serious threats to water quality in regards to the preservation of wetlands. While many of the impacts have been managed with implementation of structural BMPs including exclusionary fencing and buffering of cattle and establishment of a Wetland Zone Protection Ordinance for the Tribe's wetland, continued compliance of BMP measures will help protect the wetland water quality into the future.

NPS Category Goal

Maintenance of water and habitat quality of reservation wetland via compliance of BMPs aimed at hydrologic/habitat modification

Short Term Objectives

Bolster protection of reservation wetland water quality with regulatory BMPs

- Coordinate with contractors and Tribal staff and citizens to assure that Wetland Zone Protection Ordinance guidelines are adhered to

Protect wetland resources through restoration activities aimed at eliminating invasive botanical species that have the potential to encroach upon and/or edge out native plant species and/or drain wetlands via high transpiration rates

- Restore historic fill site within and bordering wetland boundary by eliminating invasive botanical species via sheet mulching and revegetation of native botanical species
- Eliminate Himalayan blackberry (*Rubus armeniacus*) from the Tribe's wetland

Further assess reservation biological resources in regards to hydrologic/habitat modification

- Continue monitoring the Tribe's wetland for biological resources (e.g., botanical and avian species) via the Tribe's Biological Monitoring Plan for TBR
- Conduct pre- and post-monitoring of Tribe's biological resources for up to three years following restoration activities at the Tribe's wetland and identify/address any related issues

Further assess reservation NPS pollution threats via GIS capabilities:

- Update Tribe's NPS pollution geodatabase of existing threats on TBR
- Expand geodatabase to include new potential sources of NPS pollution threats

Long Term Objectives

Educate reservation community about NPS pollution issues related to agricultural operations

- Update and expand NPS Pollution Education Program Plan to include additional education/awareness activities relating to hydrologic/habitat modification sources of NPS pollution
- Implement NPS Pollution Education Program

Table 3. Schedule of Milestones, Hydrologic/Habitat Modification

Activity	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)	Year 4 (2024)
Update GIS database of NPS pollution threats	X			
Conduct pre-monitoring for restoration activities		X		
Restore historic fill site at TBR wetland		X		
Remove invasive species in TBR wetland	X	X		
Conduct post-monitoring following restoration			X	X
Ensure compliance with Wetland Zone Protection Ordinance	X	X	X	X
Update NPS Pollution Education Program		X	X	
Implement updated NPS Pollution Education Program			X	X

As stated before, utilizing GIS capabilities to continue monitoring all the Tribe's NPS pollution threats can be a valuable tool as the precision and data collection of such instruments shows either time lapsed improvements/declines. Such information can be used to help managers prioritize projects based on the severity of the pollution threat and continue to maintain satisfactory water quality, adequate habitats, increased biodiversity, etc. Past projects have included training Tribal staff to create a NPS pollution geodatabase and generate maps of threats. Though extremely helpful for locating and identifying initial NPS threats, past projects utilized GPS equipment that lacked the capabilities of sub-meter accuracy and the ability to collect long-term data (e.g., photos, pre-/post-data, etc.). Since prior GIS projects, the Tribe has secured a sub-meter Trimble® GPS unit capable of bolstering both the short and long-term success of monitoring NPS pollution threats via GIS methods.

Deterioration of essential habitats as a result of the occurrence and prevalence of invasive species is a serious and common threat not only to the Tribe's resources, but worldwide. Sites of common occurrence for invasive botanical species are disturbed locations where recent aerated soils containing seed banks of invasive species quickly outcompete native botanical species. One site within and bordering the wetland zone was the site of historic dumping of soils from the creation of the housing development on TBR. Soils dug up to create foundations for houses were disposed of on Reservation, within the wetland zone, approximately 5-10 feet from the wetland boundary (delineated by the occurrence of Hooker's willow [*Salix hookeriana*]). As a result, seeds contained within these soils were transported from an upland source and place within and on the edge of the wetland boundary. Moreover, there has been significant encroachment of these invasive species within the Tribe's wetland as botanical surveys have noted occurrences in transitional zones. Similarly, Himalayan blackberry has been noted within all zones of the Tribe's wetland and is a significant threat to water quality due to the species' aggressive transpiration rates. Prior restoration activities have proven successful on a qualitative level (e.g., photographic evidence) but the Department wishes to conduct pre- and post-monitoring studies to quantitatively assess restoration activities. The Department has conducted restoration work that consisted of invasive removal and introduction of native

species. The Tribe will continue these activities and with continued monitoring and identification/assessment of restoration priorities that will assist the Department in preventing the spread of invasive species while safeguarding the health of sensitive habitats such as the Tribe's wetland.

Past milestones aimed at improving water quality in regard to NPS pollution associated with, though not directly aimed at, hydrologic/habitat modification were met by the creation of regulatory BMPs. For example, the Wetland Zone Protection Ordinance will impose liability for monitoring, investigation, cleanup, and enforcement costs, together with activities resulting in damages to Tribal wetland resources. Ensuring that this ordinance and others protective of water quality are enforced will provide assurance that all reasonable efforts are being made to protect the Tribe's water resources. Coordinating with cattle ranchers to ensure that the ordinances and the Grazing Management Plan are adhered to will help protect the wetland from NPS pollution. Because structural and regulatory BMPs have already been utilized to protect the wetland from NPS pollution, educational BMPs are the most inexpensive, logical extension of measures protective of water quality on the reservation.

To the Wiyot Tribe, one of the most valuable methods of protecting all natural resources is education. Expanding awareness and understanding of environmental issues and concerns is a powerful means of instilling stewardship values in people. Therefore, long-term education programs aimed at increasing community understanding regarding NPS pollution issues is a highly regarded investment for maintaining good water quality, on the reservation and off. The Tribe has been implementing a NPS education program since 2010, and will continue it for the duration of the period covered by this plan, 5 years. The NPS education program will continue to be aimed at the Wiyot community, both young and adult, but the target audience will also include any person, company/representative, etc. who may be responsible for any and all hydrologic/habitat modification(s) on the reservation and will be extended to include neighboring landowners.

Funding sources for these BMPs will include federal programs, particularly the CWA§319 NPS program and CWA§106 Water Pollution Control Program. Tribal staff, specifically the Natural Resources Department, will be responsible for the implementation and oversight of specified BMPs. The primary measure of success for these additions to the hydrologic/habitat modifications and NPS education programs will be the implementation of the specified BMPs. Another measure will be the maintenance of existing high water quality in the wetland, relative to NPS pollution threats related to hydrologic/habitat modification.

In carrying out these activities, the Tribe will look to outside knowledge and expertise to assist in achieving the best outcome. Potential partners, consultants, or resources for ensuring compliance with regulatory BMPs include: USEPA and Humboldt County Sheriff's Office.

Potential partners, consultants, or resources for updating the GIS geodatabase of the Tribe's NPS pollution threats include: BIA's OTSGS.

Potential partners, consultants, or resources for restoration activities in the Tribe's wetland include: USEPA, NRCS, U.S. Fish Wildlife Service (USFWS), and Samara Restoration.

Potential partners, consultants, or resources for expanding the NPS education program include: USEPA, HSU, USFWS, and the NRCS.

NPS Pollution Threat Category: Construction
Subcategories: Roads, highways, bridges & Land development or redevelopment

The reservation has frequent construction projects that expand or improve community infrastructure, residential development, or commercial presence. Construction projects threaten water quality when soil disturbance in and around the construction site is inadequately managed, causing sediment-laden runoff. Additionally, project design can result in increased impervious area and more stormwater runoff. As stated elsewhere in this document, reservation development projects over the past 15 years have varied in scale from very small (<1 acre construction area resulting in <.25 acres of permanent development) to substantial (over 5 acres construction area resulting in 3 acres of permanent development); future projects are also expected to vary widely in scale, although most will likely be between 0.25 and 2 acres. Approximately 5% of reservation land use is expected to be associated with construction operations over the next 5 to ten years. Ultimately, scale and timing of development projects on the reservation vary with the interests of the Tribal citizenship and Tribal Council and are therefore difficult to predict with accuracy.

NPS Category Goal

Protection of water resources via control of construction-related NPS pollution

Short Term Objectives

Prevent, reduce, or mitigate construction site NPS pollution by utilizing regulatory BMPs

- Ensure compliance with the Low Impact Development (LID) Policy by coordinating with the Tribe's Housing Department, contractors, and Tribal staff/citizens
- Ensure compliance with the Wetland Zone Protection Ordinance by coordinating with contractors and Tribal staff/citizens
- Revise and resubmit Grading, Sediment, and Erosion Control Ordinance for adoption by Council in order to coordinate with contractors and monitor construction sites on the reservation

Further assess reservation NPS pollution threats via GIS capabilities:

- Update Tribe's NPS pollution geodatabase of existing threats on TBR
- Expand geodatabase to include new potential sources of NPS pollution threats

Long Term Objectives

Educate reservation community about NPS pollution issues related to construction activities

- Update and expand NPS Pollution Education Program Plan to include additional education/awareness activities relating to construction sources of nonpoint pollution
- Implement NPS Pollution Education Program

Table 4. Schedule of Milestones, Construction

Activity	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)	Year 4 (2024)
Update GIS database of NPS pollution threats	X			
Ensure compliance with Low Impact Development Policy	X	X	X	X
Ensure compliance with Wetland Zone Protection Ordinance	X	X	X	X
Revise and resubmit Grading, Sediment, & Erosion Control Ordinance for adoption by Council	X			
If adopted, ensure compliance with Grading, Sediment, & Erosion Control Ordinance	X	X	X	X
Update NPS Pollution Education Program	X			
Implement Updated NPS Pollution Education Program		X		

As previously stated, utilizing GIS capabilities to continue monitoring all the Tribe's NPS pollution threats can be a valuable tool as the precision and data collection of such instruments shows either time lapsed improvements/declines. Such information can be used to help managers prioritize projects based on the severity of the pollution threat and continue to maintain satisfactory water quality, adequate habitats, increased biodiversity, etc. Past projects have included training Tribal staff to create a NPS pollution geodatabase and generate maps of threats. Though extremely helpful for locating and identifying initial NPS threats, past projects utilized GPS equipment that lacked the capabilities of sub-meter accuracy and the ability to collect long-term data (e.g., photos, pre-/post-data, etc.). Since prior GIS projects, the Tribe has secured a sub-meter Trimble® GPS unit capable of bolstering both the short and long-term success of monitoring NPS pollution threats via GIS methods.

Construction sites have the potential to contribute significantly to erosion and sediment-loading. However, simple measures such as perimeter controls, inlet protection, and soil stabilization can be implemented to prevent this source of nonpoint pollution. In 2014 the Tribe developed a Grading, Sediment, and Erosion Control Ordinance that would have required the preparation of a Stormwater Pollution Prevention Plan (SWPPP), the installation of general erosion and sediment controls, specify temporal- and area-dependent requirements for those controls, and describe inspection requirements. At that time Tribal Council felt the ordinance would impose regulations too strict that it would prevent, delay, or restrict construction that was about to take place and therefore did not adopt the ordinance. Due to staff turn-over, the Tribe never passed the ordinance. Currently, the Department intends on working with Tribal Council, staff, and Tribal citizens to revise and re-submit the ordinance. If adopted, the ordinance will be used to establish BMPs and to impose liability for monitoring, investigation, cleanup, and enforcement costs, together with activities resulting in damages to Tribal natural resources. Similarly, construction of both Tribal roads and buildings can contribute significant

amounts of NPS pollution to nearby water resources (e.g., wetland, drinking water). As a result, the Tribe developed a LID Policy so water (mainly stormwater) can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. The ordinance will be used in conjunction with construction projects occurring on TBR and will heavily involve the Tribe's Housing Department and employed contractors.

Funding sources will include federal programs. For ensuring compliance with regulatory BMPs, funding will likely come from the Tribe's CWA§319 program. Tribal staff, specifically the Natural Resources Department, will be responsible for the implementation and oversight of the regulatory BMPs. The primary measure of success for these additions and NPS education programs will be the implementation of the specified BMPs. Another measure will be the maintenance of existing high water quality in all the Tribe's water resources, relative to construction NPS pollutants (e.g., sediment, hydrocarbons).

In carrying out the following activities, the Tribe will look to outside knowledge and expertise to assist in achieving the best outcome. Potential partners, consultants, or resources for ensuring compliance with regulatory BMPs include: United States Department of Housing and Urban Development (HUD), Tribe's Housing Department, USEPA, and Humboldt County Sheriff's Office.

Potential partners, consultants, or resources for updating the GIS geodatabase of the Tribe's NPS pollution threats include: BIA's OTSGS.

Potential partners, consultants, or resources for expanding the NPS education program include: USEPA, HSU, Greenway Partners, and GHD Engineers.

NPS Pollution Threat Category: Turf Management
Subcategory: Yard Maintenance

NPS pollution from turf management related activities can accumulate as the reservation currently has thirty-eight (38) dwellings housing approximately two hundred (200) residents. Though the residents technically do not own the land upon which their home stands, the Tribe allows activities such as general yard maintenance, gardening, etc. This helps the Tribe with reduced maintenance costs and efforts but can be a drawback as pollutants such as pesticides, fertilizers, etc. can be present that can lead to threats to nearby water sources (e.g., drinking water wells). Similarly, residential units that are not cared for can have pollutants on site that require proper disposal (e.g., hazardous waste) and pose a potential threat and/or are currently on site and require immediate attention. Through the development of an Alternative to Hazardous Chemicals & Pesticides Policy via a California Environmental Protection Agency (CalEPA) Environmental Justice Grant, the Tribe can safeguard their resources via a regulatory BMP. The policy will apply solely to Tribal operations and will contain an educational component full of workshops, demonstrations, etc. aimed at protecting Tribal citizens from harmful household chemicals via alternative sources for house cleaning, gardening, yard maintenance, etc. Ultimately, success of these activities will first, and foremost, be on whether Council decides to approve the policy and second, on the Department's outreach success to the Tribal citizenship.

NPS Category Goal

Protection of water resources via control of turf management related NPS pollution

Short Term Objectives

Prevent, reduce, or mitigate turf management NPS pollution by utilizing regulatory BMPs

- Create Alternative to Hazardous Chemicals & Pesticides Policy and seek approval for adoption from Council

Further assess reservation NPS pollution threats via GIS capabilities:

- Update Tribe's NPS pollution geodatabase of existing threats on TBR
- Expand geodatabase to include new potential sources of NPS pollution threats

Long Term Objectives

Educate reservation community about NPS pollution issues related to turf management activities

- Update and expand NPS Pollution Education Program Plan to include additional education/awareness activities for NPS pollution relating to turf management activities
- Implement NPS Pollution Education Program

Table 5. Schedule of Milestones, Turf Management

Activity	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)	Year 4 (2024)
Update GIS database of NPS pollution threats	X			
Adopt Alternative to Hazardous Chemicals & Pesticides Policy	X			
If adopted, ensure compliance with Alternative to Hazardous Chemicals & Pesticides Policy		X	X	X
Update NPS Pollution Education Program		X		
Implement Updated NPS Pollution Education Program			X	

Again, utilizing GIS capabilities to continue monitoring all the Tribe's NPS pollution threats can be a valuable tool as the precision and data collection of such instruments shows either time lapsed improvements/declines. Such information can be used to help managers prioritize projects based on the severity of the pollution threat and continue to maintain satisfactory water quality, adequate habitats, increased biodiversity, etc. Past projects have included training Tribal staff to create a NPS pollution geodatabase and generate maps of threats. Though extremely helpful for locating and identifying initial NPS threats, past projects utilized GPS equipment that lacked the capabilities of sub-meter accuracy and the ability to collect long-term data (e.g., photos, pre-/post-data, etc.). Since prior GIS projects, the Tribe has secured a sub-meter Trimble® GPS unit capable of bolstering both the short and long-term success of monitoring NPS pollution threats via GIS methods.

