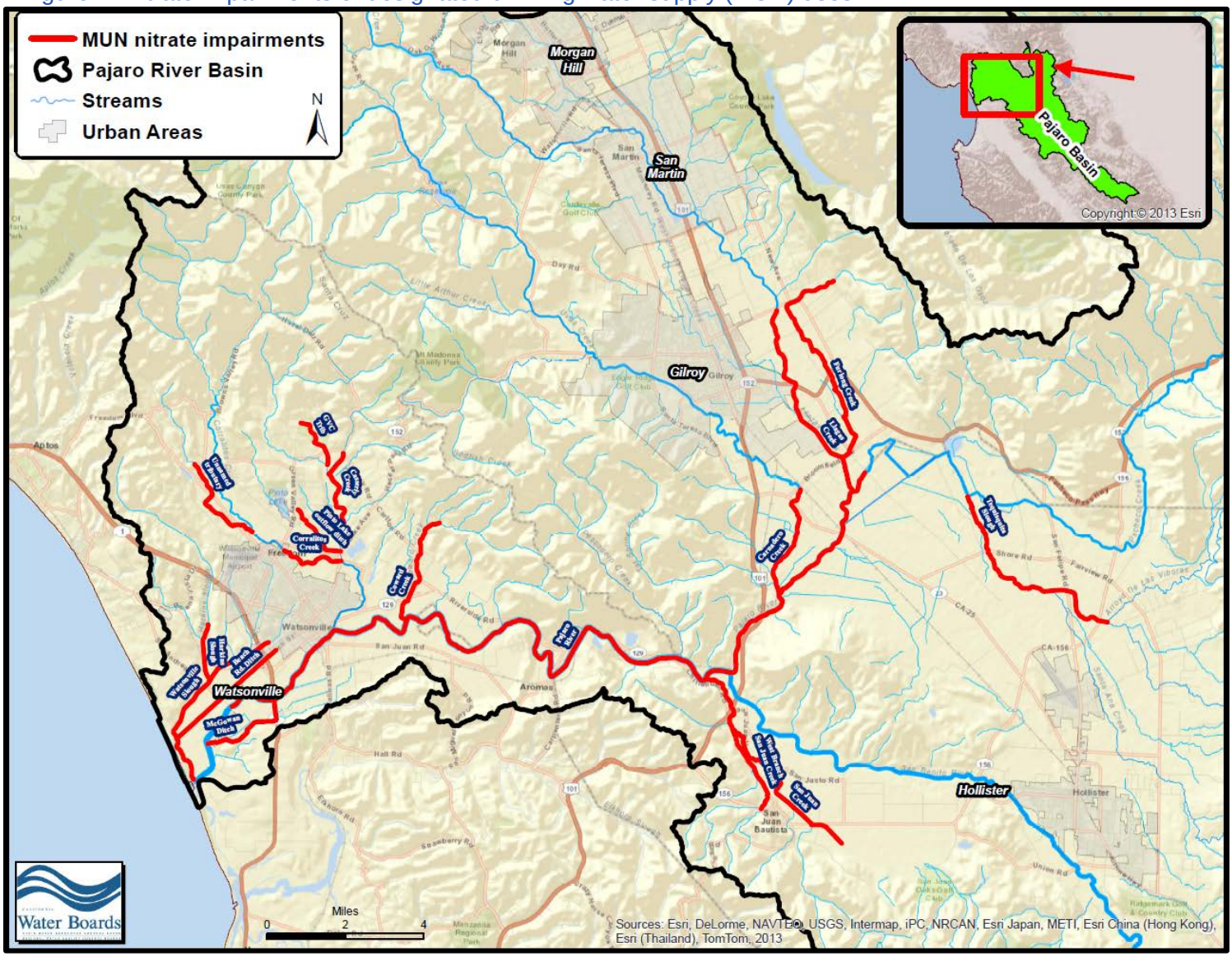
Maps of Nutrient-Related Stream Water Quality Impairments in the Pajaro River Basin

The purpose of this document is to present maps of nutrient-related water quality in streams of the Pajaro River basin. On the basis of the data and assessment methodologies outlined in the 2015 total maximum daily loads report, nutrient-related stream water quality in the river basin is illustrated in Sections 1 through Section 6 below.

