

3. ICWMP OBJECTIVES

The purpose of Chapter 3 is to present the findings (conclusions) that have been made with regard to water quality and watershed management, and to present the specific Plan objectives that were developed as a result of those findings.

3-1 Process for Determining Objectives

Development of the Trinidad-Westhaven ICWMP objectives resulted from a collaborative process involving review of available water quality data and existing and planned regulatory requirements. The driving factors were enhancement of the Trinidad Head ASBS, protection of drinking water supplies and promotion of a watershed-based approach to land use planning. Three specific Action Plans were prepared for wastewater, stormwater and sediment management. The ICWMP was created by integrating these three Action Plans at a general level. Each Action Plan is a separate document included as appendices herein that may be referred to for more detailed information.

Addressing disadvantaged community (DAC) and environmental justice (EJ) issues is a very high priority in the ICWM Plan. Most parts of the ICWM planning area are disadvantaged communities and the Trinidad Rancheria is additionally considered an Environmental Justice Community according to EPA criteria. No specific goal or objective has been included to address DAC and EJ issues because all of the implementation activities will benefit disadvantaged and environmental justice communities. The collaborative nature of the ICWMP process places a high value on involvement of all stakeholders in planning, implementation and enjoyment of the benefits resulting from implementation of the plan.

Section 3-2 provides a summary of the key findings and management issues that helped define the ICWMP objectives. Section 3-3 presents the ICWMP objectives grouped according to key management issues.

3-2 Key Management Issues

Water Quality

Impaired Water Quality: Two locations—Trinidad State Beach (mouth of Mill Creek) and Luffenholtz Beach (mouth of Luffenholtz Creek)—in the planning area have recently been listed as impaired water bodies under Section 303(d) of the federal Clean Water Act. Both have been listed due to a high presence of “indicator bacteria” that pose a threat to human health. Both beaches have been closed to public access on several occasions in the last few years. The most likely sources of bacterial contamination in the watershed are septic system (OWTS) effluent and animal wastes. Water quality improvement at these beaches is a primary goal of the ICWMP.

Impacts to Beneficial Uses: Beneficial uses are impacted or potentially impacted by water quality impairments as specified in the Water Quality Control Plan (Basin Plan) for the North Coast Region related to municipal and domestic water supply, fishing, recreation, and wildlife habitat and migration. (See full list in Chapter 2 of this Plan.)

Pathogens: Bacterial contamination poses a threat to the health of residents who obtain drinking water from local streams and springs, and to recreational users of local beaches and bays. Sources of pathogens include non-functioning OWTS and animal wastes, which are often delivered to streams by stormwater runoff. Stormwater and wastewater monitoring results indicated that concentrations of total coliform commonly exceeded water quality objectives in most of the samples collected. In fact, many samples exceeded the upper quantitation limit of the analytical test methods for total coliform. The distribution of bacteria concentrations suggests a tendency for higher concentrations of total coliform in more developed areas.

Heavy Metals: Elevated amounts of copper have been found in the Trinidad ASBS. Copper from automotive brake pads, gutters, water pipes and / or boat paint is likely to be a major contributor of this contaminant in stormwater runoff from roads and parking lots. Monitoring of the ASBS is continuing and, when completed, will lead to a better understanding of water quality in the bay and possible sources of contamination.

Sedimentation: Excessive quantities of suspended sediment have been found to be detrimental to salmonid habitat, stream ecosystems, and the health of kelp beds in the Trinidad Head ASBS. Excessive sediment loads in Luffenholtz Creek have resulted in interruption of drinking water services and increased costs for the City of Trinidad water plant. Furthermore, high levels of turbidity provide nuclei which can host bacteria. The primary source of sediment in the planning area appears to be erosion from gravel and dirt road surfaces, particularly in densely developed residential areas. The watersheds that produce the most sediment are Luffenholtz Creek, Joland Creek, Two Creek, and Parker Creek. In the residential areas east of Westhaven Drive and in the timber production area in the upper watershed, fine sediment is produced by gravel and dirt roads. The sediment produced by these roads comes in the form of dust created by traffic during the dry season, which settles on the road and road-side vegetation, and causes a spike in stream turbidity – the “first flush” – during the first significant rain events (one-half inch or greater) of the Fall. Prolonged dry periods in the winter, which typically occur in January or February, can allow roads to dry out so that they produce a “second flush” event when the rains return. Turbidity typically returns to a lower base line level once the fines from the road surfaces have washed away.

