DECEMBER 15, 2022

VENTURA COUNTY AGRICULTURAL IRRIGATED LANDS GROUP (VCAILG)

Groundwater Quality Trends

2022 Annual Monitoring Report

SUBMITTED TO:

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

SUBMITTED BY:

VENTURA COUNTY
Agricultural Irrigated Lands Group

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science | policy | solutions

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INTRODUCTION AND PURPOSE

On April 8, 2021, the Los Angeles Regional Water Quality Control Board adopted the Conditional Waiver (Conditional Waiver) of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region (Order No. R4-2021-0045) as a one-year extension of the 2016 Conditional Waiver (Order No. R4-2016-0143). Subsequently, in April 2022, the Waiver was extended through December 31, 2022, via Order No. R4-2021-0045-A01. The Conditional Waiver includes a requirement to track groundwater quality beneath irrigated agricultural lands. In brief, the requirement consists of the following elements:

- Submittal of a Groundwater Quality Trend Monitoring Plan ("Monitoring Plan")
- Inclusion of the results of the above plan with the discharger's annual monitoring reports (annually, beginning December 15, 2017)

The Monitoring Plan was submitted on October 14, 2016 and approved by the Los Angeles Regional Water Quality Control Board (Regional Board) on June 23, 2017. Following the approved Monitoring Plan, the annual reporting of groundwater trends is based on nitrate concentrations. The requirement for annual reporting of groundwater quality trends was carried forward in two extensions of the Conditional Waiver that have occurred to date (Order No. R4-2021-0045, Order No. R4-2021-0045-A01). This report serves as the sixth annual report of nitrate trends in the groundwater basins completed according to the approved Monitoring Plan.

SELECTION OF WELLS

The Monitoring Plan identified over 600 mappable, "regularly sampled" wells to consider for annual trends reporting and presented maps of recent (2013-2015) average nitrate concentrations for these wells.[1, 2]

As explained in the Monitoring Plan, regularly sampled wells fell into one of three categories:

- UWCD monitoring wells
- VCWPD monitoring wells
- Public water system[3] wells for which data are publicly available from the SDWIS website, and that *also* met the following criteria:[4]

The water purveyor is a wholesaler that provides groundwater from wells located in Ventura County to domestic water suppliers with service areas in the Ventura County (even if the purveyor also provides irrigation water to its retail or wholesale customers),

[1] Basins within Regional Board jurisdiction that were excluded from trends tracking due to minimal, or absent, overlying irrigated agriculture were the Santa Clara River East Subbasin, Simi Valley Basin, Conejo Valley Basin, Lockwood Valley Basin, Hungry Valley Basin, Thousand Oaks Area Basin, Russell Valley Basin, and Cuddy Ranch Area Basin.

[2] Two of the basins that lie wholly or partially within Ventura County (Cuyama Valley and Carpinteria Basins) are wholly outside the jurisdictional area of the Los Angeles Regional Water Quality Control Board and were omitted from trends reporting.

[3] Public water systems are defined in Part 12, Chapter 4 of the California Health and Safety Code.

[4] Public water system well sampling frequency is dictated by well use and other factors. Thus, although a particular public water system well may have been sampled between 2013-2015; there is no guarantee that the well will be sampled in the future.

or <u>all</u> of the following criteria were satisfied:

- Per SDWIS, the water purveyor status was "Active" as of July 2016, and
- The water system has ≥ 15 domestic residential connections, and/or ≥ 1 connection to a school, and
- The water system included active groundwater wells as of 2016, and
- The purveyor's active groundwater well(s) contributes to all, or part of, their potable water supply, and
- The purveyor's groundwater wells were in a region with irrigated agriculture.