Improper turf management of Tribal lands has the potential to contribute significantly to a wide range of pollutant loading. These can include but may not be limited to: SVOC/pentachlorophenols (PCP) from pesticides and other hazardous wastes, nutrients from fertilizers, bacteria pathogens from domestic animal waste, sediment runoff from groundbreaking activities (e.g., gardens), etc. Due to the potential for these pollutants to accrue in a community consisting of ~200 residents, the Tribe believes the most effective BMP to be outreach in order to inform the public of the associated health and environmental harms. In an effort to work toward this the Tribe adopted a Green Cleaning Policy (Appendix A) which contains both Pest Management and Pesticide use information and a Pesticide Needs Assessment (Appendix B) in 2018 that includes a Pesticide Use Assessment for Table Bluff. To ensure success within the Tribal administration/operations, the most effective BMP is a policy that requires adequate compliance and follow through. The Department will build upon these two documents and work with the Tribal government to develop an Alternatives to Hazardous Chemicals & Pesticides Policy that, when available, will require Tribal employees to purchase and utilize non-toxic/safer chemical products as an alternative to more hazardous products. Similarly, Tribal employees will be required to safely store all chemical products in a manner that is compliant with federal law and will ensure the safety of all visitors to Tribal administrative offices. As an educational outreach component, the Department will host workshops for Tribal employees and citizens with the intent that all members involved will have

a better understanding of the harms of using and improperly storing hazardous chemical products, a list of "safer" alternatives, and demonstrations of creating safe cleaning/yard maintenance products using natural products (e.g., vinegar, baking soda).

Funding sources will include state and federal programs. For the creation, adoption, and follow through of tasks relating to the Alternatives to Hazardous Chemicals & Pesticides Policy, funding will come from the CalEPA's Environmental Justice Grants. For ensuring compliance with the policy and carrying out environmental education activities, funding will likely come from the Tribe's CWA§319 program. Tribal staff, specifically the Natural Resources Department, will be responsible for the implementation and oversight of the regulatory BMPs. The primary measure of success for these additions and NPS education programs will be the creation, adoption, and implementation of the specified BMPs. Another measure will be the maintenance of existing high water quality in all the Tribe's water resources, relative to turf management NPS pollutants (e.g., SVOCs, nutrients).

In carrying out this activity, the Tribe will look to outside knowledge and expertise to assist in achieving the best outcome. Potential partners, consultants, or resources for the creation of the regulatory BMP include: USEPA, Rural Community Action Agency, Californians for Alternatives to Toxics, and Humboldt County Department of Environmental Health (HCDEH).

Potential partners, consultants, or resources for updating the GIS geodatabase of the Tribe's NPS pollution threats include: BIA's OTSGS.

Potential partners, consultants, or resources for ensuring compliance with the regulatory BMP include: Tribe's Housing Department, USEPA, and Humboldt County Sheriff's Office.

Potential partners, consultants, or resources for expanding the NPS education program include: USEPA, HSU, HCDEH, and UCCE.

NPS Pollution Threat Category: Urban Areas
Subcategory: Surface runoff

The reservation has a significant amount of impervious road surface: some 10% of the southern half of the reservation is paved. Stormwater runoff from the roads carries both vehicular and residential pollutants that have accumulated between significant rainfall events. While much of this pollution threat has been addressed by previous BMP implementation (including construction of a stormwater retention basin), future road-building and general development of the reservation may add to NPS pollution loading. Presently, stormwater runoff is generated from approximately 9 acres of residential development, amounting to 10% of total reservation acreage; this is expected to increase to approximately 12% over the next 5 to ten years. Reservation development projects over the past 15 years have varied in scale from very small (<1 acre construction area resulting in <.25 acres of permanent development) to substantial (over 5 acres construction area resulting in 3 acres of permanent development); future projects are also expected to vary widely in scale, although most will likely be between 0.25 and 2 acres. Ultimately, scale and timing of development projects on the reservation vary with the interests of the Tribal citizenship and Tribal Council and are therefore difficult to predict with accuracy.

NPS Category Goal

Maintenance of groundwater and wetland water quality via prevention of NPS pollution from urban surface runoff.

Short Term Objectives

Prevent, reduce, or mitigate construction site NPS pollution by utilizing regulatory BMPs

- Ensure compliance with the LID Policy by coordinating with the Tribe's Housing Department, contractors, and Tribal staff/citizens
- Ensure compliance with the Non-Operational Vehicle Ordinance by coordinating with Tribal citizens
- Revise and resubmit Grading, Sediment, and Erosion Control Ordinance for adoption by Council in order to coordinate with contractors and monitor construction sites on the reservation

Apply LID strategies and further assess water quality in regards to urban runoff

- Construct LID demonstration projects at strategic locations at the Tribe's administrative buildings
- Perform pre- and post-monitoring efforts in regards to the effectiveness of LID techniques in treating stormwater runoff
- As weather permits, continue monitoring the Tribe's stormwater retention basin for physical, chemical, and biological constituents of water quality via the Tribe's Surface Water Quality Monitoring Plan

Further assess reservation NPS pollution threats via GIS capabilities:

- Update Tribe's NPS pollution geodatabase of existing threats on TBR
- Expand geodatabase to include new potential sources of NPS pollution threats

Long Term Objectives

Educate reservation community about NPS pollution issues related to urban surface runoff

- Install LID demonstration projects at Tribal administrative buildings to educate Tribal community of the benefits of LID techniques to managing stormwater runoff
- Update and expand NPS Pollution Education Program Plan to include additional education/awareness activities relating to urban surface runoff
- Implement NPS Pollution Education Program

Table 6. Schedule of Milestones, Urban Areas

Activity	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)	Year 4 (2024)
Update GIS database of NPS pollution threats	X			
Monitor for physical, biological, and chemical constituents to water quality in TBR stormwater retention basin	X		X	
Conduct pre-monitoring, coordination and/or consultation, create plans, and secure supplies necessary for LID demonstration project(s)			X	
Implement LID Practices and Principles and when appropriate, conduct post-monitoring efforts, and create educational signage				X
Ensure compliance with Non-Operational Vehicle Ordinance	X	X	X	X
Ensure compliance with Low Impact Development Policy	X	X	X	X
Revise and resubmit Grading, Sediment, & Erosion Control Ordinance for adoption by Council	X			
If adopted, ensure compliance with Grading, Sediment, and Erosion Control Ordinance	X	X	X	X
Update NPS Pollution Education Program	X			
Implement updated NPS Pollution Education Program		X		

As previously stated, utilizing GIS capabilities to continue monitoring all the Tribe's NPS pollution threats can be a valuable tool as the precision and data collection of such instruments shows either time lapsed improvements/declines. Such information can be used to help managers prioritize projects based on the severity of the pollution threat and continue to maintain satisfactory water quality, adequate habitats, increased biodiversity, etc. Past projects have included training Tribal staff to create a NPS pollution geodatabase and generate maps of threats. Though extremely helpful for locating and identifying initial NPS threats, past projects utilized GPS equipment that lacked the capabilities of sub-meter accuracy and the ability to collect long-term data (e.g., photos, pre-/post-data, etc.). Since prior GIS projects, the

Tribe has secured a sub-meter Trimble® GPS unit capable of bolstering both the short and long-term success of monitoring NPS pollution threats via GIS methods.
Urban runoff can consist of a variety of physical, biological, and chemical constituents that pose a threat to both surface and groundwater sources on TBR. Some examples (with potential sources) include, but may not be limited to, the following:

- Metals (motor vehicles, roofs)
- Petroleum hydrocarbons (motor vehicles)
- Fertilizers and pesticides (
- Sediment (construction sites)
- Coliforms (pet waste)
- Increased temperatures (thermal pollution)

Urban runoff from rainfall events carries the built-up pollutants from the roads and flushes them into surface waters or they eventually infiltrate into the ground water. The Tribe's NPS pollution control program will benefit from increased evaluation of potential impacts of urban runoff on surface and ground water. While groundwater under the reservation has been tested for metals, SVOC's, turbidity, coliforms, and a multitude of physical parameters (and will continue to be through the Tribe's drinking water quality monitoring program), it has just recently been evaluated for contamination from petroleum hydrocarbons. The Tribe wishes to continue monitoring for petroleum hydrocarbons to ensure that their drinking water sources are maintained at a very high quality. Similarly, the wetland has recently been assessed for impacts from metals and petroleum hydrocarbons. Additionally, the Tribe wishes to continue assessment of the stormwater retention basin to determine the extent of urban runoff generated directly as a result of vehicular use on TBR. Further assessment of the Tribe's water resources for pollution from urban runoff may indicate what additional NPS pollution control activities targeting urban runoff need to take place on TBR.

Another vehicle-related pollution threat comes from non-operational vehicles. Residential accumulation of non-operational vehicles is a common site on the reservation and have the potential to be a NPS pollution threat. In 2012, the Tribe adopted a Non-operational Vehicle Ordinance that closed a previous regulatory gap by placing strict limits and conditions on ownership and management of non-operational vehicles. The ordinance will be used to establish BMPs, and to impose liability for monitoring, investigation, cleanup, and enforcement costs, together with damages for all resulting damages to Tribal natural resources. It is the hope that this ordinance will decrease the threat of NPS pollution from vehicle-related urban runoff.

Since the reservation's establishment in 1990, structural development has increased: new houses, new roads, new service buildings and related infrastructure, and new commercial businesses have been built, adding to the total impervious surface area and NPS pollution loading of the reservation. This trend will likely continue as more HUD funding is secured via the Tribe's Housing Department, newer housing structures are erected, and additional roads are built for access. For this reason, the Tribe created and established a LID Policy to guide future development in a way that reduces or mitigates NPS issues related to urbanization.

By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. Applied on a broad scale, LID can maintain or restore a watershed's hydrologic and ecological functions. The objective of the LID Policy for the Tribe is to provide goals for development and/or redevelopment projects on TBR and can be further extended to future lands purchased and/or placed into trust by the Tribe for which development/redevelopment is to take place. By the adoption and use of a LID Policy and practices, the Tribe can play a role in the overall protection of not only the water resources on their lands, but for the watershed as a whole.

As stated above, LID techniques utilize the natural landscape to aid in the absorption, containment, and remediation of stormwater related contaminants. Examples of structural LID techniques include, but are not limited to: rain gardens, permeable pavement, stormwater retention basins, bioswales, rain barrels, etc. Nonstructural LID techniques include the preservation of sensitive areas such as wetlands, steep slopes, mature trees, and highly permeable soils. Applied on a broad scale, LID can maintain or restore a watershed's hydrologic and ecological functions. Benefits to an LID approach for small communities such as TBR include:

- Improved aesthetic beauty by retaining natural landscapes and reducing development of stormwater management facilities
- Improved groundwater recharge for future use
- Reduced stormwater discharge and improved water quality/aquatic habitat to nearby waterways (i.e. Humboldt Bay)
- Reduced costs to Tribal facilities from storage and treatment of stormwater runoff as well as infrastructure maintenance costs

As stated before, the Tribe views long-term education programs aimed at increasing community understanding regarding NPS pollution issues as a highly regarded investment for maintaining good water quality, on the reservation and off. The Tribe has been implementing a NPS education program since 2010; the program will be continued for the duration of the period covered by this plan, 5 years. The NPS education program will continue to be aimed at the Wiyot community, both young and adult, with the intent of encouraging stewardship values that benefit the environment.

Funding sources will include federal programs. For expanded water quality monitoring activities, funding will likely come from the Tribe's CWA§106 Water Pollution Control Program; for continued compliance of the Tribe's regulatory BMPs (Non-operational Vehicle Ordinance and Low Impact Development Policy) and for NPS educational activities, funding will likely come from the Tribe's CWA§319 program. Tribal staff, specifically the Natural Resources Department, will be responsible for development and implementation of BMPs. The primary measure of success for these additions to the stormwater management and NPS education programs will be the implementation of the specified BMPs. Another measure will be the

increased assessment and continued monitoring of groundwater relative to urban runoff NPS pollutants (petroleum hydrocarbons, metals).

In carrying out these activities, the Tribe will look to outside knowledge and expertise to assist in achieving the best outcome. Potential partners, consultants, or resources for ensuring compliance with regulatory BMPs include: Tribe's Housing Department, USEPA, and Humboldt County Sheriff's Office.

Potential partners, consultants, or resources for updating the GIS geodatabase of the Tribe's NPS pollution threats include: BIA's OTSGS.

Potential partners, consultants, or resources for planning, construction, and creation of the Tribe's LID demonstration project(s) include: Greenway Partners, Samara Restoration, SHN Consultants and Engineers, Blue Lake Rancheria, and Trinidad Rancheria.

Potential partners, consultants, or resources for expanding the NPS education program include: USEPA, HSU, Greenway Partners, and Samara Restoration.

NPS Pollution Threat Category: Land Disposal/Storage/Treatment
Subcategories: Hazardous waste, Inappropriate waste disposal, & Wastewater

Hazardous waste present on TBR, in the form of NPS pollution, has the potential to contaminate nearby water sources which may have effects on human health, cultural sources, and the environment. Common sources of hazardous waste found within any community may include, but are certainly not limited to: hydrocarbons (e.g., motor oil, gasoline/diesel, antifreeze), pesticides (including herbicides, rodenticides, etc.), household products (e.g., bleach, acrylic/latex/spray paints, toiletry products, pharmaceuticals, etc.). The improper disposal of these products can lead to potential cleanups that may be expensive to remediate and that may cause long-term/permanent effects to important cultural and drinking water resources. Therefore, the Natural Resources Department will ensure that the Tribal community is made aware of the health risks associated with common household hazardous products and provided with workshops and informative literature on healthier household products on the market and/or how to make homemade, "natural" products.

The presence of waste on TBR is evident along roads, in housing lots, in wetland vegetation (e.g., windblown debris), near Tribal drinking water sources, and scattered in the pastureland. This inappropriate disposal (or littering) of waste can pose a risk to both human and wildlife health. For example, debris containing pathogens, chemicals, etc. poses a risk to the health of humans and wildlife as exposure to such contaminants can cause illness, both acute and chronic. Similarly, products generally considered as waste can be mistaken as food to wildlife and poses a risk of ingestion. Given the proximity of TBR to the coast (northern-most boundary sits approximately 200 feet from south Humboldt Bay), the occurrence of windblown waste (e.g., plastic bags) poses a significant risk to wildlife as marine debris can be ingested leading to digestive (e.g., impaction) and/or respiratory (e.g., suffocation) complications. Inappropriately disposed waste may also contain hazardous waste that, if not properly disposed of and/or treated, can lead to illness, injury, or death and may contaminate nearby water sources, thus requiring extensive and expensive treatment.