Nutrients: Sources of nutrients include non-functioning OWTS, animal wastes and runoff from chemical fertilizers. Stormwater monitoring results indicated that concentrations of total phosphate were mostly below method detection limit of 0.5 mg/L, although a few samples contained concentrations up to 6.72 mg/L. Similarly, concentrations of ortho-phosphate were mostly below method reporting limits although a few scattered low concentration detections were noted up to 1.00 mg/L. No water quality objectives are available for phosphate, though the purpose for testing samples for phosphate was to provide another indicator of septic wastewater. The distribution of phosphate does not suggest an obvious trend with respect to land use. Except for a few (apparently outlying) results from testing for pH, specific conductance, turbidity, and nitrate, sample results were below applicable water quality objectives. The only observed trends in the distribution of these constituents are a tendency for lower pH and a tendency for slightly lower specific conductance for samples collected from more developed areas. There does not seem to be a correlation between nutrient and bacteria results that would definitively indicate

OWTS pollution. However, wildlife and pets would not be expected to produce such high bacteria counts. Horse stables located near creeks are a potential source, but there are no known large concentrations of other animals that could produce such results. Additional source tracking is needed and will be undertaken as part of a Clean Beaches grant awarded to the City of Trinidad.

On-Site Wastewater Treatment Systems: Management of OWTS has been an objective of the City of Trinidad for at least the past ten years. The City is now in the early stages of implementing a management and operating permit process for the approximately 200 septic systems within City limits. Many of these systems are more than 30 years old and were installed prior to permit requirements. As a result, more than 50 percent of OWTS within the City are unpermitted, and include some pit systems; an even higher percentage of these at-risk systems occurs in Westhaven. Further, it is unknown whether the OWTS are being maintained or are functioning properly. A similar lack of information exists for the unincorporated areas of the watershed. An inventory of existing OWTS in Westhaven, Moonstone Heights and other areas revealed that less than one-third of systems have permits on file, and roughly half of them were installed prior to 1980 (see Figure 12). Aging OWTS can pose a substantial risk to local surface water and groundwater quality. Furthermore, a new State law that will be effective May 1, 2008, sets forth stringent operating and maintenance requirements for new and replaced OWTS. Development of a comprehensive OWTS management program is a major goal of the ICWMP. The high bacteria counts found as part of the water quality sampling along with the high percentage of old OWTS is a good indication that OWTS are partially responsible for the bacteria pollution.

ASBS: There are limited data regarding ASBS discharges, marine water quality, and discharge compliance history. Currently, there is insufficient data regarding potential water quality effects of discharges into the Trinidad Head ASBS. Additional data are needed to identify appropriate measures to comply with the California Ocean Plan water quality objectives and zero-discharge mandate. Except for stormwater outfall located at Trinidad Harbor, ASBS discharges are primarily related to nonpoint sources in stormwater runoff and erosion. The City of Trinidad has applied to the State Water Resources Control Board for an exception to the zero-discharge requirement for the ASBS.

Water Supply

Water Supply Availability/Reliability: Maintaining a reliable water supply will be necessary as the regional population grows and more development proposals are received. In 2003 the City of Trinidad was recorded as having approximately 30 vacant, developable lots and is predicted to provide an average of two to three new hook-ups per year. A number of vacant lots also exist in Westhaven and outlying areas. As they become developed some will require water connections through the local services districts, while others will tap into groundwater or draw from local springs. Implementation of water conservation measures, as described in Chapter 5, will contribute toward the long-term sustainability of water supplies for Trinidad and Westhaven residents. Repairs of OWTS will ensure that water supplies are protected from contamination.