1. Map of Nitrate Impairments of Human Health Standard

Figure 1 illustrates the spatial distribution of MUN-designated stream reaches impaired for the nitrate as N drinking water standard (MUN).

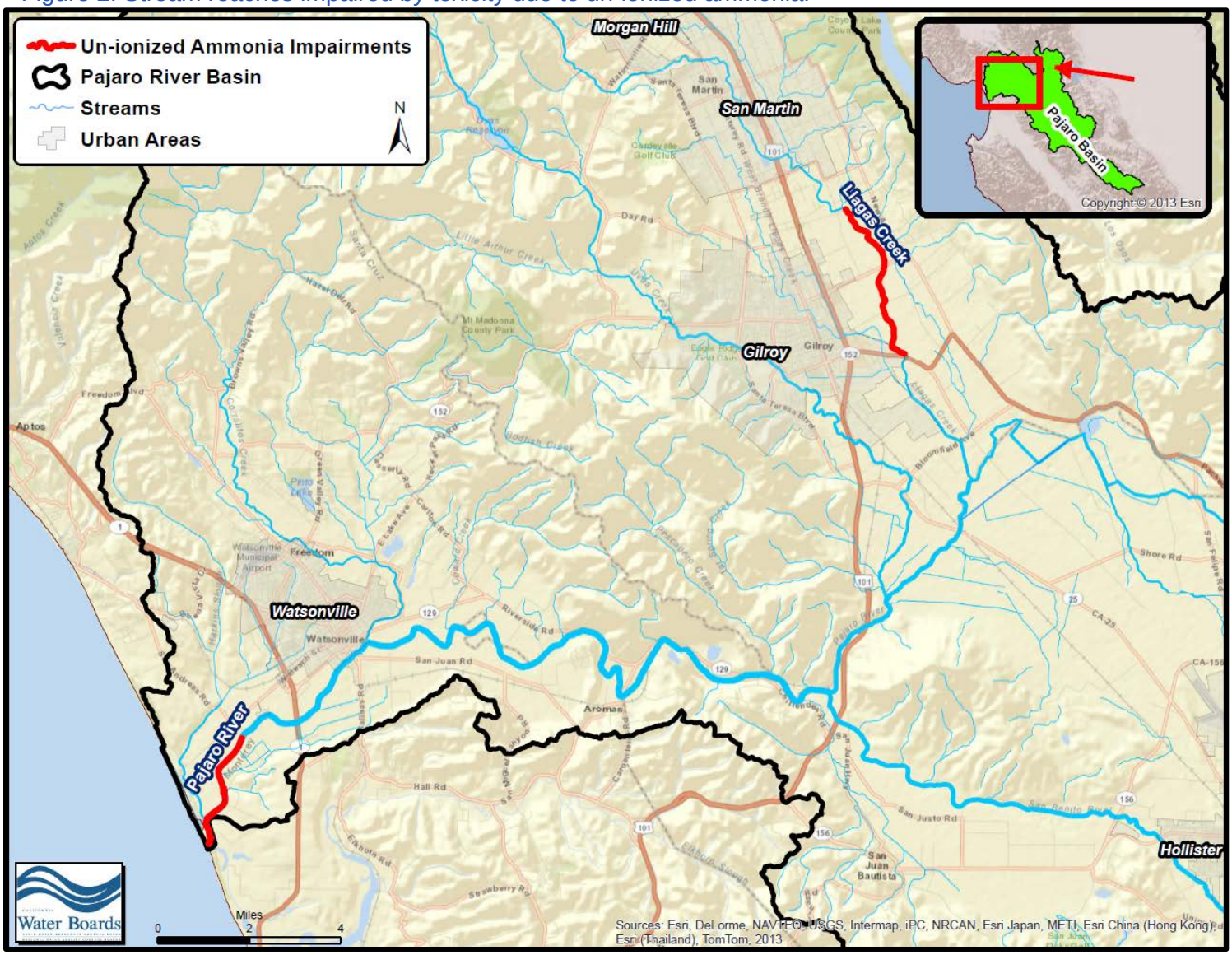
Figure 1. Nitrate impairments of designated drinking water supply (MUN) uses.