The TBR community wastewater system has been prone to functional failures that have caused discharge of inadequately treated sewage into the drainfield or onto the ground surface, threatening contamination of wetland water and ground water with pathogens and nutrients through polluted runoff. Fortunately, no contamination of surface or groundwater has been detected. A wastewater system improvement project, planned for several years and implemented in 2009, addressed faulty design elements of the wastewater treatment system to ensure that failure would be much less likely in the future. Similarly, in 2014, the Tribe installed two septic tank risers to allow better access for pumping/cleaning to avoid overflows caused by the accumulation of solids/debris that clog the tank filter. This, and a change in management of the system, has largely addressed the threat of NPS pollution from this source. However, continued vigilance will ensure that the implemented treatments have been successful. Land use area associated with wastewater system operation amounts to over 5.5 acres, or 6% of TBR.

NPS Category Goal
Maintenance of groundwater and wetland water quality via prevention of NPS pollution from wastewater treatment system runoff

Short Term Objectives
Prevent, reduce, or mitigate land disposal/storage/treatment NPS pollution by utilizing regulatory BMPs

- Create Alternative to Hazardous Chemicals & Pesticides Policy and seek approval for adoption from Council

Assess wastewater treatment system for proper functioning to prevent NPS pollution

- Monitor system for problems that may lead to system failure

Further assess reservation NPS pollution threats via GIS capabilities:

- Update Tribe's NPS pollution geodatabase of existing threats on TBR
- Expand geodatabase to include new potential sources of NPS pollution threats

Long Term Objectives (May be dependent on outcome of Short Term Objectives)
Educate reservation community about NPS pollution issues related to land disposal/storage/treatment

- Update and expand NPS Pollution Education Program Plan to include additional education/awareness activities relating to land disposal/storage/treatment NPS pollution
- Implement NPS Pollution Education Program

Ensure proper functioning of wastewater treatment system to prevent NPS pollution

- Address wastewater treatment system problems that limit system functionality

Table 7. Schedule of Milestones, Land Disposal/Storage/Treatment

Activity	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)	Year 4 (2024)
Update GIS database of NPS pollution threats	X			
Adopt Alternative to Hazardous Chemicals & Pesticides Policy	X			
If adopted, ensure compliance with Alternative to Hazardous Chemicals & Pesticide Policy		X	X	X
Update NPS Pollution Education Program		X	X	
Implement Updated NPS Pollution Education Program			X	X
Monitor wastewater treatment system for problems that may result in NPS pollution	X	X	X	X
Address wastewater treatment system problems, if necessary	(X)	(X)	(X)	(X)

As stated throughout this document, utilizing GIS capabilities to continue monitoring all the Tribe's NPS pollution threats can be a valuable tool as the precision and data collection of such instruments shows either time lapsed improvements/declines. Such information can be used to help managers prioritize projects based on the severity of the pollution threat and continue to maintain satisfactory water quality, adequate habitats, increased biodiversity, etc. Past projects have included training Tribal staff to create a NPS pollution geodatabase and generate maps of threats. Though extremely helpful for locating and identifying initial NPS threats, past projects utilized GPS equipment that lacked the capabilities of sub-meter accuracy and the ability to collect long-term data (e.g., photos, pre-/post-data, etc.). Since prior GIS projects, the Tribe has secured a sub-meter Trimble® GPS unit capable of bolstering both the short and long-term success of monitoring NPS pollution threats via GIS methods.

Improper management of Tribal lands has the potential to contribute significantly to a wide range of pollutant loading. These can include but may not be limited to: SVOC/PCPs from pesticides and other hazardous wastes, nutrients from fertilizers, bacteria pathogens from domestic animal waste, sediment runoff from groundbreaking activities (e.g., gardens), etc. Due to the potential for these pollutants to accrue in a community consisting of ~200 residents, the most effective BMP would be outreach in order to inform the public of the associated health and environmental harms. To ensure success within the Tribal administration/operations, the most effective BMP is a policy that requires adequate compliance and follow through. Therefore, the Department will develop an Alternatives to Hazardous Chemicals & Pesticides Policy that, when available, will require Tribal employees to purchase and utilize non-toxic/safer chemical products in alternative to more hazardous products. Similarly, Tribal employees will be required to safely store all chemical products in a manner that is compliant with federal law and will ensure the safety of all visitors to Tribal administrative offices. As an educational outreach component, the Department will host workshops for Tribal employees and citizens with the intent that all members involved will have a better understanding of the harms of using and improperly storing hazardous chemical products, a list of "safer" alternatives, and demonstrations of creating safe cleaning/yard maintenance products using natural products (e.g., vinegar, baking soda).

Past activities aimed at improving the function of the community wastewater system largely met their goal. Monitoring the system to maintain assurance that it is functioning properly is a logical extension of the past activities that improved the system. If, however, the system ceases to function properly or needs additional improvement, it is important for the Tribe to address any shortcomings to prevent possible NPS pollution. Most likely, any corrective actions would be structural – that is, the system would require significant component modification to improve function.

As stated before, the Tribe views long-term education programs aimed at increasing community understanding regarding NPS pollution issues as a highly regarded investment for maintaining good water quality, on the reservation and off. The Tribe has been implementing a NPS education program since 2010; the program will be continued for the duration of the

period covered by this plan, 5 years. The NPS education program will continue to be aimed at the Wiyot community, both young and adult, with the intent of encouraging stewardship values that benefit the environment.

Funding sources will include state and federal programs. For the creation, adoption, and follow through of tasks relating to the Alternative to Hazardous Chemicals & Pesticides Policy, funding will come from the CalEPA's Environmental Justice Grants. For ensuring compliance with the policy and carrying out environmental education activities, funding will likely come from the Tribe's CWA§319 program. Tribal staff, specifically the Natural Resources Department, will be responsible for the implementation and oversight of the regulatory BMPs. The primary measure of success for these additions and NPS education programs will be the creation, adoption, and implementation of the specified BMPs. Another measure will be the maintenance of existing high water quality in all the Tribe's water resources, relative to land disposal/storage/treatment NPS pollutants (e.g., SVOC/PCBs, pathogens, etc.).

It is expected that funding sources for general monitoring of the wastewater system will be limited to the Wiyot Tribe, unless significant problems with the wastewater treatment system are detected and need correction. In this latter case, funding will be sought from appropriate sources, which would likely include IHS, US Department of Agriculture (USDA), and the USEPA Drinking Water Tribal Set Aside Program. Activities related to system monitoring will be the responsibility of the Tribe's Maintenance Department; activities related to system improvement will be the responsibility of the Natural Resources Department. The primary measure of success for this addition to the residential stormwater management program will be the implementation of the specified activities.

Potential partners, consultants, or resources for the creation of the Alternative to Hazardous Chemical & Pesticides Policy may include: USEPA, Rural Community Action Agency, Californians for Alternatives to Toxics, and HCDEH.

Potential partners, consultants, or resources for updating the GIS geodatabase of the Tribe's NPS pollution threats include: BIA's OTSGS.

Potential partners, consultants, or resources for expanding the NPS pollution education program include: USEPA, HSU, IHS, HWMA, and Eel River Disposal & Resource Recovery.

In carrying out monitoring of the Tribe's wastewater system, the Tribe will look to outside knowledge and expertise to assist in achieving the best outcome. Potential partners, consultants, or resources include: USEPA; IHS; GR Sundberg Construction, Inc.; Wes Green; Orenco Systems, Inc.; and Oscar Larson & Associates Consulting Engineers.

Additional Federal Funding Sources for Nonpoint Source Pollution Control

A number of opportunities exist for the control of surface and ground water NPS water pollution on TBR through existing programs at the federal levels of government and through programs administered through the Tribe.

Funding sources may include: USEPA CWA§319 Nonpoint Source Control Program, USEPA CWA§106 Water Pollution Control Program, USEPA CWA§104 Wetlands Program Development Grant, USDA, US Department of Health and Human Services (HHS) – IHS, US Department of the Interior (DOI) (including the BIA and US Bureau of Reclamation), CalEPA, California Department of Fish and Wildlife (CDFW), State Department of Water Resources, Coastal Conservancy, State Water Resources Control Board, and Humboldt County Resource Conservation District (HCRCD).

Consistency of Federal Programs with State Nonpoint Source Requirements

The Tribe's NPS Management Program is consistent with the Tribe's goals and objectives. These goals and objectives have been ratified in Tribal Ordinances, Resolutions, Management Plans, and Guidelines. The Tribal Constitution of Table Bluff Reservation - Wiyot Tribe, adopted 1986, revised 4/03/99, purposed in Article I "to promote the general welfare of tribal members…[and] to conserve and develop our lands and resources…"

Identification of Federal Assistance Programs and Federal Development Projects

The Wiyot Tribe is currently utilizing or has previously used the following federal financial assistance programs:

U.S. Environmental Protection Agency

- CWA§104 Wetlands Program Development Grant
- CWA§106 Water Pollution Control Program
- CWA§319 Nonpoint Source Pollution Control Program
- General Assistance Program

U.S. Department of Commerce, National Oceanic and Atmospheric Administration

- Community Based Marine Debris Removal
- Species Recovery Grant to Tribes

U.S. Department of Health and Human Services, Indian Health Service

- Child Care Development Fund
- Sanitary Deficiency System

U.S. Department of Housing and Urban Development

- Indian Housing Block Grant Program

U.S. Department of Interior, Bureau of Indian Affairs

- Aide to Tribal Government
- Community Fire Protection
- Economic Development
- Higher Education
- Indian Child Welfare Act
- Invasive Wildlife Program
- Job Placement
- Johnson O'Malley
- Roads
- Social Services

U.S. Department of Interior, National Park Service

- Native American Graves Protection and Repatriation Act
- Tribal Historic Preservation Office

U.S. Department of Interior, US Fish and Wildlife Service

- Tribal Wildlife Grant

U.S. Department of Justice, Office of Justice Programs

- Family Violence Prevention

U.S. Institute of Museum and Library Services

- Native American Library Services

None of these programs duplicate nor conflict with work performed under the USEPA CWA§319 Nonpoint Source Pollution Control Program.

Certification of Tribal Authority

In 2002, the USEPA approved the Wiyot Tribe's application for Treatment As State to authorize eligibility for funding for a Tribal Clean Water Act §106 Water Pollution Control Program, recognizing that the Tribe met all TAS criteria:

1. The Wiyot Tribe is Federally recognized by the Secretary of the Interior and exercises governmental authority over the Table Bluff Reservation;

2. The Wiyot Tribe has a governing body, authorized by the Wiyot Tribal Constitution and Bylaws, carrying out substantial governmental duties and powers;

3. The functions exercised by the Wiyot Tribe pertain to the management and protection of water resources which are held by the United States in trust for the Wiyot Tribe.

4. The Wiyot Tribe is capable, in the USEPA Administrator's judgment, of carrying out the functions exercised in a manner consistent with the terms and purposes of the Act and of all applicable regulations, demonstrating adequacy in managerial experience; environmental and public health programs administered by the Tribe; accounting and procurement systems; the executive, legislative, and judicial functions of the Tribe; and staff resources.

In 2004, the USEPA approved the Wiyot Tribe's application for TAS to authorize eligibility for funding for a Tribal Clean Water Act §319 Nonpoint Source Pollution Control Program, recognizing that the Tribe met all TAS criteria.

The Wiyot Tribal Constitution, adopted in 1989, and Bylaws empower the General Council of the Wiyot Tribe, consisting of all Tribal citizens, with governing power of the Tribe. An elected 7-member Business Council conducts the day-to-day business of the Tribe, including enactment and adoption of Tribal Ordinances, Resolutions, Management Plans, Codes, and Guidelines. Among those ordinances is a Water Quality Ordinance that regulates pollutant discharges into the waters of the Table Bluff Reservation, allowing levy of civil fines and cleanup fees upon persons who illegally discharge pollutants into the those waters.

Public Comment

A public comment period for the Wiyot Tribe's Nonpoint Source Assessment and Nonpoint Source Management Plan for TBR took place between the dates of September 11, 2020 and October 11, 2020, concurrent with the USEPA review period for the documents. Public notice was posted at the Wiyot Tribal office and distributed to the Wiyot Tribal citizenship (Appendix C).

Nonpoint Source Management Plan – Tribal Approvals

Organization: Wiyot Tribe

APPROVALS:

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Theodore Hernandez, Tribal Chairman – Wiyot Tribe
October 12, 2020

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Eddie Koch, Natural Resources Director – Wiyot Tribe
October 12, 2020

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List of Acronyms and Abbreviations

BIA	Bureau of Indian Affairs (US Department of Interior)
BMP	Best Management Practice
BOR	Bureau of Reclamation (US Department of Interior)
CalEPA	California Environmental Protection Agency
CDFW	California Department of Fish and Wildlife
CFL	compact fluorescent lamp
CWA	Clean Water Act
DOI	US Department of Interior
FOG	fats, oil, and grease
FY	fiscal year
GAP	General Assistance Program
GIS	Geographic Information System
GPS	Global Positioning System
HCDEH	Humboldt County Department of Environmental Health
HCRCD	Humboldt County Resource Conservation District
HHS	US Department of Health and Human Services
HUC	hydrologic unit code
HUD	US Department of Housing and Urban Development
HSU	Humboldt State University
HWMA	Humboldt Waste Management Authority
IHS	Indian Health Service (US Department of Health & Human Services)
LID	low impact development
NCL	North Coast Laboratories
NCRWQCB	North Coast Regional Water Quality Control Board
NPS	nonpoint source
NRCS	Natural Resources Conservation Service (US Department of Agriculture)
OTSGS	Office of Trust Service Geospatial Support (BIA)
PCP	pentachlorophenol
SVOC	semi-volatile organic compound
SWPPP	Storm Water Pollution Prevention Plan
TAS	treatment as state
TBR	Table Bluff Reservation
UCCE	University of California Cooperative Extension
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

Appendices

A. *Wiyot Tribe Green Cleaning Policy*. 2014.

B. *Wiyot Tribe – Pesticide Needs Assessment*. 2018

C. Nonpoint Source Management Plan Public Comment Documentation.

Appendix A
Wiyot Tribe Green Cleaning Policy

Wiyot Tribe

Natural Resources Department

Funded by:
California EPA Environmental Justice Small Grants
Wiyot Tribe Pesticides and Toxic Chemical Awareness Project

Wiyot Tribe Green Cleaning Policy

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Date: 9-22-16

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Secretary

Date: 9/22/16

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Mission Statement

The purpose of the Wiyot Tribe is to promote the general welfare of Tribal citizens and their descendants, to exercise certain rights of self-government, to conserve and develop our lands and resources, and to promote and safeguard our aboriginal rights as Wiyot people.

Purpose of the Wiyot Tribe Green Cleaning Policy

There are many reasons for people and institutions to use greener cleaning products:

1. Many commercial products may contain ingredients harmful to human or health. Use of these products in a work environment exposes employees and the public to potential short- and long-term harm. Some traditional products are known to contribute to health problems such as eye, skin, and respiratory irritation as well as asthma and allergic reactions. Longer term exposure can lead to serious chronic illness such as cancer, and neurological or reproductive disorders. Vulnerable groups such as children, the elderly, and immune-compromised individuals are at particular risk.
2. The manufacture, storage, and distribution of chemical-based cleaning products can pose a threat to the natural environment, harming ecosystems and fish and wildlife species.
3. Simple, homemade cleaning product alternatives can be more economical than purchasing conventional products.