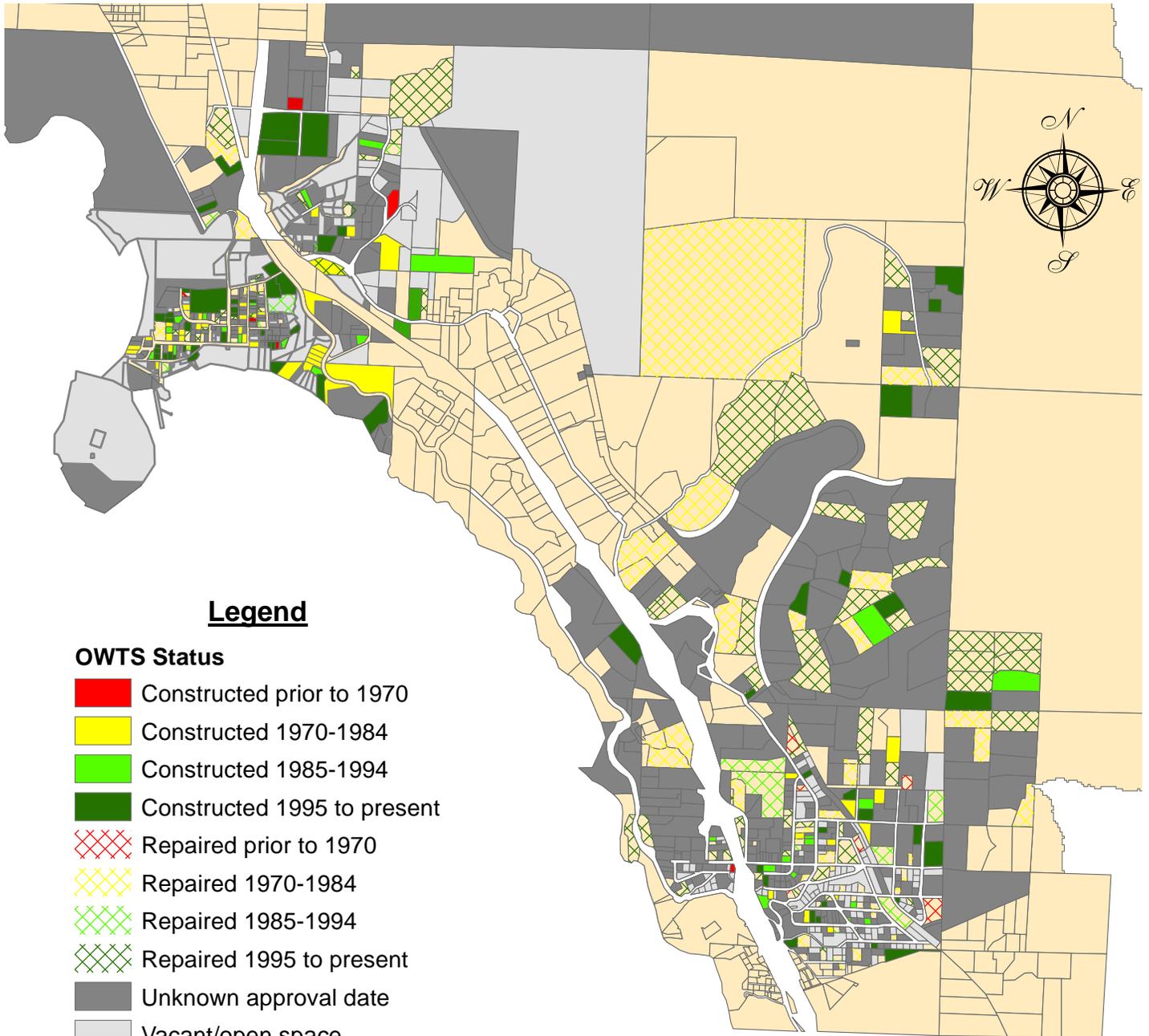
Water Quality/Safe Drinking Water: Safe drinking water is a concern for all water districts in the planning area, as well as for residents who obtain water from individual wells or springs. Water diverted from Luffenholtz Creek by the City of Trinidad must be treated for high tannin levels and sediment during the rainy season.