Based on a request from Regional Board staff to reduce the number of wells proposed in the Monitoring Plan for annual trends reporting, and to avoid using time series data that would be potentially biased by recent drought, a screening criterion was developed to identify wells that had samples representing the wet, interim and dry phases of the most recent complete climatic cycle revealed by plotting the cumulative departure from the long-term annual precipitation depth in Ventura County. Using this approach, 1991 was identified as the beginning of the most recent complete climatic cycle (see Figure 1). Wells were identified that had at least one nitrate sample in each of three time periods:

- Wet period: 1991-1997
- Interim period: 1998-2006
- Dry period: 2007-2016

Application of this screening criterion resulted in elimination of 45% of the wells originally included in the Monitoring Plan. Additional screening steps were taken in October 2018 to complete the refinement of the well list using a process that was agreed to by Regional Board staff during a meeting in March 2017 and that is illustrated in the flow chart in Figure 2.[5]

This (2022) report was developed after augmenting the database with nitrate concentrations made available in response to data requests made at the end of the VCAILG 2021/2022 monitoring year. New data was available for most of the wells that were used to develop the previous year's report.

[5] The flow chart was provided to Regional Board staff in a follow-up email on June 27, 2017.

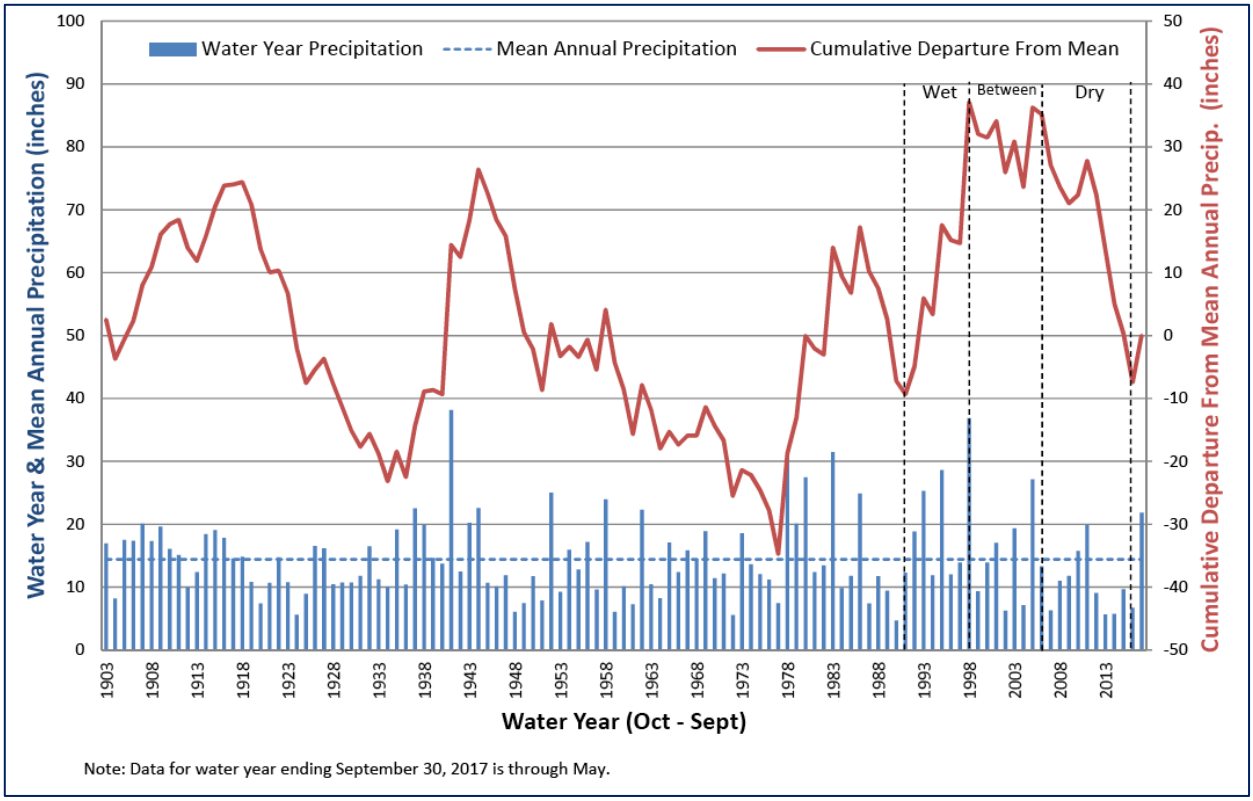
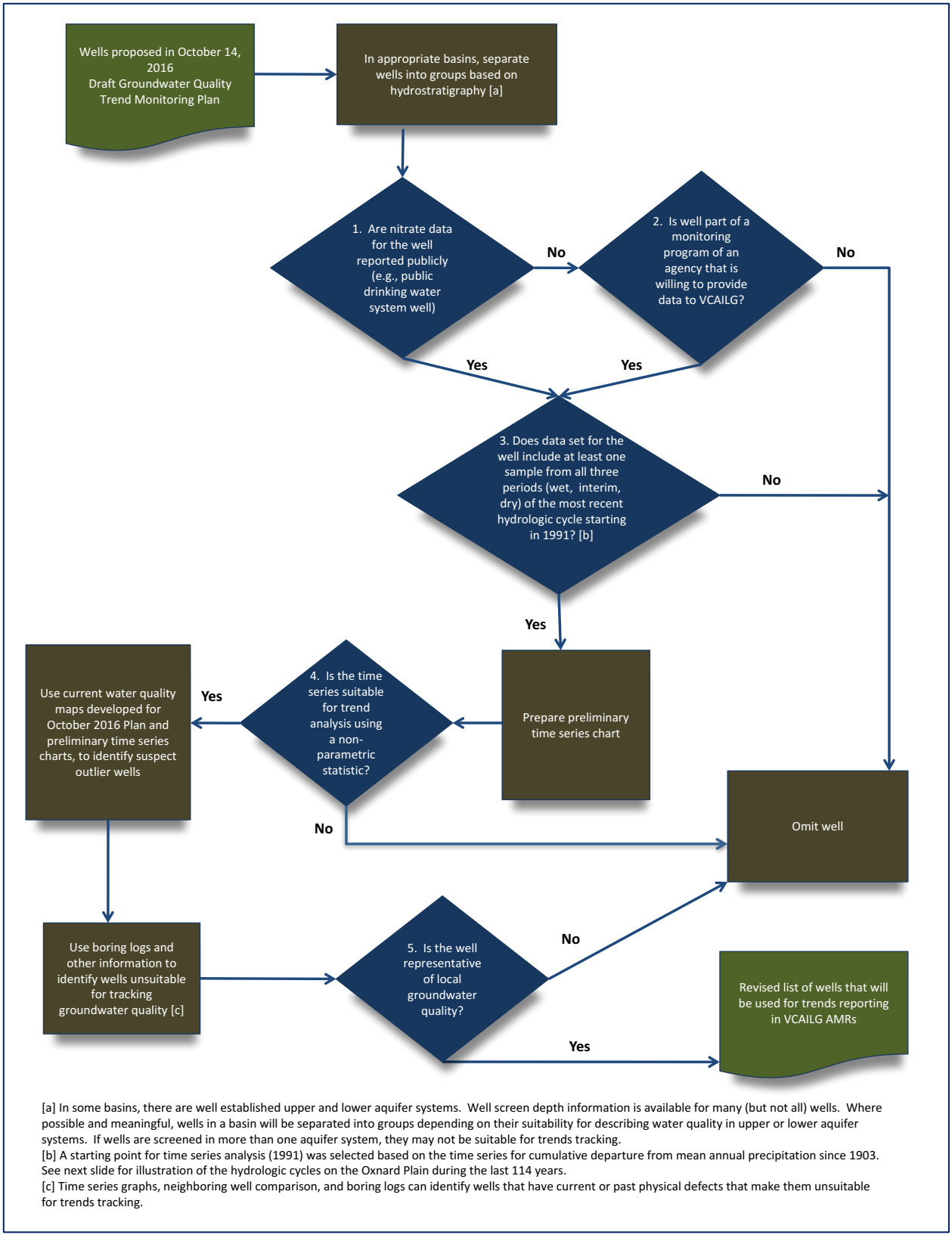


Figure 1. Cumulative Departure from Mean Annual Precipitation Depth for 1903-2017. Data for 1903-2003 are from VCWPD Gage 032 (Oxnard-Water Department); data for 2003-2017 are from VCWPD Gage 032A (Oxnard Civic Center).