This document describes the Wiyot Tribe's policies and procedures for conducting their operations and activities in a way that promotes human health and environmental stewardship. It is the Wiyot Tribe's desire to maintain both clean facilities and healthy environments for their occupants and are therefore committed to the Green Cleaning practices established in this policy.

Revisions

The Tribe reserves the right to revise, modify, delete, and add to any and all rules, policies, and/or procedures stated within this policy. Revisions, additions, and/or deletions to this policy will be in writing and will only be made with approval from the Council and must be signed by the Tribal Chairperson.

Definitions

ANTIMICROBIAL: an agent that kills microorganisms or inhibits their growth.

ASTHMA: A chronic lung disease that inflames and narrows the airways, causing difficulty in breathing. It usually results from an allergic reaction or other forms of hypersensitivity.

BIODEGREDABLE: a substance or object capable of being decomposed by bacteria, fungi or other biological means.

CARCINOGEN: A chemical or physical agent capable of causing cancer in living tissue.

DETERGENT: A water soluble cleansing agent that combines with impurities and dirt to make them more soluble and differs from soap in being made with synthetic chemicals.

DISINFECTANT: A type of antimicrobial that kills or prevents the growth of bacteria and fungi.

GREEN CLEANING: Describes the growing trend of using cleaning products and methods that are safer for the environment and human health.

HAZARDOUS CHEMICAL: A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.

INDOOR AIR QUALITY (IAQ): The air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants.

MUTAGEN: an agent, such as radiation or a chemical substance, that causes genetic mutation.

PEST: Any organism that causes damage, discomfort, or transmits or produces disease. These can include fungi, plants, or animals.

PESTICIDE: Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. These include insecticides, herbicides, fungicides, and rodenticides.

PROPYLENE GLYCOL AND GLYCOL ETHERS: A group of organic compounds commonly found in paints and cleaners.

SANITIZE: A process intended to reduce, but not necessarily eliminate, microorganisms from the inanimate environment to levels considered safe as determined by public health codes or regulations.

SOLVENT: A substance that dissolves a solute (a chemically different liquid, solid, or gas) resulting in a solution. A solvent is usually a liquid but can also be a solid or gas.

TERATOGEN: An agent or factor that causes malformation of an embryo.

VOLATILE ORGANIC COMPOUND (VOC): Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions.

Policy

The Wiyot Tribe's Hazardous Chemicals and Pesticides Policy, hereby referred to as "the policy", was created to promote and incorporate the responsible use of household products, cleaning

agents, and pesticides containing chemicals that are known to cause adverse health effects. To the extent possible, no cleaning or disinfecting products should contain ingredients that are carcinogens, mutagens, or teratogens. A list of known hazardous chemicals can be found on the United States Environmental Protection Agency (US EPA) Toxics Release Inventory at https://www.epa.gov/toxics-release-inventory-tri-program/tri-listed-chemicals.

In cases where avoiding hazardous chemicals is not possible, Wiyot Tribe staff will follow the procedures and guidelines established in this policy for proper use and storage. The Tribe will refrain from using, to the greatest extent possible, products that contain volatile organic compounds (VOCs) and Propylene Glycol and Glycol Ethers (PGEs). Integrated Pest Management (IPM) principles will be followed before the use of any pesticide. Pesticides will be used as a last resort and only the least dangerous pesticides will be used.

The responsible party for this policy is the Public Works Director. He/she is responsible for ensuring that this policy is executed and that any contracted cleaning vendors under management's control are aware of and fully trained on the procedures outlined in this policy. Further, the Public Works Director is responsible for sharing this policy with Tribal employees and encouraging policy implementation.

Scope

The policy addresses Green Cleaning practices for the cleaning of all Tribal buildings and grounds. It applies to all pesticides, cleaning procedures, cleaning material purchases, laundry detergents, cleaning equipment purchases, and cleaning services. The policy also addresses guidelines for handling cleaning chemicals, education of Tribal staff, and promoting and improving hand hygiene.

Goals

The main goals of the Wiyot Tribe's Green Cleaning Policy are as follows:

- To reduce the staff's exposure to VOC's, PGE's, and other chemicals known to cause adverse health effects as determined by state and federal environmental protection agencies.
- To ensure that all maintenance staff is aware of their responsibilities in implementing this policy.
- To promote responsible stewardship of the environment by using environmentally responsible cleaning products, and only using other chemicals when an environmentally responsible option is not available.
- To guide and educate the Table Bluff community to engage in more environmentally responsible practices.
- To protect the health of those most vulnerable to the effects of hazardous chemicals, such as children and pregnant women.

Practices and Procedures

Wiyot Tribal Council and staff will ensure the policy's purpose and goals by governing and abiding by the following practices and procedures:

1. Commitment to Green Purchasing

An important aspect of the Wiyot Tribe Green Cleaning Policy is the purchase of products that have been certified to contain no hazardous substances. The Public Works Director or designee will be responsible for ensuring all products used in the Tribal buildings and grounds, including those used by all contracted cleaning companies, meet the standards specified below:

- The Public Works Director or designee shall purchase cleaning products, degreasing products, glass cleaners, carpet cleaners, hand soaps, disinfectants, metal polish, strippers or other products that meet one or more of the following criteria:
  A. Green Seal GS-37- A list of Green Seal certified products can be found at http://www.greenseal.org/FindGreenSealProductsAndServices.aspx.
  B. US EPA Safer Choice Safer Products Standard-a list of products can be found at https://www.epa.gov/saferchoice.
  C. Environmental Choice CCD products-the sustainable product guide can be found at http://productguide.ulenvironment.com/QuickSearch.aspx
  D. Vacuum cleaners meet the requirements of the Carpet and Rug Institute "Green Label" Testing Program-Vacuum Cleaner Criteria. More information can be found at http://www.carpet-rug.org/green-label-plus.html

2. Procedures for Use of Hazardous Substances

In certain cases, Tribal staff may need to use hazardous chemicals (i.e. antimicrobials for kitchen sanitizing). When an environmentally sustainable product such as the ones mentioned in the previous section is not available, Tribal employees will follow the procedures established below:

- **Storage and Labeling of Hazardous Chemicals**
  1. All products containing hazardous chemicals are to be stored in a locked janitorial closet.
  2. Products will be kept in their original containers with complete label information.
  3. Product labels will be carefully read and stored according to manufacturer recommendations.
  4. No cleaning products will be stored above eye level.
  5. Label all containers properly to be easily identifiable. The California Department of Pesticide Regulation provides guidelines for proper product labeling, which can be found in appendix 1.

- **Hazardous Chemical Safety:**
  1. Employees will employ the use of Personal Protective Equipment (e.g., gloves, proper footwear, masks, etc.) when required. This information should be found on the product label.
  2. Employees will ensure all windows are open for proper ventilation prior to the use of hazardous cleaning products.
  3. Use of hazardous cleaning products will occur after regular business hours to protect vulnerable occupants (e.g. children, pregnant women, elders, etc.)
  4. Employees shall not attempt to clean a moldy carpet without proper Personal Protective Equipment. Special training may be required to adequately deal with a water-soaked carpet.
  5. Employees shall adhere to proper chemical dilution systems as indicated on product labels.
  6. Pump sprays will be used instead of aerosols. No air fresheners or other aerosol sprays will be used in the facilities.

- **Proper Use of Antimicrobial Products:**
  1. Because they are designed to kill microorganisms, antimicrobial products are regulated by EPA as pesticides. Antimicrobial products such as disinfectants should only be used in the community kitchen and restrooms. All other surfaces should use "all-purpose" cleaners for general cleaning. Refer to the sections titled "Green Bathroom Cleaning" and "Green Cleaning of Food Areas" for specific practices.
  2. Employees using antimicrobial agents should follow guidelines established in the subsection titled "Hazardous Chemical Safety."
  3. Steps for using antimicrobial on kitchen or bathroom surfaces:
     a. Microfiber cloths that are used with antimicrobial solutions should be a designated color, and should not be used to clean or dust other surfaces (i.e. yellow for the restrooms, red for the kitchen, etc).
     b. Using only microfiber cloths, clean the surface with a detergent and water, and then apply approved antimicrobial. Most antimicrobials are not cleaners, and are usually only effective on clean surfaces.
     c. Wait the recommended time (read product label) before rinsing the antimicrobial from the surface, usually about ten minutes.

3. Difference between Cleaning, Sanitizing, and Disinfecting

It is important for Tribal employees to recognize the difference between cleaning, sanitizing, and disinfecting in order to use the right products and employ the correct procedures. **Cleaning** refers to the use of a detergent, soap, or an all-purpose cleaner to remove dirt and

debris from a surface. Cleaning is helpful for removing pollen, dust, dirt and other allergens. **Sanitizing** is most commonly used for food areas. Sanitizing products reduce bacteria on most surfaces. **Disinfecting** products are stronger than sanitizers, these kill most bacteria, fungi, and some viruses. Disinfectant products should be used in restrooms. Sanitizers and disinfecting products are regulated as pesticides by EPA because they are designed to kill organisms. These products should have a Pesticide Registration number assigned by EPA. See section titled "Procedures for Use of Hazardous Substances" for more information on storing, handling, and using sanitizers and disinfectants.

4. Green Hard Floor Cleaning and Maintenance

All hard floor cleaning and maintenance will be conducted using products that meet the standards established in the section titled "Commitment to Green Purchasing". Mats will be placed on every entryway to reduce the amount of debris and dirt that enter the buildings.

- **Hard Floor Cleaning Process**
  1. Employees shall clean hard floor surfaces including tile, concrete and wood on a weekly basis.
  2. Employees shall use only microfiber mop heads.
  3. Mop heads will be changed and washed after each cleaning.
  4. Cleaning solution in mop buckets will be changed after each cleaning.

5. Green Carpet Cleaning and Maintenance

Carpets can be a source of bio-pollutants, dust, and VOCs. Pesticides and cleaning products (such as stain removers) that remain on the carpet after initial application can volatize (rise into the air) over time and contaminate indoor air. The following carpet treatment guidelines can help mitigate the need for carpet cleaning solutions through both preventative and prescriptive treatment:

- **Preventative Care of Carpets:**
  1. Prevent stains by cleaning up spills promptly using cold water and blotting cloths.
  2. Promptly clean and thoroughly dry carpets should they become saturated with water. Quick action following a leak or other water damage may prevent carpet loss and the growth of mildew.
  3. Place floor mats in every entryway to reduce the amount of debris that enters the buildings.
  4. Use vacuums with a high efficiency particulate air (HEPA) filter.
  5. Employees will vacuum on a daily basis.

- **Routine Cleaning of Carpets:**
  1. Deep cleaning of carpets should occur every twelve months.

2. The Public Works Director must ensure leaning companies are aware of the processes and procedures of this policy and follow them at all times.
3. Products used to deep clean carpets should meet the standards established in the section titled "Commitment to Green Purchasing."

6. *Green Cleaning for Other Surfaces*

Frequent cleaning and dusting of other surfaces such as desks, bookshelves, tables, and counters minimizes the need to use hazardous cleaning products.

- **Dusting**
  1. Dusting should occur at least twice weekly.
  2. Only dry microfiber cloths will be used for dusting of all surfaces. Cleaners will not be used more often than once a month unless a surface is visibly soiled.
  3. Visibly soiled surfaces can be cleaned using an all-purpose cleaner.
  4. Microfiber cloths designated for dusting must be washed after each use.
  5. Microfiber cloths designated for dusting should be color-coded (i.e. blue cloths for dusting, red cloths for kitchen, and yellow cloths for bathroom use).

- **Cleaning**
  1. Clean desk surfaces, countertops, tables, shelves, and other surfaces once monthly using an all -purpose cleaner and a microfiber cloth.
  2. All-purpose cleaner should meet the standards described in the section titled "Commitment to Green Purchasing."

7. *Green Bathroom Cleaning*

Proper bathroom cleaning can be achieved using green products. Thoroughly cleaning bathrooms will help ensure Tribal staff are utilizing hygienic facilities and help prevent the spread of disease.

1. Bathrooms in the main building should be cleaned on a daily basis. Bathrooms in department buildings should be cleaned 1-2 times per week.
2. All bathroom cleaners should meet the standards established in the section titled "Commitment to Green Purchasing."
3. Bathroom cleanings should entail the following:
   a. Emptying of trash cans and disinfecting of receptacles using products that meet the standards established in the section titled "Commitment to Green Purchasing." Employees shall follow the guidelines in the section titled "Procedures for use of Hazardous Substances" in relation to disinfectants.
   b. Mopping of the bathroom floors following the guidelines in the section titled "Hard Floor Cleaning and Maintenance."

c. Cleaning of sinks and counters with a microfiber cloth and a disinfectant. Follow guidelines for disinfectants established in the section titled "Procedures for use of Hazardous Substances."
d. Cleaning of mirrors using only water and a microfiber cloth.
e. Cleaning and disinfecting of toilets and/or urinals. Remove urinal screens. Using a bowl swab, force the water level down in urinals and toilet bowls by repeatedly pushing the swab down the throat or flush path. Apply bowl cleaner to the exposed interior surfaces of the bowls and urinals, especially under the rim. Allow time for the chemical to work, while cleaning partitions and showers (several to 10 minutes, based on the manufacturer's directions).
f. Cleaning of both sides of entrance/exit doors with a disinfectant cleaner, paying special attention to hand contact areas.
g. Scrubbing of the inside of the bowls and urinals with a bowl swab or brush. Use a brush or abrasive sponge for difficult soils. Clean the exterior of the bowls and urinals with disinfectant cleaner. Clean both sides of the toilet seat. Clean the walls around the bowls or urinals with disinfectant cleaner. Flush bowls and urinals. Polish all chrome surfaces with a dry cloth after cleaning with a disinfectant cleaner.

8. Green Cleaning of Food Areas

Maintaining clean kitchens, break rooms, and other food areas is especially important to prevent pests. Preventing pests can also prevent and/or reduce the need for pesticides, therefore protecting indoor air quality.

- **Sanitizing and General Cleaning**
  1. Clean and sanitize surfaces in food preparation and consumption areas on a daily basis to protect human health. Follow the steps outlined in the subsection titled "Proper Use of Antimicrobial Products."
  2. Clean and sanitize faucets and sinks once daily.
  3. Clean and sanitize hand contact areas on a daily basis (e.g. faucet handles, door handles).
  4. Clean and sanitize refrigerator on a monthly basis.
  5. Only use trash cans with a lid, and empty on a daily basis. Clean and sanitize trash cans once weekly.
  6. Kitchen sponges and brushes used for cleaning dishes should be replaced monthly.
  7. Dish washing liquid and dishwasher machine detergent should meet the standards described in the section titled "Commitment to Green Purchasing."

- **Mopping**
  1. Employees will mop kitchen floors once weekly following the guidelines in the section "Green Hard Floor Cleaning and Maintenance."

9. Pest Management

Traditional pest management practices using pesticides will be replaced by an "Integrated Pest Management" (IPM) approach. As defined by EPA, Integrated Pest Management is an effective and environmentally sustainable approach to pest management that relies on a combination of common sense practices. Two key components of IPM are removing the food supply of pests via effective cleaning and housekeeping, and sealing all crevices and holes where pests can enter the facilities.

Mold and mildew are considered pests for purposes of this policy, and are addressed in this section. Also, weed management practices are included.