Stormwater Management

Municipal Stormwater Management: The City of Trinidad's street storm drain system is currently incomplete, with some streets lacking proper drainage structures. There are a number of areas within the City where stormwater flows directly over the bluff, increasing the potential for bluff erosion. In addition, stormwater runoff entering Trinidad Bay affects water quality and has a potentially adverse impact on the kelp beds. Stormwater infrastructure outside of Trinidad generally consists of roadside ditches and culverts. There is no centralized sewage treatment plan in the project area. See Figure 13 for stormwater drainage features and other infrastructure.

Trinidad-Westhaven Coastal Watershed Project

Fig. 12: OWTS Age of System



Legend

OWTS Status

- Constructed prior to 1970
- Constructed 1970-1984
- Constructed 1985-1994
- Constructed 1995 to present
- Repaired prior to 1970
- Repaired 1970-1984
- Repaired 1985-1994
- Repaired 1995 to present
- Unknown approval date
- Vacant/open space
- No information available

0 2,500

1 inch equals 2,500 feet

February 2008



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Trinidad-Westhaven Coastal Watershed Project

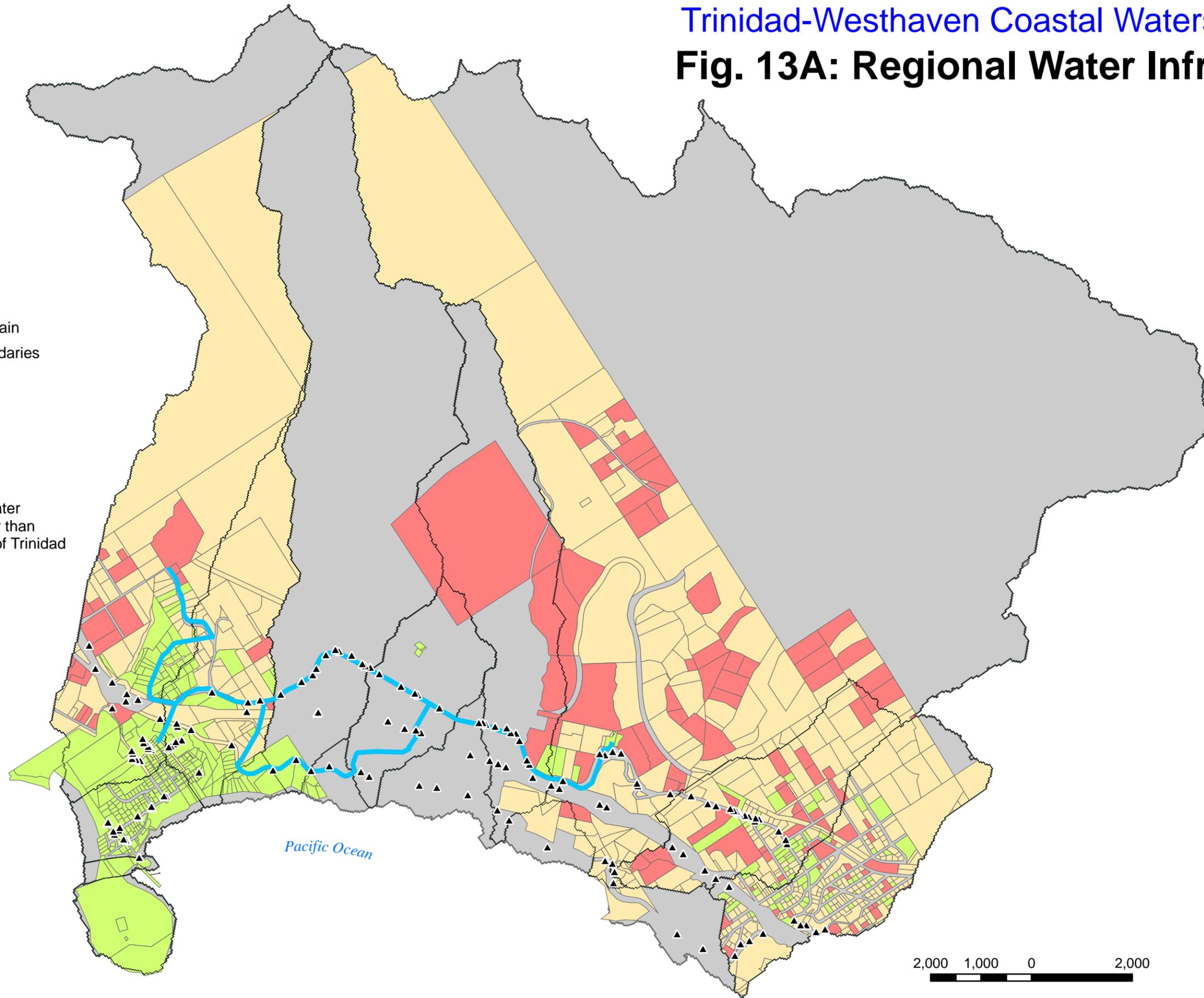
Fig. 13A: Regional Water Infrastructure



Legend

- ◀ Culvert
 - Trinidad water main
 - ▭ Watershed Boundaries
- WATER SUPPLY**
- ▭ Public
 - ▭ Private
 - ▭ Unknown

Note: There is no stormwater conveyance system, other than culverts, outside the City of Trinidad