2. Map of Un-ionized Ammonia Impairments

Figure 2 illustrates the spatial distribution of stream reaches impaired by toxicity associated with elevated levels of un-ionized ammonia.

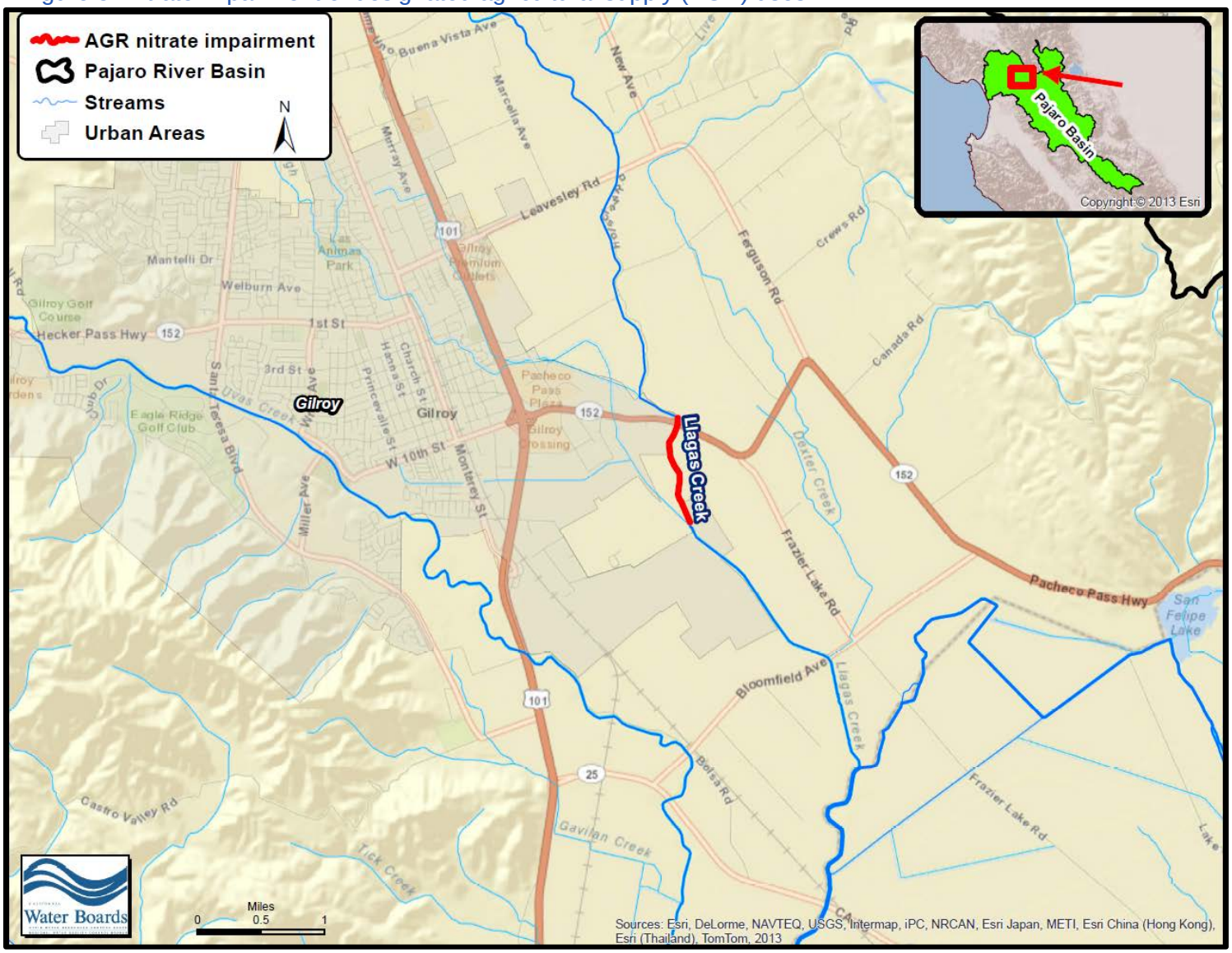
Figure 2. Stream reaches impaired by toxicity due to un-ionized ammonia.



3. Map of Nitrate Impairments of Agricultural Supply Guideline

Figure 3 illustrates the spatial distribution of AGR-designated stream reaches impaired for the nitrate as N agricultural supply (irrigation water watering) criterion (AGR).