[a] In some basins, there are well established upper and lower aquifer systems. Well screen depth information is available for many (but not all) wells. Where possible and meaningful, wells in a basin will be separated into groups depending on their suitability for describing water quality in upper or lower aquifer systems. If wells are screened in more than one aquifer system, they may not be suitable for trends tracking.
[b] A starting point for time series analysis (1991) was selected based on the time series for cumulative departure from mean annual precipitation since 1903. See next slide for illustration of the hydrologic cycles on the Oxnard Plain during the last 114 years.
[c] Time series graphs, neighboring well comparison, and boring logs can identify wells that have current or past physical defects that make them unsuitable for trends tracking.

Figure 2. Process Used in 2018 to Refine the List of Wells for Annual Trends Reports

DATA COLLECTION AND ANALYSIS

NITRATE DATA SOURCES

Groundwater nitrate concentration data were compiled from the following five sources:

1. Safe Drinking Water Information System (SDWIS)
2. GeoTracker Groundwater Ambient Monitoring and Assessment Program (GAMA)
3. Ventura County Watershed Protection District (VCWPD)
4. United Water Conservation District (UWCD)
5. Calleguas Municipal Water District (CMWD)

Some data from private domestic potable groundwater wells may inadvertently be included in the datasets from UWCD, VCWPD, and CMWD, and is collected at the discretion of the agency and landowners.[6]

The sources of nitrate data are further described below.

Safe Drinking Water Information System

SDWIS is a United States Environmental Protection Agency (USEPA) program that provides information about public water systems and their violations of USEPA's drinking water regulations. The State Water Resources Control Board (SWRCB) maintains a SDWIS website that provides monitoring data from wells, other water sources, distribution points, and other facilities belonging to water systems (including recycled water systems and drinking water systems) (SWRCB, 2016a)[7]. Well sampling frequencies are dictated by well use and other factors. Thus, although a well from a particular water system may have been sampled recently, there is no guarantee that the well will be sampled in the future. The dataset includes nitrate concentrations from both potable and non-potable water wells.

Although listed as "wells" in the SDWIS, the City of San Buenaventura Foster Park wells are surface water (Ventura River) collector wells. As such the nitrate data for these wells is expected to reflect the water quality of surface water, not groundwater, and the wells were omitted from analysis.

GeoTracker Groundwater Ambient Monitoring and Assessment Program

GeoTracker GAMA is a groundwater level and quality data management system created in response to the Groundwater Quality Monitoring Act of 2001 - AB 599 (Wat. Code, §§ 10780 – 10782.3) (SWRCB, 2016b).[8] Data included in the system have been integrated from various state and federal agencies responsible for collecting groundwater information, such as Department of Pesticide Regulation (DPR), Department of Water Resources (DWR), Lawrence

[6] The only potable groundwater wells that VCAILG can guarantee to report on in the future are active potable groundwater wells for public water systems regulated by the SWRCB, for which data is publicly available via SDWIS
[7] SWRCB SDWIS Website: https://sdwis.waterboards.ca.gov/PDWW/, accessed August 2016
[8] SWRCB GeoTracker GAMA Website: http://www.waterboards.ca.gov/gama/geotracker_gama.shtml, accessed August 2016

Livermore National Laboratory (LLNL), SWRCB, and United States Geological Survey (USGS). Geotracker GAMA data are publicly available.

Nitrate data obtained from GeoTracker GAMA that correspond to environmental remediation sites were not included in the data compilation because these data frequently represent groundwater conditions in shallow, perched aquifers that are not typically part of the regional aquifer systems. Moreover, organic contaminants can significantly alter the oxidation-reduction state of the groundwater, resulting in loss of nitrate via reduction.

Ventura County Watershed Protection District

VCWPD samples approximately 150 wells annually throughout Ventura County as part of its countywide groundwater monitoring program. The groundwater monitoring program and results are documented in VCWPD's Annual Reports of Groundwater Conditions, which are available online at http://vcpublicworks.org/pwa/groundwater-resources. VCWPD maintains a Microsoft Access ® database of the monitoring program data. The database records are available upon request from VCWPD. It should be noted that, while VCWPD attempts to sample the same wells each year, the locations are subject to change based on well access and VCWPD monitoring priorities.