- **IPM Practices**
  1. An extensive IPM checklist has been created by the University Of California San Francisco School Of Nursing's California Childcare Health Program. Employees must go through the checklist throughout the facilities on a bi-annual basis to ensure proper measures are taken to prevent pests.
  2. If a pest problem is identified, employees will refer to the corresponding IPM Fact Sheet attached to this policy.
  3. Employees will follow the recommendations in the IPM Fact Sheets for addressing specific pest problems prior to employing the use of pesticides.

10. Pesticide Use

1. Only the Public Works Director can approve the use of a pesticide (including herbicides and fungicides) if, after employing IPM practices, the problem has not been resolved.
2. The Public Works Director will only purchase enough pesticide needed for treating specific pest problems. This helps avoid storing pesticides on the premises to the greatest extent possible.
3. By federal law, all pesticides used must have an EPA Registration Number which can be found displayed clearly on the product label. Employees must not use pesticides lacking an EPA Registration Number.
4. Leftover pesticides must be disposed of at the nearest hazardous waste disposal site (e.g. Humboldt Hazardous Waste Authority).
5. A Material Safety Data Sheet (MSDS) for the pesticide product should be obtained from the manufacturer. These can usually be found on their website or by direct

request. The MSDS contains important product information and must be kept on file.

6. When using pesticides, employees **must** follow the guidelines established in the section titled "Procedures for Use of Hazardous Substances."
7. Only least-harmful pesticides should be used such as:
   a. Baits contained in a bait station. No foggers or sprays shall be used.
   b. Desiccating dusts. These kill pests by dehydration rather than poison.
   c. Insecticide gels. These can be applied directly to holes and crevices.
8. A thorough review of the Tribal facilities must take place after the use of a pesticide using the IPM checklist. This could help prevent recurrent pest issues.

Outreach and Education

Ensuring all Tribal employees are aware of the practices and procedures established in this policy is essential to ensure its success. The Tribal Administration and appropriate designated manager is responsible for training existing and newly hired staff on the Wiyot Tribe Green Cleaning Policy, and to ensure all staff has a copy for reference.

Appendix B
Pesticide Needs Assessment

Wiyot Tribe
Natural Resources Department

United States Environmental Protection Agency – General Assistance Program

Pesticide Needs Assessment

Wiyot Tribe - Table Bluff Reservation

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Acronyms List

CWA	Clean Water Act
GAP	General Assistance Program
HAZWOPER	Hazardous Waste Operations and Emergency Response
HHS	Health and Human Services
HHW	household hazardous waste
HWMA	Humboldt Waste Management Authority
IPM	Integrated Pest Management
IRMP	Integrated Resource Management Plan
MPN	Mean Probable Number
PPE	personal protective equipment
PWS	Public Water System
§	Section
SOC	semi-organic compound
SWAP	Source Water Assessment Plan
TBR	Table Bluff Reservation
TPH	total petroleum hydrocarbon
TSS	total suspended sediment
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WNRD	Wiyot Tribe's Natural Resources Department

I. Executive Summary

The Wiyot Tribe's ("Tribe") Natural Resources Department (WNRD) conducted a Pesticide Needs Assessment for the Table Bluff Reservation (TBR) community. The assessment was conducted from January 2018 through June 2018 and was undertaken to gather baseline conditions about the use of pesticides by TBR residents and the Tribal organization.

This Pesticides Needs Assessment serves as a compilation of existing data, new findings from surveying the TBR community including an analysis of the responses, interviews with Tribal staff, and an identification of issues and recommendations to help safeguard the community. The completion of this assessment enabled the WNRD and the Tribe to take an in-depth look at TBR Community's views on the use, storage, and disposal of pesticides and safer alternatives. This assessment was conducted as a component of the United States Environmental Protection Agency's (USEPA) General Assistance Program (GAP), as well as to further the WNRD's commitment to protecting Tribal resources and the health of the TBR community. The findings from this assessment will be utilized by the WNRD to prioritize projects, outreach/education, etc. for the TBR community and determine if there is a need to develop programs (e.g., Pesticides Program) and/or resource protection plans (e.g., Source Water Assessment Plan [SWAP], Wellhead Protection Plan).

Research Components

The WNRD took a comprehensive approach to identifying the needs of the TBR community. A variety of quantitative and qualitative research components were implemented as part of the Pesticide Needs Assessment. The assessment examined a variety of indicators including:

- Commonly targeted pests
- Location of pesticide use (e.g., indoors and/or outdoors)
- Frequency of use
- General knowledge of pesticide application, storage, disposal, and harms
- Tribal member opinion on the application of pesticides in the community and feedback on future measures for protection of Tribal resources.

In order to collect background information and fill data gaps, the WNRD conducted Tribal staff interviews and circulated a community-wide survey to 36 TBR households. Six (6) Tribal land staff including employees of the WNRD and Public Works Departments were interviewed and 20 household surveys (15 complete, 5 incomplete) were received from the TBR community.

Key Community Issues

Following the collection of data from staff interviews and community surveys, key community issues were identified by the WNRD that may require additional measures in order to prevent health disorders and impacts to Tribal resources. These included:

- Health concerns pertaining to commonly purchased pesticides
- Pesticide application and use of personal protective equipment (PPE)
- Proper disposal of pesticides
- Alternatives to commercially produced pesticides (e.g., Integrated Pest Management [IPM])

II. Pesticide Needs Assessment Overview

TRIBAL COMMUNITY AND ADMINISTRATION PROFILE

Wiyot Tribe Background

Wiyot people have always lived along the Pacific Ocean and around Humboldt Bay. Before the 1850s and the times of the Gold Rush, the Wiyot people covered 40 miles of coast line, going inland about 10 miles. The Tribe's ancestral territory includes Little River to the north, Bear River Ridge to the south, and from the Pacific Coast out to as far as Berry Summit in the northeast and Chalk Mountain in the southeast. Currently the Tribe controls 0.02% of this land. Main waterways include Humboldt Bay, Little River, Mad River, Jacoby Creek, Freshwater Creek, Elk River, Eel River, Van Duzen River, and Bear River. The majority of villages were concentrated around Humboldt Bay and along the coast; other villages were located inland, generally near rivers.

Since time immemorial, the Wiyot Tribe has lived in the lower watersheds of the Eel River, Humboldt Bay, and the Mad River. The Wiyot people have long depended on these watersheds and provided stewardship over them. In the mid-1800s, gold and timber brought European settlers to northwest California, resulting in a decimation of the Wiyot population and culture. Many Wiyot people were scattered from their homeland, and massacres throughout their ancestral territory led to a significant drop in population from about 2,000 in 1850, to 200 in 1860, and to only 100 in 1910.

The original Rancheria was located at the south edge of Table Bluff and adjacent to McNulty Slough of the Eel River estuary and is commonly referred to as the "old Reservation." After numerous massacres in 1860, nearly all Wiyot people were removed from this area, but some returned. In the early 1900s, a church group purchased the original 20 acres of the old Reservation, in the Eel River estuary, for homeless Wiyot people. The federal government later transferred this land into trust status in 1908. In 1958, the federal government passed the California Rancheria Act (amended in 1964) that terminated the Tribe in 1961. In 1975, the Tribe filed suit against the federal government for unlawful termination. In 1981, in Table Bluff Band of Indians v. Lujan (United States), it was determined the Tribe's termination was unlawful and trust status was reinstated. In 1991, because of drinking water contamination and other sanitation issues, the court mandated new land be purchased and the Tribe moved to the current Reservation location. The original 20 acres were put into fee simple under the individual families but deemed to be under the Tribe's jurisdiction as long as held in Indian hands.

Tribal Community Background

Table Bluff Reservation consists of an 88.5 acre parcel of land straddling the Humboldt Bay and Eel River watersheds. The Tribe developed the reservation with a Tribal Community Center and 37 homes that house 145 of the Tribe's 655 members. Approximately 85% of reservation residents subsist below the national poverty level, and unemployment is very high. The Tribe is not a gaming tribe, does not currently own significant natural resources, and economic development opportunities are extremely limited.

In addition to TBR, the Tribe also lays claim to much of the Old Wiyot Reservation, now a cluster of twenty fee-simple lots situated at the northern edge of the Eel River estuary and a mile away from TBR. The Tribe has acquired two fee-simple status lands within its ancestral territory: 61.5 acres of land on Humboldt Bay's Indian Island, which includes a very important ceremonial site, *Tuluwat* village, and 104 acres on Cock Robin Island, in the Eel River estuary.

Tribal Administration Overview

Since the Tribe's incorporation under the Indian Self-Determination Act in 1991, the Tribe has worked to establish essential Tribal programs. The Tribe is governed by a seven-member elected Tribal Council and an Organization made up of six (6) primary departments including Administration, Natural Resources, Fiscal, Health and Human Services (HHS), Cultural, and Public Works. The following lists is a breakdown of staff capacities by department:

- Administration personnel include a Tribal Administrator, Administrative Assistant, Enrollment Coordinator, and Receptionist,
- WNRD personnel include a Director, Specialist, Botanist, Technician, Water/Wastewater Operator, and a Water/Wastewater Operator (in training),
- Fiscal Department personnel include an Accounting Manager and Accounting Assistant,
- HHS Department personnel include a Director, Title VI Program Coordinator, Title VI Program Assistant, and Licensed Marriage & Family Therapist,
- Cultural Department personnel include a Director, Language Specialist, Youth Program Manager, two (2) Youth Program Assistants, and multiple Cultural Monitors, and
- Public Works personnel include a Director and two (2) Maintenance workers.

Natural Resources Department Overview

The Wiyot Tribe's Natural Resources Department (formerly Environmental Department) was established in August 1996. The purpose of the department is to monitor and protect the environmental resources of TBR, the Wiyot Tribal landholdings, and the Wiyot aboriginal territory. The department accomplishes this by:

- Managing a panoply of programs and projects designed to address the various and often very complex environmental issues facing Tribes today,
- Coordination and collaboration with federal, state, and local agencies, the Tribal community, as well as the regional community, and
- Regular interaction with the Tribal community by staging environmental education events for Tribal youth, holding workshops, and including updates in the Tribal newsletter.

The WNRD works with the Tribal Council related to concerns of the Tribal Community, Tribal Administration, Legal Counsel, and supporting departments including Cultural, Fiscal, Public Works, and HHS.

METHODOLOGY

The Pesticide Needs Assessment was comprised of a compilation of background data and both quantitative and qualitative survey components. These included:

Background Data

- **TBR Groundwater Quality Data**
  Data from the Tribe's two drinking water wells as required following well installation in 2008 and 2011. Additionally, data is available as mandated by USEPA for compliance monitoring of the Tribe's Public Water System (PWS) on TBR.

- **Wetland Water Quality Data**
  Data from the Tribe's two monitoring wells located at the TBR wetland. WNRD staff annually sample the TBR wetland for biological and chemical contaminants including coliforms,

nitrate/nitrite, ammonia nitrogen, total phosphate phosphorus, priority metals, and total petroleum hydrocarbons (TPH).

Qualitative and Quantitative Data

- **Key Personnel Interviews**
  Interviews with key Tribal staff (e.g., Public Works & Natural Resources Departments) involved with pesticide use and management which featured questions related, but not limited, to current pesticide use on TBR, quantities applied (i.e., past and present location[s] of pesticide application, knowledge of proper application methods, types of PPE used, status of storage area, and knowledge of proper disposal method[s]),

- **Pesticide Use Assessment Survey (Appendix A)**
  Survey presented to each household on TBR which featured questions related, but not limited, to pesticide use (targeted pests, quantity used), location(s) of pesticide application, types of PPE used (if applicable), individual knowledge of pesticide related subjects (e.g., storage and disposal, IPM), Tribal perspective on allowance/forbearance of pesticides on specific areas of TBR, knowledge of existing and/or historical uses of pesticides on or near TBR, and Tribal perspective on safeguards for Tribal resources.

III. Background Data

TBR GROUNDWATER QUALITY DATA

While monitoring of reservation groundwater is new (regular monitoring for meeting USEPA drinking water requirements began in 2010), an extensive suite of tests performed during the installation of the drinking water wells on the reservation indicate the quality of groundwater. Following installation of well #1 (located on the western boundary of TBR) in 2008, these water quality results showed no occurrence of contaminants associated with pesticides (Table 1). Similarly, following installation of well #2 (located on the southeastern boundary of TBR), there were no occurrences of these contaminants (Table 2). Lastly, the Tribe's water system falls under the jurisdiction of the USEPA's PWS program and requires periodic compliance monitoring. Due to the absence of two consecutive samples that would have warranted a waiver, the Tribe was required to conduct additional water quality tests in 2013 for pesticides and semi-organic compounds (SOCs). No contaminants were detected as summarized in Table 3.

Table 1. Well #1 Pesticide and SOC water quality test results.

Contaminant	Result (ug/L or %)	PQL (ug/L or %)
EPA 505		
Alachlor	***ND***	0.2
Aldrin	***ND***	0.01
Chlordane	***ND***	0.1
Dieldrin	***ND***	0.01
Endrin	***ND***	0.01
Heptachlor	***ND***	0.01
Heptachlor Epoxide	***ND***	0.01
Hexachlorobenzene	***ND***	0.01
Hexachlorocyclopentadiene	***ND***	0.1
Lindane	***ND***	0.05
Methoxychlor	***ND***	0.1
Toxaphene	***ND***	0.5
PCB 1016	***ND***	0.5
PCB 1221	***ND***	0.5
PCB 1232	***ND***	0.5
PCB 1242	***ND***	0.5
PCB 1248	***ND***	0.5
PCB 1254	***ND***	0.5
PCB 1260	***ND***	0.5
EPA 507		
Alachlor	***ND***	1
Atrazine	***ND***	0.5
Bromacil	***ND***	2
Butachlor	***ND***	1
Cyanazine	***ND***	0.5
Diazinon	***ND***	2
Dimethoate	***ND***	2

Contaminant	Result (ug/L or %)	PQL (ug/L or %)
Metolachlor	***ND***	1
Metribuzin	***ND***	0.5
Molinate	***ND***	2
Prometryne	***ND***	2
Propachlor	***ND***	1
Simazine	***ND***	1
Thiobencarb	***ND***	1
Triphenylphosphate	***91.5%***	70-130%
EPA 515		
2,4-DCAA	***110%***	70-130%
Bentazon	***ND***	2
2,4-D	***ND***	2
Dalapon	***ND***	10
Dicamba	***ND***	1
Dinoseb	***ND***	1
Pentachlorophenol	***ND***	0.2
Picloram	***ND***	1
2,4,5-TP (Silvex)	***ND***	1
2,4,5-T	***ND***	1
EPA 525.2		
Perylene –d12	***96.4%***	70-130%
Benzo(a)pyrene	***ND***	0.1
bis(2-Ethylhexyl) adipate	***ND***	1
bis(2-Ethylhexyl) phthalate	***ND***	3
EPA 531.1		
Aldicarb	***ND***	3
Aldicarb Sulfone	***ND***	2
Aldicarb Sulfoxide	***ND***	3
Carbaryl	***ND***	5
Carbofuran	***ND***	5
3-Hydroxycarbofuran	***ND***	10
Methomyl	***ND***	5
Oxamyl	***ND***	5
EPA 547		
Glyphosate	***ND***	20
EPA 548.1		
Endothall	***ND***	40
EPA 549		
Diquat	***ND***	2

Table 2. Table 1. Well #2 Pesticide and SOC water quality test results.