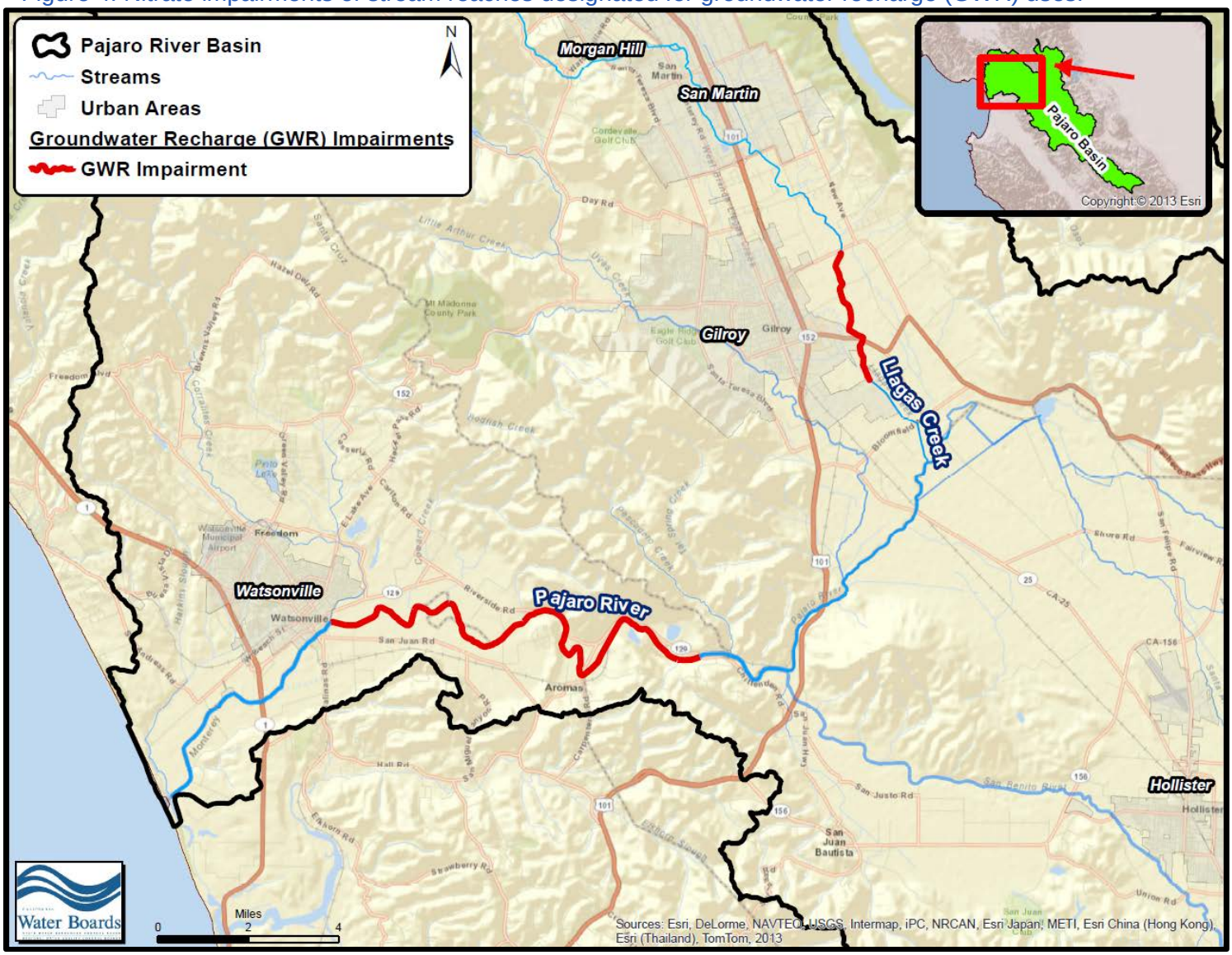
Figure 3. Nitrate impairment of designated agricultural supply (AGR) uses.



4. Map of Nitrate Impairments of Designated Groundwater Recharge Use

Figure 4 illustrates the spatial distribution of nitrate impairments of stream reaches designated for groundwater recharge (GWR) beneficial uses.