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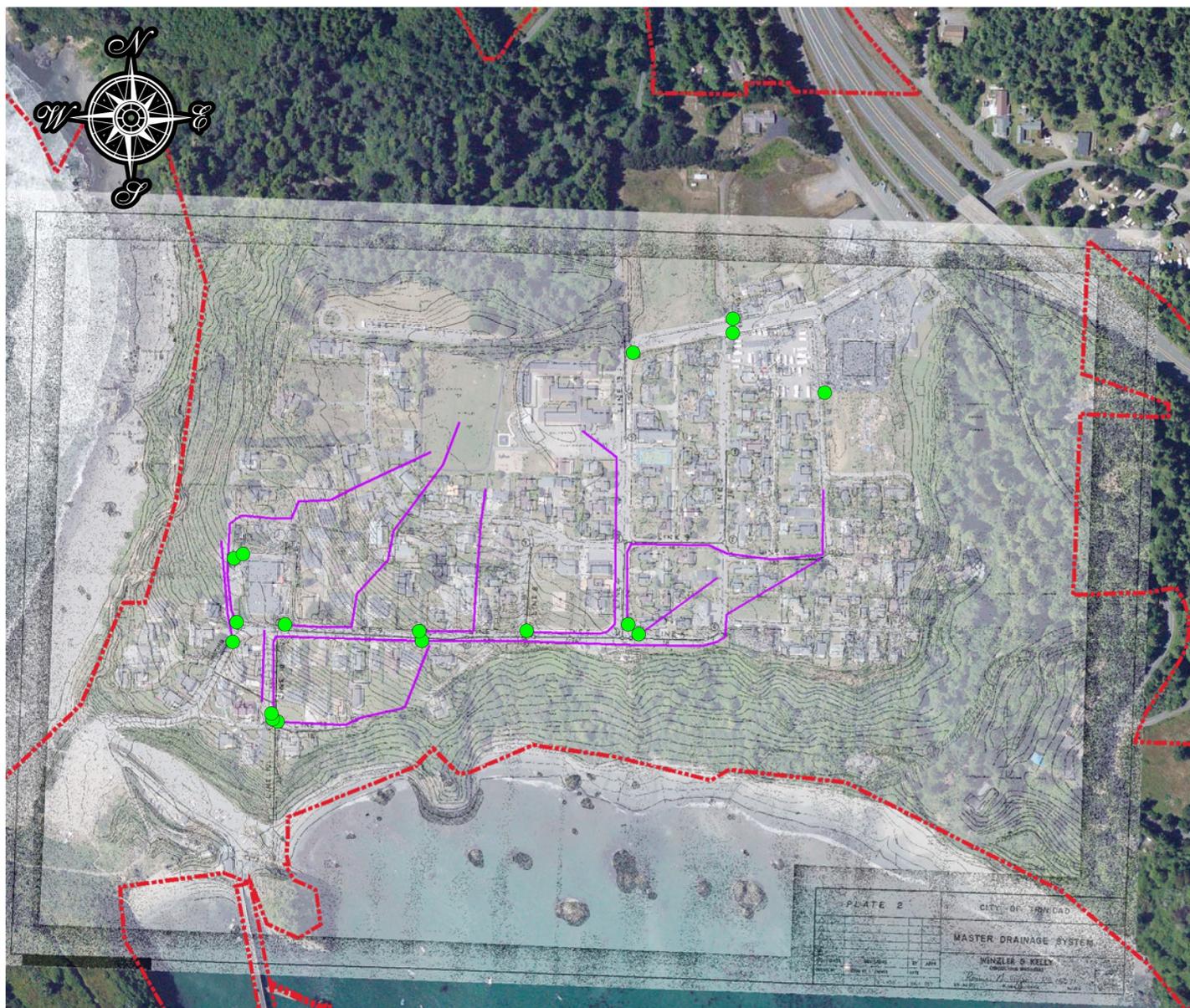


1 inch equals 2,000 feet

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Trinidad-Westhaven Coastal Watershed Project

Fig. 13B: Trinidad Stormwater System



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Base map source:
Winzler & Kelly Consulting Engineers
(1971)

Legend

- City storm drain
- ▭ Trinidad City limits
- Flow path



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0 500



1 inch equals 500 feet

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Watershed Management

Water Quality Monitoring: In the Trinidad-Westhaven watershed, water quality and healthy aquatic habitats are influenced by tidal circulation, activities that occur nearby on land, and pollutants delivered via surface runoff and subsurface seepage. A comprehensive long-term monitoring program is needed to document baseline conditions and identify trends for pollutants of concern. Monitoring will provide the information needed to evaluate water quality in the bay and its tributaries, as well as the effectiveness of measures implemented to reduce nonpoint source pollution and improve water quality. Development of a comprehensive water quality monitoring plan is a major goal of the ICWMP.

Land Use Practices: Land use practices such as road-building, residential development and forestry activities have been evaluated for their impacts on the watershed. Private land use and development are regulated by municipal government within the City of Trinidad and by the County of Humboldt in most parts of the planning area. Both the City and County are in the process of updating their General Plans. The ICWMP supports implementing new General Plan policies regarding watershed-based planning, regulation of OWTS, prevention of sedimentation and other types of nonpoint source pollution, stormwater management and natural resource protection. Additional regulations may be needed in order to achieve water quality objectives and/or comply with State-level requirements. Emphasis will be placed on public outreach and voluntary landowner activities such as the use of best management practices.