Contaminant	Result (ug/L or %)	PQL (ug/L or %)
EPA 505		
Alachlor	***ND***	0.2
Aldrin	***ND***	0.01
Chlordane	***ND***	0.1
Dieldrin	***ND***	0.01
Endrin	***ND***	0.01
Heptachlor	***ND***	0.01
Heptachlor epoxide	***ND***	0.01
Hexachlorobenzene	***ND***	0.01
Hexachlorocyclopentadiene	***ND***	0.050
Lindane	***ND***	0.01
Methoxychlor	***ND***	0.1
Toxaphene	***ND***	0.5
PCB 1016	***ND***	0.26
PCB 1221	***ND***	0.19
PCB 1232	***ND***	0.23
PCB 1242	***ND***	0.26
PCB 1248	***ND***	0.30
PCB 1254	***ND***	0.33
PCB 1260	***ND***	0.36
EPA 506		
Di-N-butyl phthalate	***ND***	3
Diethylhexyladipate	***ND***	5
Diethylhexylphthalate	***ND***	3
EPA 507		
Alachlor	***ND***	1
Atrazine	***ND***	0.10
Bromacil	***ND***	0.50
Butachlor	***ND***	0.38
Cyanazine	***ND***	0.5
Diazinon	***ND***	0.025
Dimethoate	***ND***	0.050
Metolachlor	***ND***	0.50
Metribuzin	***ND***	0.25
Molinate	***ND***	0.25
Prometryn	***ND***	0.13
Propachlor	***ND***	0.25
Simazine	***ND***	0.50
Thiobencarb	***ND***	0.25
Triphenylphosphate	***95.2%***	70-130%
EPA 515.3		
2,4-DCAA	***99.4%***	70-130%
Bentazon	***ND***	2

Contaminant	Result (ug/L or %)	PQL (ug/L or %)
2,4-D	***ND***	10
Dalapon	***ND***	10
Dicamba	***ND***	1.5
Dinoseb	***ND***	2
Pentachlorophenol	***ND***	0.2
Picloram	***ND***	1
2,4,5-TP (Silvex)	***ND***	1
2,4,5-T	***ND***	2
EPA 550.1		
Naphthalene	***ND***	0.50
Acenaphthylene	***ND***	1
Acenaphthene	***ND***	1
Fluorene	***ND***	0.10
Phenanthrene	***ND***	0.040
Anthracene	***ND***	0.020
Fluoranthene	***ND***	0.050
Pyrene	***ND***	0.10
Benzo(a)anthracene	***ND***	0.050
Chrysene	***ND***	0.050
Benzo(a)fluoranthene	***ND***	0.020
Benzo(k)fluoranthene	***ND***	0.020
Benzo(a)pyrene	***ND***	0.050
Dibenzo(ah)anthracene	***ND***	0.20
Benzo(ghi)perylene	***ND***	0.080
Indeno(1 2 3 –Cd)pyrene	***ND***	0.050
EPA 531.1		
Aldicarb	***ND***	3
Aldicarb sulfone	***ND***	4
Aldicarb sulfoxide	***ND***	3
Carbaryl	***ND***	5
Carbofuran	***ND***	5
3-Hydroxycarbofuran	***ND***	3
Methlocarb	***ND***	5
Methomyl	***ND***	2
Oxamyl	***ND***	5
Propoxur	***ND***	5
EPA 547		
Glyphosate	***ND***	5.0
EPA 548.1		
Endothall	***ND***	45
EPA 549		
Diquat	***ND***	0.40

Table 3. Pesticides & SOCs water quality test results performed in 2013 for TBR PWS.

Contaminant	Result (ug/L or %)	PQL (ug/L or %)
EPA-5 1613B-Tetras		
Dioxin (2,3,7,8-TCDD)	***ND***	0.00003
EPA 504.1		
Dibromochloropropane (DBCP)	***ND***	0.01
Ethylene dibromide (EDB)	***ND***	0.02
EPA 505		
Alachlor	***ND***	0.2
Chlordane	***ND***	0.1
Endrin	***ND***	0.01
Heptachlor	***ND***	0.01
Heptachlor epoxide	***ND***	0.01
Hexachlorobenzene	***ND***	0.01
Hexachlorocyclopentadiene	***ND***	0.1
Lindane	***ND***	0.05
Methoxychlor	***ND***	0.1
Toxaphene	***ND***	0.5
PCBs	***ND***	0.5
EPA 507		
Atrazine	***ND***	0.5
Simazine	***ND***	1
EPA 515		
2,4-D	***ND***	2
Dalapon	***ND***	10
Dinoseb	***ND***	1
Pentachlorophenol	***ND***	0.2
Picloram	***ND***	1
2,4,5-TP (Silvex)	***ND***	1
EPA 525.2		
Benzo(a)pyrene	***ND***	0.1
bis(2-Ethylhexyl) adipate	***ND***	1
bis(2-Ethylhexyl) phthalate	***ND***	3
EPA 531.1		
Carbofuran	***ND***	5
Oxamyl	***ND***	5
EPA 547		
Glyphosate	***ND***	20
EPA 548.1		
Endothall	***ND***	40
EPA 549		
Diquat	***ND***	2

WETLAND WATER QUALITY DATA

Per the Clean Water Act (CWA) Section (§) 106 Water Pollution Control Program, WNRD staff collect yearly chemical and biological samples for analysis and comparison to track long-term changes to water quality and ecosystem health and wetland function. Main contaminants of concern have included nitrate/nitrite, ammonia nitrogen, coliforms, total suspended solids (TSS), total phosphate phosphorus, priority metals, and TPH. Monitoring at the two shallow wetland wells on the reservation has not shown any exceedances of water quality criteria. Contaminants such as SOCs or volatile organic compounds (VOCs) have not been analyzed at the wetland though future testing may be appropriate based on results of this assessment.

Sampling for nitrite has shown no detections since sampling began in 2005. Most recent analyses have shown the greatest concentration of nitrate in well #2 at 2.0 mg/L (previous recorded high level was 6.1 mg/L in January 2015 at well #2), under even the National Recommended Ambient Water Quality Criterion of 10.0 mg/L for sources of drinking water (which the wetland is not). In October of 2008, sampling showed the highest concentrations of ammonia nitrogen in the two wetland wells of 0.62 and 0.11 mg/L, far below the USEPA Recommended Water Quality Criteria for Freshwater Aquatic Life after taking into account temperature and pH of the sample.

Bacteriological results have been more variable. While most sampling events have shown total coliform concentrations of less than 30 Mean Probable Number (MPN)/100 ml, ten events at well #1 have yielded high results. In contrast, well #2 has only had five samples that have shown a total coliform concentration exceeding 30 MPN/100 ml. While there is no criterion for fecal coliform concentrations that applies directly to shallow wetland groundwater, the NCRWQCB's objective for inland surface waters is a 30-day median of 50 MPN/100 ml with a minimum of 5 samples, and that not more than ten percent of total samples during any 30-day period exceeding 400 MPN/100 ml. During the period from December 28, 2016 through January 27, 2017 the Tribe sampled both wetland well #1 and wetland well #2 five times each with both wells meeting the NCRWQB's 30-day median objective.

Total phosphate phosphorus concentrations have been variable, with samples yielding results ranging from non-detections to a maximum of 0.93 mg/L. Monitoring during the period of October 2016 through September 2017 yielded a maximum result of 0.083 mg/L. There is no criterion for phosphate that applies directly to shallow wetland groundwater; however, the National Recommended Ambient Water Quality Criterion for streams is .05 mg/L. It is unsurprising that the phosphate levels in the wetland occasionally exceed the stream-related criterion – wetlands often act as a sink for nutrients.

The Tribe has conducted yearly sampling for priority metals and TPH since 2012. Metals that have been detected have included chromium (highest levels detected = 13.0 ug/L), copper (highest level = 4.4 ug/L), lead (highest level = 6.5 ug/L), nickel (highest level = 8.7 ug/L), zinc (highest levels = 11 ug/L). The limited amounts of chromium, copper and zinc are normal and expected as these chemicals naturally occur in soil. Additionally, nickel levels are well under even the National Recommended Ambient Water Quality Criterion of 640 ug/L for sources of human consumption (i.e., drinking water). There have been no detections of TPH at either sampling locations in the Tribe's wetland.

V. Pesticide Use Assessment Findings & Conclusions

KEY PERSONNEL INTERVIEWS

One of the initial undertakings of the Pesticide Needs Assessment was conducting interviews with key personnel staff. Interviews served to provide background information on the use, storage, and disposal of pesticides in the Tribal administration setting. Interviews with key personnel focused on the following four (4) categories:

- Existing Tribal Regulations
- Tribal Government Pesticide Use
- Pesticide Storage & Disposal
- Pesticide Outreach/Education

Interviews were conducted from March through April 2018 with the following Tribal land staff:

- **Public Works Director**: Administrative lead for directing staff tasked with applying pesticides on TBR, ensuring proper storage and disposal procedures are followed, and in charge of the health and safety of employees applying pesticides,
- **Public Works Maintenance Workers**: On-the-ground workers that are tasked with applying pesticides and ensuring chemicals are stored and disposed of in a safe manner,
- **Water Operators**: Certified Water/Wastewater Operator and a Water Operator in Training who are tasked with water quality testing, maintaining system infrastructure including vegetation, and community outreach, and
- **Natural Resources Director**: Administrative lead for providing technical assistance related to pesticides (e.g., application, storage, disposal, health and safety).

Existing Tribal Regulations

Administrative personnel including the Public Works and Natural Resources Directors, were asked if there were any existing policies and/or ordinances related to pesticide use/restriction. Due to recent turnover in the Public Works Department, the Director was not familiar with existing Tribal regulations. Alternatively, the Natural Resources Director identified three existing regulatory ordinances/policies that can be applicable to pesticide use, storage, and disposal. The Wetland Zone Protection Ordinance prohibits alterations to wetland habitat and the TBR Water Quality Ordinance prohibits degradation of Tribal water resources. Neither specifically address pesticide application though pesticide contamination to these resources is covered in broader terms. The Tribe's Green Cleaning Policy is the only regulatory document that addresses the use, storage, and disposal of pesticides for administrative purposes.

Tribal Government Pesticide Use

Support staff including the Public Works Maintenance Workers and Water Operators were asked if whether they have used, currently are using, or have plans to use pesticides on TBR. Water Operator, and Tribal elder, George Buckley, provided information for past use while Maintenance Workers provided information related to current and future use. According to George, past pesticide use on TBR by administrative staff has been limited to maintaining vegetation that may impact road infrastructure (e.g., sidewalks) and lessen the aesthetics of the Reservation. According to Maintenance Workers, the administrative staff has ceased application of pesticides on TBR but there is existing knowledge of individual Tribal members using pesticides around their homes. When asked about potential future uses, all individuals responded there were no plans to resume or increase use as current maintenance

activities without use of pesticides have been effective. Additionally, both Public Works and Natural Resources Directors did not believe that potential future expansion of road/housing infrastructure on TBR would validate resuming/increasing pesticide use on the Reservation.

Pesticide Storage & Disposal

According to Maintenance staff, existing pesticide supplies are limited and stored in their original containers, at the Maintenance shed. Due to the extent of past pesticide application on TBR, the amount of pesticides held by the Tribe is extremely low and there are no issues concerning storage and disposal. Support staff were asked about past disposal procedures and all individuals answered that hazardous chemicals were either depleted through application or disposed of at the local hazardous waste facility operated by the Humboldt Waste Management Authority (HWMA).

Pesticide Outreach/Education

All interviewees were asked about current outreach being conducted to educate the Tribal community and staff about the use, storage, and disposal as well as the environmental and health risks of pesticides. Public Works Maintenance Workers responded that there is no interdepartmental education related to pesticides. Similarly, all outreach through the Public Works Department occurs on a one-on-one basis with TBR residents. Natural Resources Director emphasized that though pesticides are not used by staff, safety talks on the appropriate use, storage, and disposal of hazardous chemicals have been conducted at staff meetings. Tribal community is kept abreast of the dangers associated with hazardous chemical and how to follow proper application, storage, and disposal procedures through regular postings in the Tribal newsletter. All WNRD staff has received 24- and 40-hour training in hazardous waste operations and emergency response (HAZWOPER).

COMMUNITY ASSESSMENT

The WNRD created a survey for the TBR community to gain baseline data pertaining to the use, storage, and disposal of pesticides. Additionally, the survey gathered information from the community on how they view pesticide application at specific locations on TBR (e.g., playground, near water wells) and if whether the Tribal administration should create additional protective measures to safeguard Tribal resources.

Surveys were circulated to the TBR community in April 2018 via direct hand delivery methods. The WNRD received surveys from 20 of the 36 TBR households and of these 20 surveys, 15 were complete and 5 were incomplete though those that submitted incomplete surveys shared that they did not use pesticides. The following assessment is separated into the following four (4) categories of key findings:

- Community Pesticide Use
- Community Health Concerns and Risks
- Community Understanding/Opinion of Pesticides
- Community Protective Measures

Community Pesticide Use

Of the participants in this assessment, 55% responding that they use some form of pesticide in or around their house and/or yard. Survey results show that 100% of pesticide users applied them indoors while 63% use them outdoors as well. Targeted indoor pests species were primarily insects (100% of pesticide users) and mold/fungi (9%) while targeted outdoor species included plants (14%), insects (86%), and snails/slugs (29%). The frequency of pesticide application varied between indoor and outdoor

locations, with outdoor application occurring more frequently (e.g., bi-weekly/monthly) as compared to indoor use (Table 4). Lastly, use of outdoor pesticides seems to be more extensive during the drier months, spring and summer (69%) as compared to wetter months occurring in the fall and winter (31%). This pattern is consistent with the prevalence of targeted pest species (e.g., ants) at that time and seasonal activities (e.g., gardening).

Table 4. Frequency of indoor & outdoor pesticide use by TBR residents.

	Frequency of Pesticide Application					
	Daily	**Weekly**	**Bi-weekly**	**Monthly**	**Bi-annually**	**Yearly**
Indoor (insects & fungi/mold)	-	18%	-	9%	27%	45%
Outdoor (plants, insects, snails/slugs)	-	-	14%	29%	14%	43%

The TBR Community is composed of 36 homes with approximately 150 residents, 20% elders and 30% youth. Demographic data from this survey showed that more individuals (31) are at less of a risk of exposure to pesticides in or around their homes as compared to households that noted pesticide use (27 individuals). Of the 27 individuals that reside in homes that use pesticides, 9 are under the age of 18 (youth), 1 is between the ages of 18-25, 3 are between the ages of 26-35, 7 are in the age class 36-45, 1 is between 46-55, 1 is between 56-65, and 5 are over the age of 66 (elders) (Figure 1).