United Water Conservation District

United Water Conservation District (UWCD) samples approximately 73 wells throughout its service area[9] as part of its groundwater monitoring program. The sampling frequency for nitrate ranges from quarterly to biennially. The groundwater monitoring program and results are documented in various reports prepared by UWCD, which are available online at http://www.unitedwater.org/reports-5/groundwater-conditions. It should be noted that, while UWCD attempts to sample the same wells over time, the locations are subject to change based on well access and UWCD monitoring priorities. In addition to its groundwater sampling program, UWCD compiles SWRCB Division of Drinking Water (DDW) records for all wells in Ventura County annually. Lastly, UWCD compiles groundwater level and quality data provided by well owners. UWCD maintains a Microsoft Access ® database of the above-described data. The database records are not publicly available but were made available upon request for this study. Future data availability is subject to UWCD data sharing policies.

Calleguas Municipal Water District

CMWD operates an aquifer storage and recovery (ASR) project in the Las Posas Valley Basin. In addition to monitoring groundwater levels and quality in its eighteen ASR wells, CMWD monitors groundwater levels in approximately 20 private wells and compiles groundwater level and quality provided by well owners in the Las Posas Valley Basin. CMWD's groundwater monitoring program and results are documented its annual ASR reports, which are available online at http://www.calleguas.com/water-resources-and-quality/las-posas-basin-library.asp. CMWD maintains a Microsoft Access ® database of the groundwater monitoring data. The database records are available upon request from CMWD.

[9] UWCD's service area includes all or portions of the Mound, Santa Paula, Fillmore, Piru, and Oxnard Subbasins and Pleasant Valley Basin.

Nitrate data from CMWD's ASR wells were not used for trends reporting because many of the samples are not representative of groundwater concentrations as a result of CMWD's aquifer storage activities.

In 2019-2020, CMWD stopped compiling groundwater quality data in the Las Posas Valley Basin, so the time series for some private wells in the Las Posas Valley Basin that were included in the annual trends reports through December 2019 are no longer being updated.

TREND ANALYSIS

All available samples from 1991-June 2022 for each well were subjected to statistical trend analysis. Both the Mann Kendall test and least squares regression were performed on each time series. The Mann Kendall test required more than four samples, and a significant trend (either decreasing or increasing) required both a p value < 0.05 and an absolute value of Kendall's Tau > 0.3. Time series plots were generated to assist with interpretation of statistical tests. Each plot was visually inspected while comparing the results of the Mann Kendall test and least squares regression (slope of trend line, p value and r^2, for the latter). Priority was given to the Mann Kendall test results. However, on rare occasions, visual inspection of time series plot called the Mann Kendall test result into question. For example, in a few cases, apparently spurious Mann Kendall test results were observed when a brief, but very densely sampled, period was nested within a longer time series with fewer samples. In questionable cases, the trend result from the Mann Kendall test was compared to the results of the least squares regression and professional judgment used to overrule or retain the Mann Kendall test result.

In order to provide context for trend results, trend outcomes for individual wells ("increasing trend", "decreasing trend", "no trend") were sorted into concentration bins using mean nitrate-N concentrations for the three-year period spanning July 2019 - June 2022 (referred to hereinafter for convenience as 2019-2022).[10, 11]

RESULTS

For each groundwater basin or subbasin a brief description of the basin setting and hydrogeology is provided below, followed by the results of the trends analysis for wells that passed the screening criteria illustrated in Figure 2. Trends are presented using stacked bar charts and maps. In the maps, trend outcomes (decreasing trend, increasing trend, no trend) are distinguished using symbol shape. A color ramp for the symbols is used to identify tiers of 2019-2022 mean nitrate concentrations above (orange and red) and below (blue, green, and yellow) the nitrate maximum contaminant level (MCL) of 10 milligrams per liter (mg/L) nitrate-N. The wells are identified in the maps using labels with the last four digits of the state well numbers. The areal extent of irrigated agriculture is illustrated in each basin's map. Where appropriate, areas of confined and unconfined groundwater are indicated on the maps. Stacked bar charts use the same color ramp to illustrate tiers of 2019-2022 mean nitrate-N concentrations. Where applicable, separate bar charts are provided for wells located in

[10] Mean nitrate concentrations for each well were calculated using a value of one-half of the detection limit for non-detect results.
[11] Time series yielding "No Trend" outcomes may include periods with rising and falling concentrations within the overall evaluation period. In these cases, "No Trend" indicates that there is no statistically consistent trend between 1991-2022.

confined and unconfined groundwater zones. Individual time series plots for every well that passed the screening process illustrated in Figure 2 are provided in Attachment 1.