Regulatory Requirements: Implementation of this Plan will assist local governments in meeting the requirements set forth by the California Ocean Plan, State Assembly Bill 885 (Statewide OWTS standards), and the Regional Water Quality Control Board's Basin Plan. All projects implemented will be subject to applicable environmental review and permitting requirements, thus achieving sound project design and implementation while minimizing and/or avoiding adverse environmental impacts. See Chapter 14.

Partnerships: This Plan is a result of partnerships formed by public and private stakeholders in the region. Continuing and expanding partnerships will be necessary in order to effectively address issues in the Trinidad-Westhaven watershed. See Chapter 13.

Additional Data Needs: Additional water quality monitoring will be required to gauge the effectiveness of project implementation. This and other data gaps identified during the ICWMP process are discussed in detail in Chapter 9.

Groundwater Management

Groundwater Quality: Leaking OWTS and underground storage tanks result in groundwater contamination as well as surface water pollution. This creates a problem as many residents pump drinking water from individual wells. Approximately 30% of the Westhaven Community Services District annual demand is served by a groundwater well on 4th Ave. within the Two Creek watershed. General groundwater conditions in the planning area have not been well documented and individual wells are not required to be tested (see Section 2-8).

Ecosystems and Habitat

Trinidad Kelp Beds: Trinidad Bay supports many beneficial uses including the Trinidad Head ASBS (see Chapter 2 for details). The bay and its associated habitats comprise an important natural resource shared by the Trinidad-Westhaven community. Improving the quality of water influencing the ASBS is the main driving force behind the ICWMP process.

Habitat and Special Status Species Protection: The Trinidad-Westhaven watersheds and their coastal waters support a number of special-status species including birds, sea mammals, salmonids and plants. Water quality improvement is expected to directly or indirectly benefit many of these species.

Freshwater Flows: Freshwater flows are important to Trinidad Bay for diluting pollutants, moderating salinity levels, and maintaining the bay's natural circulation patterns. Parker Creek and runoff from the City of Trinidad drain directly into the bay. Mill Creek drains into the ASBS north of Trinidad Head. There is currently a lack of information about the quantity of freshwater flows to the bay and the impact of water diversions on bay ecological processes. Some discharge measurements were made during the wastewater sampling events. The CA Ocean Plan Standards will require some of the flows, including stormwater, to be quantified as part of the pending exception request.

Salmon and Steelhead Recovery: Salmonid species such as Northern California steelhead, coastal Chinook salmon, and coho salmon are found along the Humboldt County coastline. There is currently very little salmonid habitat available in the planning area due to both natural and manmade barriers. Two Creek, McConnahas Mill Creek, and Deadman's Creek have either waterfalls or gradients too steep for fish to negotiate near their mouths. Luffenholtz Creek and Mill Creek have potential steelhead habitat and may have supported runs in the past before road-building created barriers to upstream migration. Dana McCann of HSU (pers. comm. 6/24/04) found 1+ (one year old or greater) steelhead in Luffenholtz Creek below Scenic Drive. Above Scenic Drive, Luffenholtz Creek supports resident rainbow and cutthroat trout. Mill Creek, below Stagecoach Road, likely has steelhead also. No known fish sampling has been conducted to verify whether the fish in Mill Creek are steelhead or resident rainbow and cutthroat trout, although fish were observed in every creek during water quality sampling efforts. Upper parts of the Trinidad-Westhaven coastal watershed are being managed for the possibility of species recovery.

Northern California steelhead, coastal Chinook salmon, and coho salmon are found along the Trinidad-Westhaven coastline (see Section 2-8). Currently there are manmade barriers, and on some streams natural barriers, to upstream migration throughout the planning area. However, Green Diamond Resource Company (the largest landowner in the watershed) has filed Habitat Conservation Plans for these species, indicating that upper parts of the watershed are being managed for the possibility of species recovery. Salmon, steelhead and coho recovery is a long-term goal for ecosystem management throughout the Trinidad area as well as the greater North Coast region.