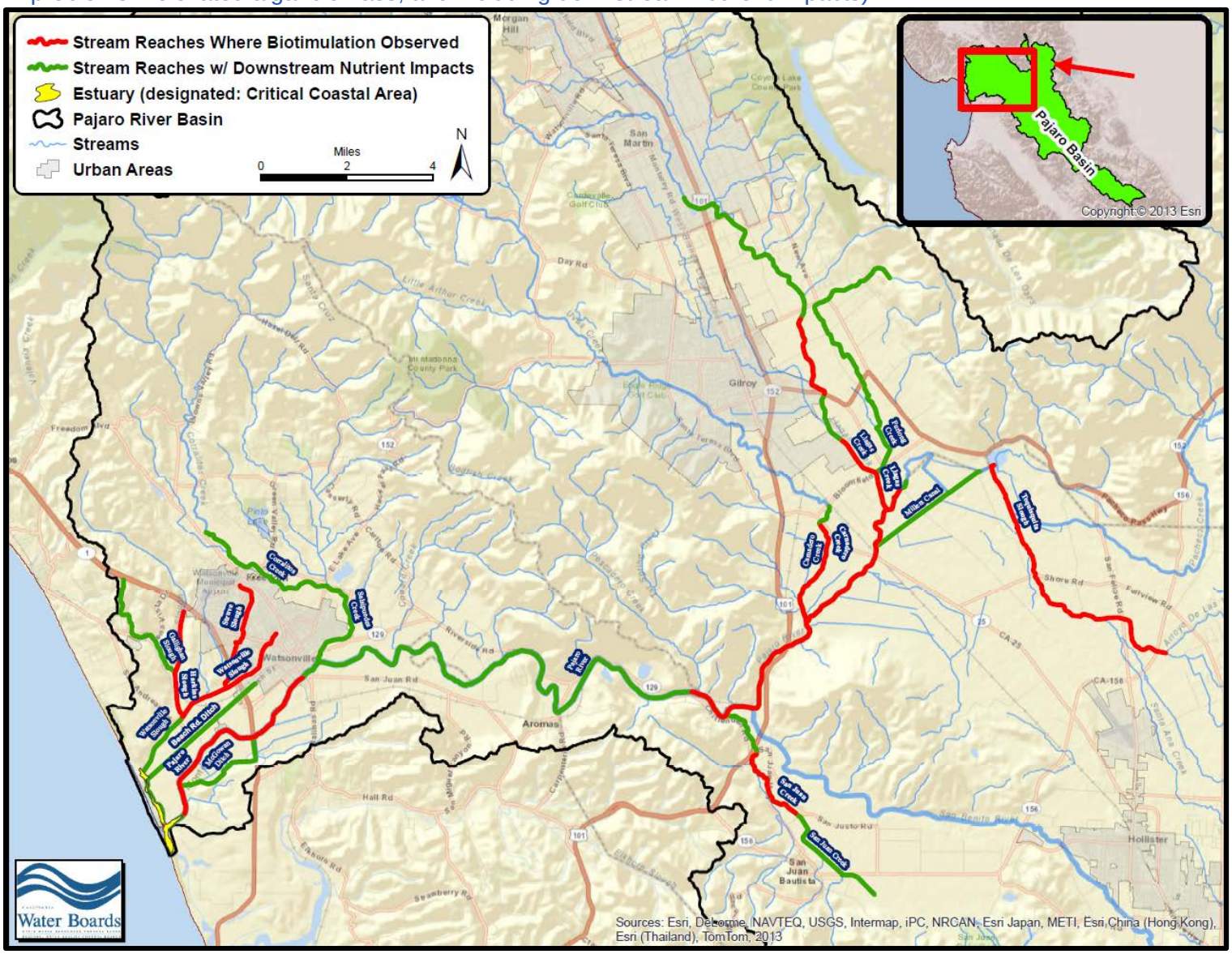
Figure 4. Nitrate impairments of stream reaches designated for groundwater recharge (GWR) uses.