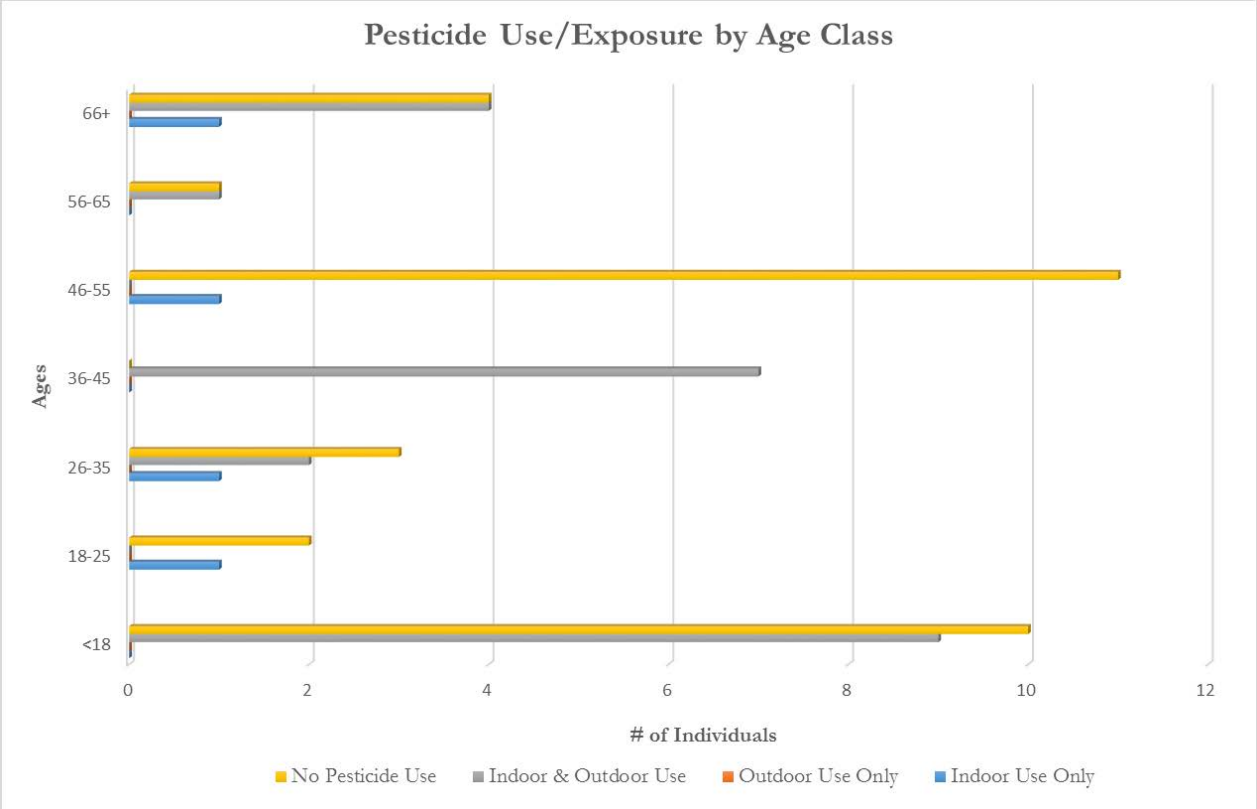

Figure 1. Use/exposure to pesticides by different age groups of TBR residents.

Community Health Concerns and Risks

The WNRD gathered information from the TBR community on how individuals viewed potential health concerns from direct/indirect exposure to pesticides, the types of application methods that are used, types of PPE used during application, and where pesticides are stored. Survey participants were asked to grade their level of concern (0 = None, 9 = High) that pesticides may cause adverse health effects from direct/indirect exposure. Results from the survey showed a wide range of "concern" as 8 households responded that they had no, low, or medium concerns (range of 0-5) while 7 households had medium to high health concerns (range of 6-9) (Figure 2).

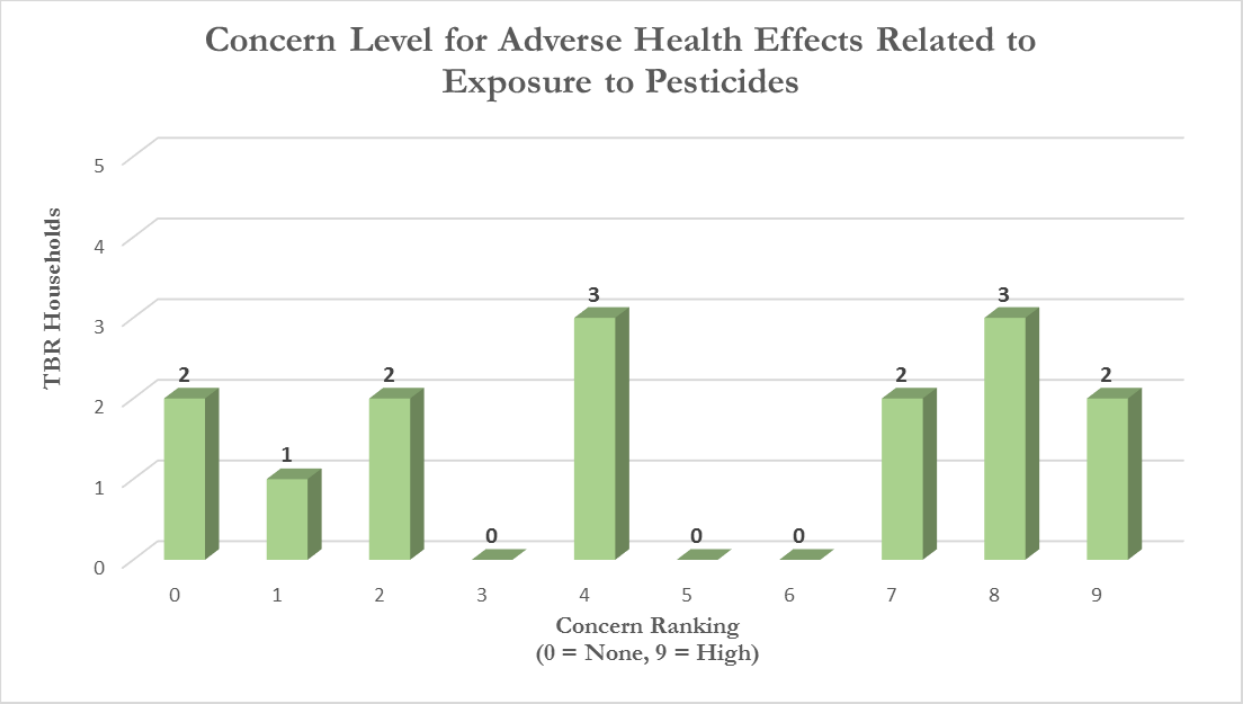

Figure 2. TBR residents' health concerns of exposure to pesticides

Survey participants were asked to provide information on the method(s) of pesticide application, PPE worn, and location(s) of where pesticides are stored. Application methods consisted of spray (e.g.. *RoundUp*, *Raid*), bait (e.g., ant/roach traps), or dust/granular (e.g., *Sluggo*). For indoor pesticide use, spray is the most commonly used method of application (9) while bait (6) and dust/granular (1) methods were the least used. Similarly, for outdoor use, TBR households chose spray as the most effective application method (6) while baits (1) and dust/granular (1) pesticides were rarely deployed.

The WNRD asked survey participants (those who identified themselves as pesticide users) to check off the type(s) of PPE used, if at all, while applying pesticides. The types of PPE included gloves, goggles/glasses, boots, dust mask, respirator, other, or none. For indoor pesticide use (11 households), there were a large number of respondents (6) that noted that they do not use any form of PPE while applying pesticides. The most used form of PPE while applying indoor pesticides were gloves (5) while a small number of pesticide applicators further protect themselves by using dust masks (2), goggle/glasses (1), and boots (1). For outdoor pesticide use (7 households), similar to indoor applicators, there were a high number of households (4) that noted they did not use any form of PPE. Gloves (3) and dust masks (3) were the most commonly used form of PPE while boots (1) and goggles/glasses (1) were also identified.

TBR residents were asked to identify the location(s) of where they store pesticides. The survey form provided some examples such as “under sink,” “in garage,” and “outside shed.” Of the 11 identified households that use pesticides, 7 responded “under sink,” 2 stated “in garage,” and 2 noted in a “locked outside shed” as the storage locations of their pesticides.

Community Understanding/Opinion of Pesticides

The WNRD gathered information from the TBR community on their general knowledge of pesticide related topics such as comprehending information listed on labels; direct and indirect health effects of exposure; impacts to environmental media and sensitive habitats; proper application, storage, and disposal; natural alternatives to commercially produced pesticides and/or IPM techniques (Figure 3). Survey participants were asked to grade their level of understanding of these categories through a quantitative/qualitative scale (0 = None, 1 = Very Low, 2 = Low, 3 = Medium, 4 = High, 5 = Very High). Additionally, survey participants were asked for their input on other areas of TBR where pesticides should not be applied and their knowledge on past and/or current uses of pesticides on or near TBR.

Results from the survey were variable but showed that respondents generally had a high understanding of pesticide related information regarding labels, use, storage, and disposal, and dangers to self and the environment. When asked about alternatives to commercially produced pesticides and/or IPM techniques, respondents had a low understanding of these concepts. Regarding warnings/labels on pesticides, the average score, using the aforementioned score, for respondents was 3.67 out of 5. For potential harms from pesticides, the average score was 3.27 for knowledge of direct exposure harms and 3.13 for indirect exposure harms. Knowledge on environmental harms was 3.13 for impacts to media (e.g., air, soil, water) and 3.40 for sensitive habitats such as wetlands. Regarding knowledge of use, storage, and disposal, the average score was 3.13 for application knowledge, 3.47 for proper storage, and 2.87 for proper disposal. Lastly, regarding alternatives to pesticides and/or IPM techniques, the average score was 2.60 for alternatives to commercial products and 2.80 for IPM techniques.

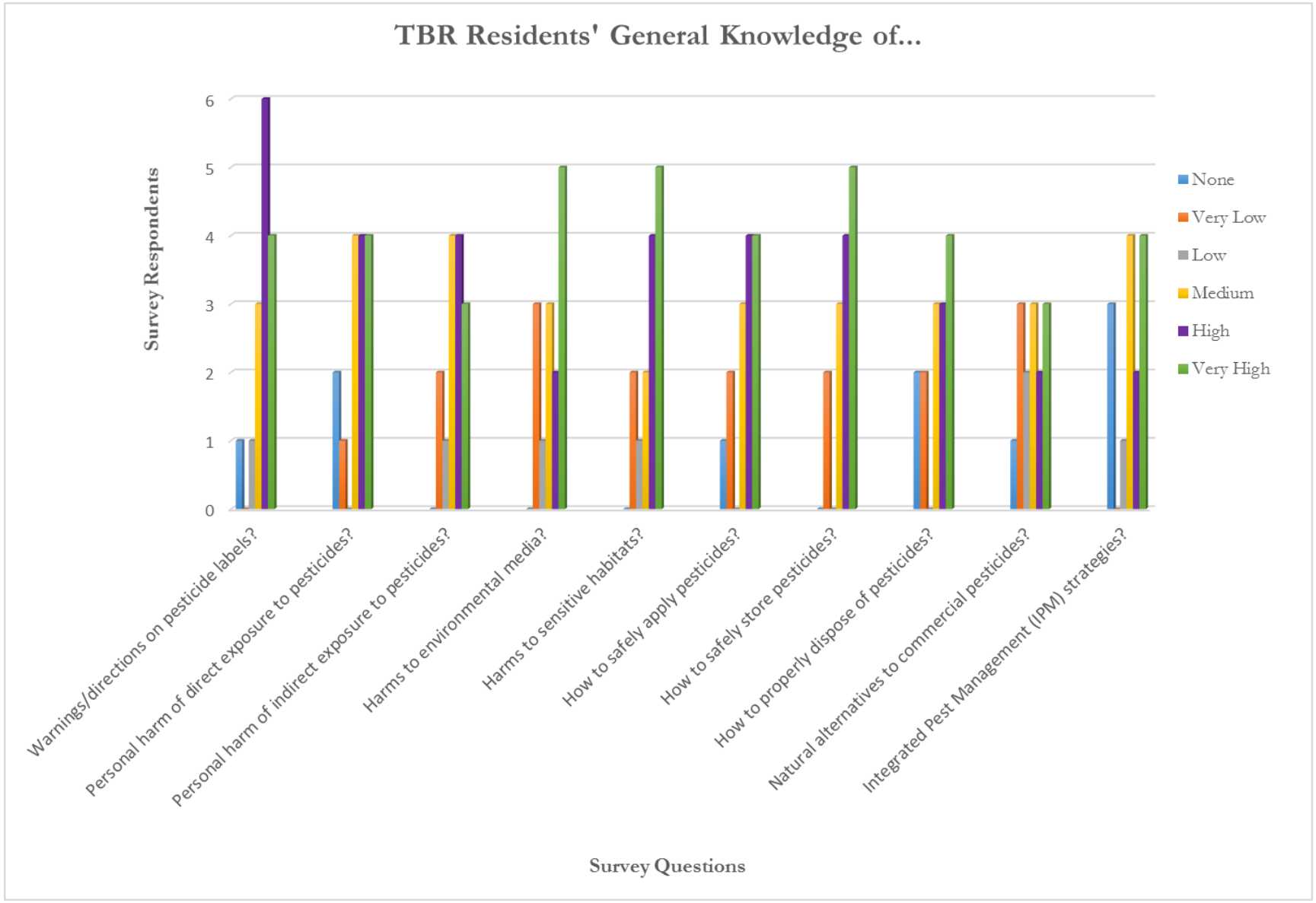

Figure 3. Survey results from TBR community's knowledge of pesticide related topics.

Similarly, the WNRD desired to collect the opinions of the Tribal community on their overall views of the use of pesticides on TBR, specifically at locations that have the potential to effect Tribal/TBR resources. Through the survey, Tribal members were asked if they believed the Tribe should allow pesticides on all areas of TBR; allow pesticides near the TBR playground; allow pesticides on TBR roads/sidewalks; allow pesticides near the TBR drinking water wells; allow pesticides near the TBR Community Garden; allow pesticides near TBR administration buildings; allow pesticides near TBR ceremonial grounds; allow pesticides near the TBR wetland; allow pesticides on personal lots; completely forbid pesticides on TBR (Figure 4). Survey participants were asked to provide their opinion for each category through a qualitative scale consisting of "Strongly Disagree," "Disagree," "Neutral," "Agree," "Strongly Agree." For the purposes of data analysis (though not listed on the survey), the following numeric values were added to each category:

-2	-1	0	1	2
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Results from the survey showed that respondents disapproved with the application of pesticides on all areas of TBR listed on the survey and scores were variable for site specific pesticide application. Similarly, survey respondents showed approval for the complete forbiddance of pesticides on TBR. Regarding pesticide application on all areas of TBR, the average score for respondents was -0.80 (using sliding scale values listed above). Survey respondents had high disapproval for pesticide application near the TBR playground (average score of -1.20) and Community Garden (-1.33). The highest negative scores (strongest disapproval for pesticide use amongst respondents) were -1.40 for pesticide application near the TBR drinking water wells and near ceremonial grounds. Alternatively, the highest scores for location specific pesticide use (more neutral opinion to pesticide use) were -0.13 for application on your own personal lot, -0.53 for pesticide use near the administration buildings, and -0.53 on TBR roads/sidewalks. When asked how they felt of complete forbiddance of pesticide use on all areas of TBR, the average score was 0.20 amongst survey respondents.

Community Protective Measures

In order to protect Tribal resources into the future, WNRD staff collected information from Tribal members including their opinion on the Tribe holding specific community cleanup events (e.g,. household hazardous waste [HHW] event), the WNRD creating resource protection plans (e.g., Wellhead Protection Plan, Source Water Assessment Plan [SWAP], Integrated Resources Management Plan [IRMP]), and if they would like additional resources on proper use, storage, and disposal of and/or alternatives to pesticides in order to safeguard the health of themselves and their families.