Recreation and Public Access

Improving the quality of life for residents and providing enjoyable experiences for visitors depends on safe public access to beaches, the harbor area and coastal areas. Poor water quality, and aging or poorly maintained facilities and trails pose health & safety risks to residents and visitors, as well as impacting cultural, environmental and community values and the local economy, which depends on tourism, and other activities such as fishing. Enjoyment of coastal resources through recreational and other activities promotes greater appreciation and stewardship of the coastal areas and resources.

3-3 Plan Objectives

Specific goals and objectives were developed to fulfill the purpose and objectives outlined in Chapter 1. These are listed below and grouped according to the key management issues that they address.

Water Quality

Goal: *Improve water quality in the Trinidad Head ASBS and its tributaries; reduce nonpoint sources of pollution; comply with State and federal water quality standards and discharge requirements; ensure safe drinking water; sustain beneficial uses in local waterways*

1. Develop a coordinated and comprehensive water quality monitoring plan for Trinidad Bay and its tributary streams in order to document baseline conditions, identify trends for pollutants of concern, track sources of pollution, and better assess the overall success of projects to reduce nonpoint sources of pollution. Continue data collection to support the ASBS exception requests of the City of Trinidad and the Trinidad Rancheria.
2. Reduce the quantity of bacteria and nutrients introduced to local surface and ground waters from on-site wastewater treatment system effluent. Ensure compliance with State Assembly Bill 885.
3. Reduce the quantity of road-related sediment entering Trinidad Bay and its tributary streams.
4. Increase awareness of water quality-related issues and support of water quality improvement measures among all segments of the public.

Water Supply

Goal: *Ensure safe and reliable drinking water supplies for all communities within the Trinidad Bay watersheds.*

5. Promote household and commercial water conservation in the Trinidad Bay watersheds.

Stormwater Management

Goal: *Reduce the quantity of contaminated stormwater runoff entering the Trinidad Head ASBS; reduce erosion hazards within the planning area; meet objectives of the Clean Beaches Initiative and California Ocean Plan*

6. Improve stormwater drainage and treatment facilities in the City of Trinidad and Luffenholtz Creek watersheds.
7. Improve stormwater management and erosion control practices on private lands in the City of Trinidad and throughout the project area.
8. Reduce bluff erosion hazards and improve water quality at the Tsurai village site.

Watershed Management

Goal: *Promote a comprehensive, watershed-based approach to local land use planning; promote collaboration among Trinidad Bay watershed stakeholders*

9. Support the establishment of the Trinidad Bay Watershed Council, a collaborative watershed group to advise local governments and agencies, provide a forum for discussion of watershed issues, and to participate in activities to improve and maintain the watersheds, coastal waters, and communities in the Trinidad and Westhaven area.
10. Support integration of water quality protection measures into the City of Trinidad and Humboldt County General Plan updates and Zoning Ordinances.

Groundwater Management

Goal: *Understand existing groundwater conditions and flow patterns in the planning area; protect groundwater quality and supplies*

11. Determine groundwater supplies and conditions, including effects of impervious surfaces and increased groundwater pumping on creeks, and assess and reduce groundwater contamination resulting from on-site wastewater treatment systems.

Ecosystems and Habitat

Goal: *Restore and preserve the integrity of natural habitats and native communities within the planning area*

12. Support ecosystem restoration and habitat improvement projects in the watershed.
13. Assess the need for reducing the ecological impacts of recreational and water-related activities on Trinidad Bay and minimize impacts whenever possible.

Recreation and public access

Goal: *Improve and maintain safe public access to coastal and marine resources and reduce impairments to beneficial uses in the Trinidad Bay planning area.*

14. Improve safe public access to Trinidad Harbor and reduce pollutant discharges from the Trinidad Pier through pier reconstruction and debris removal.
15. Improve safe public access and reduce wastewater pollution in the Trinidad Harbor area through construction of a wastewater improvement project including a public restroom, installation of a fish cleaning station and septic system replacement.