5. Map of Biostimulatory Impairments (nutrients, chlorophyll-a, microcystins & low DO)

Figure 5 illustrates the spatial distribution of biostimulatory impairments in the Pajaro River basin on the basis of the biostimulation indicators presented in the total maximum daily loads report. The extent of impairment shown on this map includes downstream impacts; i.e., stream reaches that are nutrient-enriched and yet do not show signs of biostimulation, but they flow downstream and discharge their nutrient loads into receiving waters where biostimulation problems are observed.

Figure 5. Stream reaches exhibiting biostimulatory impairments (elevated nutrients + dissolved oxygen problems + elevated algal biomass, and including downstream nutrient impacts).



6. Map of Assessed High Quality Waters (anti-degradation issues)

While improvements to impaired waters is a goal of TMDLs, protection of existing high quality waters and prevention of any further degradation is also high priority for the Central Coast Water Board, and can be identified as a consideration in TMDLs.

According to the U.S. Environmental Agency, an anti-degradation policy is one of the minimum elements required to be included in a state's water quality standards[1]. Anti-degradation policies are consistent with the intent and goals of the federal Clean Water Act, especially the clause that states: "The objective of this Act is to restore and *maintain* the chemical, physical, and biological integrity of the Nation's water"[2, 3] (emphasis added).

Accordingly, section II.A of the Basin Plan, states that wherever the existing quality of water is better than the quality of water established in the Basin Plan as objectives, **such existing quality shall be maintained** unless otherwise provided by provisions of the state anti-degradation policy. Practically speaking, this means that where water quality is *better* than necessary to support designated beneficial uses, such existing high water quality shall be maintained, and further lowering of water quality is not allowed except under conditions provided for in the anti-degradation policy.

Indeed, the U.S. Environmental Protection Agency recognizes the validity of using TMDLs as a tool for implementing anti-degradation goals:

> *Identifying opportunities to protect waters that are not yet impaired: TMDLs are typically written for restoring impaired waters; however, states can prepare TMDLs geared towards maintaining a "better than water quality standard" condition for a given waterbody-pollutant combination, and they can be a useful tool for high quality waters.*
>
> From: U.S. Environmental Protection Agency, 2014a. Opportunities to Protect Drinking Water Sources and Advance Watershed Goals Through the Clean Water Act: A Toolkit for State, Interstate, Tribal and Federal Water Program Managers. November 2014.

Similarly, the U.S. Environmental Protection Agency makes clear that TMDLs can serve as planning tools not only for *restoring* water quality, but also for *protecting* and *maintaining* water quality consistent with the goals of anti-degradation policies:

> *"A TMDL serves as a planning tool and potential starting point for restoration or **protection** activities with the ultimate goal of attaining or **maintaining** water quality standards." (Emphasis added.)*
>
> U.S. Environmental Protection Agency, Implementing Clean Water Action Section 303(d): Impaired Waters and Total Maximum Daily Loads (TMDLs) – webpage accessed April 2016 https://www.epa.gov/tmdl

From the water quality management perspective, it is simply not enough to improve impaired waters – protection of existing high quality waters and prevention of any further water quality degradation should be identified as a high priority goal[4]. Simply put, TMDL implementation efforts are justified in considering improved protection of high quality waters and addressing anti-degradation concerns, as well as focusing on improving impaired stream reaches.

Figure 6 illustrates assessed high quality waters in the Pajaro River basin on the basis of nutrient pollution on the basis of available water quality data. Undoubtedly, there are additional high quality water stream reaches that do not currently have water quality data.

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[1] U.S. Environmental Protection Agency, *"Questions & Answers on: Antidegradation"* EPA/811/1985.5, Office of Water Regulations and Standards, August 1985.

[2] *Ibid*

[3] Federal Water Pollution Control Act (Clean Water Act), Sec. 101(a)

[4] The Central Coast Water Board considers *preventing* impairment of waterbodies to be as important a priority as *correcting* impairments of waterbodies (see staff report for agenda item 3, July 11, 2012 Water Board meeting).

Figure 6. Map of assessed high quality waters, on the basis of nutrient pollution, in the Pajaro River basin. For purposes of anti-degradation policy, “high quality waters” are defined on a constiuent-by-constituent basis. This map illustates high quality waters on the basis of available data. It does not imply these are the only high quality waters in the river basin, with respect to nutrient pollution. Undoubtedly, there are other high quality stream reaches that do not currently have water quality data.