When asked if survey participants would be in favor of the Tribe holding HHW events in order to properly dispose of hazardous chemicals such as pesticides, survey results showed 11 households were in favor of a HHW event while 4 were not. Additionally, when asked if they believe the WNRD should create resource protection plans to safeguard resources such as drinking water, wetlands, etc., 13 households responded "Yes" while 2 responded "No." Lastly, when asked if they would like additional resources pertaining to pesticides, survey respondents were split with 8 households responding "Yes" and 7 responding "No." Tribal members were also asked if they were interested in receiving information for specific pest species. Six (6) households responded "Yes" and 9 responded "No" with respondents requesting more information pertaining to ants (6 households), bees (1), wasps (1), and fleas (1).

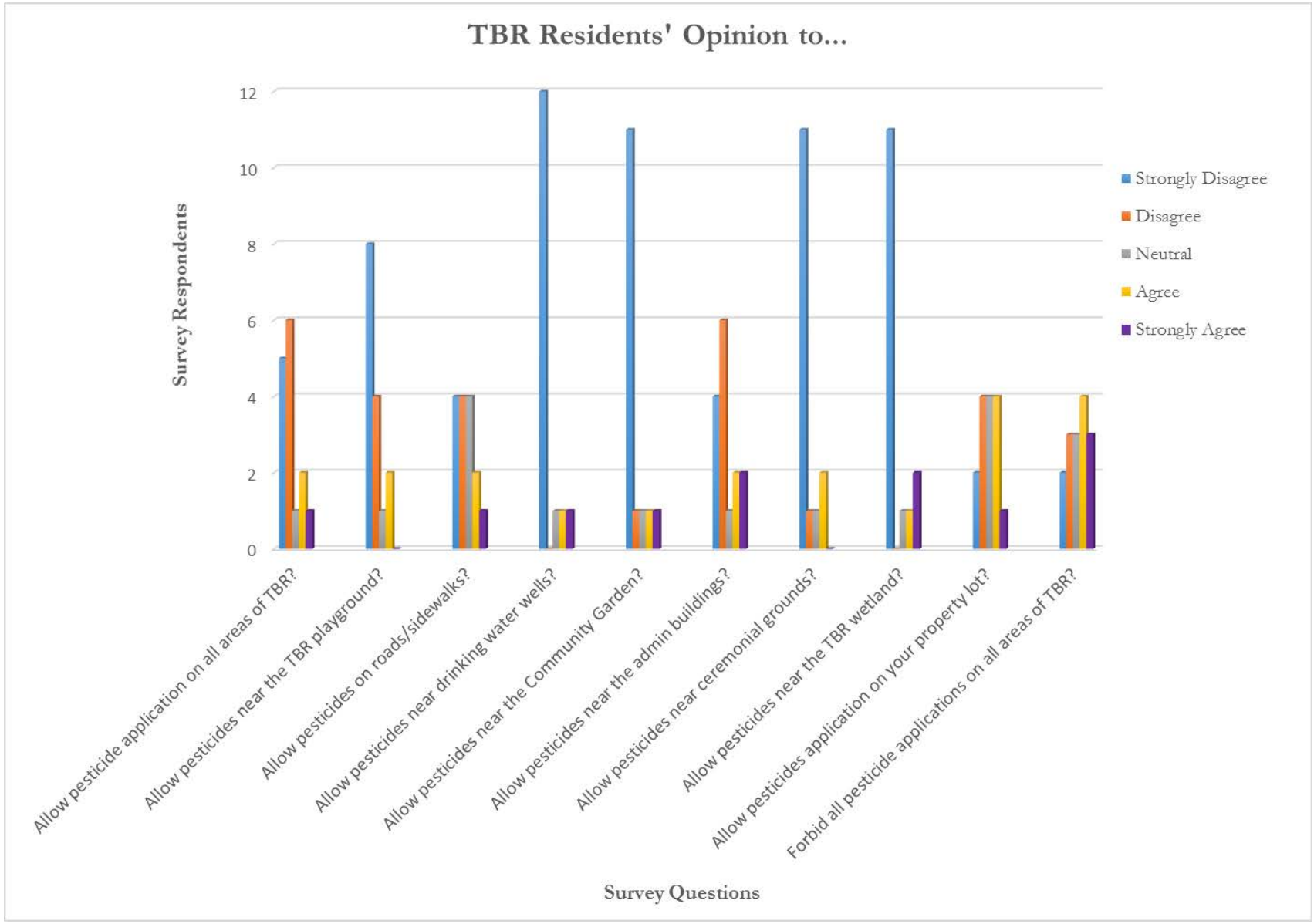

Figure 4. Survey results from TBR community's opinion of pesticide use on TBR.

VI. Solutions and Recommendations

Following the collection of data from staff interviews and community surveys, key community issues were identified by the WNRD that may require additional measures in order to prevent health disorders and impacts to Tribal resources. These included:

- Health Related Concerns
- Pesticide Application Methods & PPE
- Disposal of Pesticides
- Alternatives to Pesticides

Health Related Concerns

Due to the higher occurrence of survey participants (53%) responding that they had little to no concerns whether pesticides led to health effects, it would be beneficial to add more health focused outreach for the TBR community. Alternatively, TBR residents responded positively to site specific pesticide application that may impact Tribal resources and lead to direct/indirect exposure. When asked if pesticides should be applied near the playground, near the drinking water wells, near the Community Garden, and/or near ceremonial grounds, survey participants strongly disagreed showing that there is a concern for pesticide contamination that may cause health effects.

Pesticide Application Methods & PPE

Pesticide use by survey respondents shows that 55% use indoor pesticides while 35% use outdoor pesticides. In both application locations, sprays/aerosols were the preferred method used versus bait and dust/granular methods. When combined with the proper use of PPE, exposure to potential harmful chemicals can be significantly reduced or even eliminated. Unfortunately, for survey respondents that stated they used pesticides, 55% do not use any form of PPE for indoor application and 57% do not use any for outdoor applications. Similar to the Health Related Concerns section above, the WNRD identified this area where additional outreach should be offered to the community in order to safeguard Tribal members and their families.

Disposal of Pesticides

WNRD noted that in comparison to other pesticide related topics (e.g., use and storage), TBR residents' knowledge of pesticide disposal was limited. Additionally, when asked if they would be in favor of the Tribal staff holding a HHW event to assist with the disposal of pesticides, 73% of survey participants responded "Yes." The results from the survey suggest that the TBR community would like to properly dispose of pesticides but may be reluctant/unable to do so based on the lack of knowledge and resources. WNRD staff will continue to provide a yearly HHW event for the TBR community, if funding is available, and will provide additional resources on the proper storage and disposal of pesticides and contact information to nearby HHW facilities.

Alternatives to Pesticides

WNRD noted that the lowest scores for TBR community knowledge of pesticide related topics pertained to natural alternatives to pesticides (2.60) and IPM techniques (2.80). Similar to other areas above, WNRD should assist the TBR community by providing additional education for alternatives to commercially produced pesticides and effective IPM techniques. As part of the survey, participants were asked whether they wanted additional information related to IPM or pesticide alternatives to which 53% responded "Yes." Similarly, survey participants were asked if there were specific pests that they would like information related to IPM strategies and natural alternatives to pesticides. Some targeted species

included ants, bees, wasps, and fleas showing that TBR residents would like to avoid using harsh chemicals and would rather combat pests through natural means. As a part of the survey, WNRD staff collected contact information for survey participants desiring additional resources for IPM or natural alternatives to pesticides and will be in contact with them for future correspondence.

The WNRD does not believe that the TBR Community and Administration requires a more in-depth Pesticide Program. Regarding pesticide use by the TBR Community, the quantities and types of pesticides applied/deployed are minimal and potential health effects can be avoided through additional protective measures. For Tribal administration, pesticide use has ceased, existing pesticides are being stored appropriately, and past disposal of pesticides have been done so appropriately. Additionally, Tribal administration has created policies and ordinances that forbid impacts to Tribal resources and sensitive habitats and require pesticide applicators to seek out alternatives to commercially produced pesticides prior to use. Lastly, 87% of survey respondents believe that the WNRD should develop plans to protect resources present on TBR. As a result of this survey, the WNRD concluded that the Tribal community and staff would benefit the most with a robust educational component focused on the potential harms of pesticides, types of PPE, and the proper use, storage, and disposal of pesticides. Also, the WNRD will include the development of resource protection plans (e.g., Wellhead Protection Plan) and/or updating ordinances to forbid pesticides on TBR to future GAP workplans to bolster the Tribe's existing regulatory infrastructure.

Appendix A. TBR Community Pesticide Needs Assessment Survey

Table Bluff Reservation (TBR) Pesticide Needs Assessment Survey

Hello TBR Community Member,

The Wiyot Tribe's Natural Resources Department is currently conducting a short survey to determine the use of pesticides on Table Bluff Reservation and we would greatly appreciate your participation in our study. We will use the information gathered from your answers to make informed management decisions aimed at reducing the risk to human and environmental health and potential impacts to Tribal resources. Participant information will remain confidential and results gathered will be analyzed for the entire community as to not single out any specific household and exclude survey participation. We rely heavily on your input to inform our decisions and we thank you for taking the time to answer the questions below.

Please enter the # of individuals in each age category living at your residence:

Age: <18 _____ 18-25 _____ 26-35 _____ 36-45 _____ 46-55 _____ 56-65 _____ 66+ _____

1) Do you use pesticides within your household or yard, to prevent or eliminate unwanted plants, insects, and/or mammals? *Examples: ant, flea, cockroach, and/or bee spray/bait, plant/weed killer (e.g., RoundUp), rodenticides, fungi/mold killer, snail/slug killer (e.g., Sluggo)*

☐ Yes ☐ No

2) How concerned are you that pesticide use on TBR may cause adverse health effects from *direct* or *indirect* exposures? Please check ONE box

None	Low			Medium			High		
0	1	2	3	4	5	6	7	8	9

3) Do you use pesticides indoors? If No, SKIP to Question #8

☐ Yes ☐ No

4) What method(s) of pesticide application do you use indoors? Please check all that apply

☐ Bait ☐ Spray ☐ Dust/Granular

5) What types of personal protection equipment do you use? Please check all that apply

☐ None
☐ Gloves ☐ Boots ☐ Respirator
☐ Goggles/Safety glasses ☐ Dust mask ☐ Other: _____

6) About how often do you use pesticides indoors?

☐ Daily ☐ Biweekly (every 2 weeks) ☐ Bi-annually (every 6 months)
☐ Weekly ☐ Monthly ☐ Yearly

7) What species are you targeting indoors? Please check all that apply

☐ Plants ☐ Insects ☐ Mammals ☐ Snail/Slug ☐ Fungi/Mold

8) Do you use pesticides outdoors? If No, SKIP to Question #14

☐ Yes ☐ No

9) What method(s) of pesticide application do you use outdoors? Please check all that apply

☐ Bait ☐ Spray ☐ Dust/Granular

10) What types of personal protection equipment do you use? Please check all that apply

☐ None
☐ Gloves ☐ Boots ☐ Respirator
☐ Goggles/Safety glasses ☐ Dust mask ☐ Other: _____

11) About how often do you use pesticides outdoors?

☐ Daily ☐ Biweekly (every 2 weeks) ☐ Bi-annually (every 6 months)
☐ Weekly ☐ Monthly ☐ Yearly

12) What species are you targeting <u>outdoors</u>? Please check all that apply

☐ Plants ☐ Insects ☐ Mammals ☐ Snail/Slug ☐ Fungi/Mold

13) What time of year do you apply pesticides <u>outdoors</u>? Please check all that apply

☐ Spring ☐ Summer ☐ Fall ☐ Winter

14) Where do you generally store your pesticides? *Examples: under sink, in garage, outside shed, etc.*

_____

☐ Not Applicable (Do not use pesticides)

Please mark an "X" in the appropriate boxes for Questions 15 & 16

15) How would you grade your understanding of...	**0 None**	**1 Very Low**	**2 Low**	**3 Medium**	**4 High**	**5 Very High**
Warnings and directions listed on pesticide labels?						
The potential harms of ***direct*** exposure to a pesticide (*e.g.*, touching, ingesting, inhaling)?						
The potential harms of ***indirect*** exposure to a pesticide (*e.g.*, produce sprayed w/ pesticides, pesticide residue on clothes or in house)?						
The potential harms of a pesticide to environmental media (*e.g.*, air, water, soil)?						
The potential harms of pesticides to sensitive habitats and species (*e.g.,* wetlands)?						
How to safely apply pesticides?						
How to safely store pesticides?						
How to properly dispose of a pesticide?						
Natural ("green") alternatives to commercially produced pesticides?						
Integrated Pest Management (IPM) startegies?						

16) In your opinion, should the Tribe...	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Allow pesticide application on all areas of TBR?					
Allow pesticide application near the TBR playground?					
Allow pesticide application on roads/sidewalks?					
Allow pesticide application near the drinking water wells?					
Allow pesticide application near the Community Garden?					
Allow pesticide application near administration buildings?					
Allow pesticide application near ceremonial grounds (e.g., Wiyot Days site)?					
Allow pesticide application near the TBR wetland?					
Allow pesticide application on your property lot?					
Forbid all pesticide application on all areas of TBR?					

17) Are there any other areas on TBR, not listed above, where pesticides SHOULD NOT be applied?

☐ Yes ☐ No

If yes, please provide the location: _____

18) Do you have any knowledge of past and/or current application of pesticides near TBR?

☐ Yes ☐ No

If yes, please provide any information of location(s) and pesticide(s) applied (if known):

_____

19) Would you like general information pertaining to the proper use, storage, and disposal of commercial pesticides and/or safe ("green") alternatives to pesticides/IPM techniques?

☐ Yes ☐ No

If yes, please provide your email address: _____

20) Is there a pest in particular that you would like more information related to IPM techniques or safe ("green") alternatives to commercial pesticides?

☐ Yes ☐ No

If yes, please provide answer(s): _____

Email address: _____

21) Would you be in favor of yearly household hazardous waste (HHW) events for the TBR community in order to properly dispose of unwanted/unused pesticides?

☐ Yes ☐ No

22) Do you believe the Tribe should develop plans (*e.g.*, Source Water Assessment Plan and/or Wellhead Protection Plan) to protect TBR drinking water from potential pesticide pollution?

☐ Yes ☐ No

Thank you very much for taking the time to answer this survey! Your answers are very valuable to the WNRD and will help guide the development of any necessary programs that may be required as a result of data gathered in this survey.

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Natural Resources Department staff

Appendix C
Public Comment Document

PUBLIC NOTICE

Update of Tribal NPS Assessment and Management Plan Documents

The Wiyot Tribe's Natural Resources Department is currently updating the nonpoint source pollution assessment and management plan for the Table Bluff Reservation. The assessment summarizes nonpoint pollution sources and threats on the reservation and the management plan describes the Tribe's approach over the next five (5) years to preventing pollution from sources identified in the assessment.

The documents are updated every five years. Draft versions of the current update are open to public comment from 9/11/20 to 10/12/20. The final versions of the will be available for public review in November 2020. If you would like to review the documents, please visit the Tribe's website at www.wiyot.us and follow the links to "NPS Assessment" and "NPS Management Plan." Please provide comments to Eddie Koch via email (eddie@wiyot.us) or in writing to:

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