VENTURA RIVER WATERSHED BASINS

Four groundwater basins/subbasins are located within the Ventura River Watershed: Upper Ojai Valley Basin, Ojai Valley Basin, and the Upper and Lower Ventura River Subbasins. All of the basins in the Ventura River Watershed are alluvial fill basins.

Upper Ojai Valley Basin (DWR Basin No. 4-01)

Land use in the Upper Ojai Valley Basin is predominantly rural and agriculture. Approximately 20% of the Upper Ojai Valley Basin is occupied by agricultural lands. Generally, the main crops grown in the Upper Ojai Valley Basin are walnuts, hay, citrus, and grains.

The Upper Ojai Valley Basin is an alluvial-filled basin, bounded by the Ojai Valley Groundwater Basin on the north, the Topatopa Mountains on the east, Sulfur Mountain on the south, and near impermeable rocks of the Santa Ynez Mountains elsewhere (DWR, 2003). Groundwater in the Upper Ojai Valley Basin is encountered in Holocene and Pleistocene age alluvium that averages about 60 feet thick and reaches a maximum thickness of about 300 feet (CSWRB 1953). A surface and groundwater divide is found in the eastern part of the basin the separates groundwater flow westward toward San Antonio Creek and eastward toward Santa Paula Creek (DWR, 2003).

Only one well in this basin passed the screening criteria for trends analysis and had enough samples to perform the Mann Kendall test. The trend results for this well are presented in Figures 3-4.[12]

[12] Three other wells identified in the Monitoring Plan in the Upper Ojai Valley Basin, *that did not pass the screening criteria for trends analysis,* had 2013-2015 averages < 2 mg/L nitrate-N, as reported in the 2017 annual monitoring report.

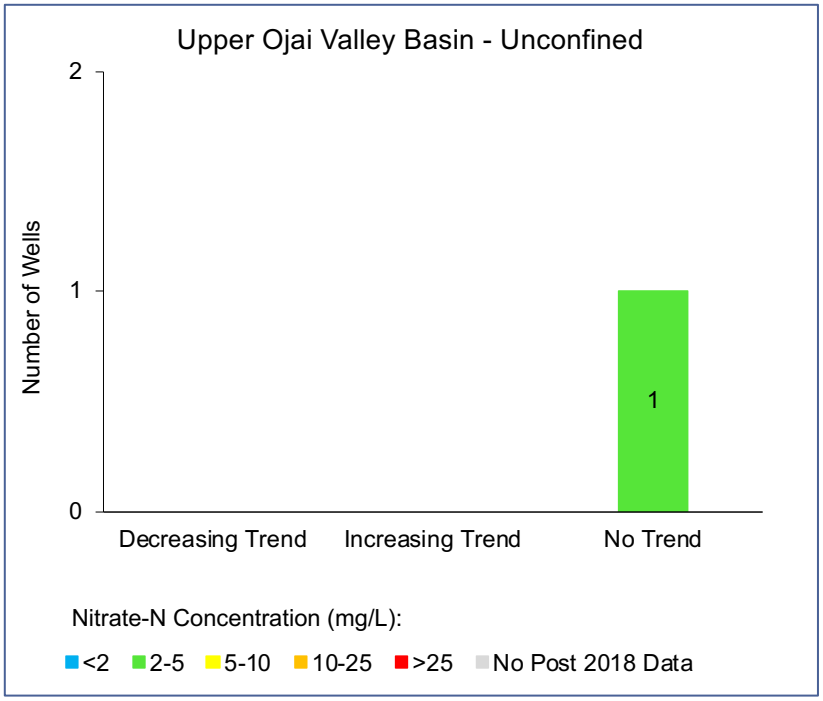


Figure 3. Breakdown of Trends for Wells in the Upper Ojai Valley Basin

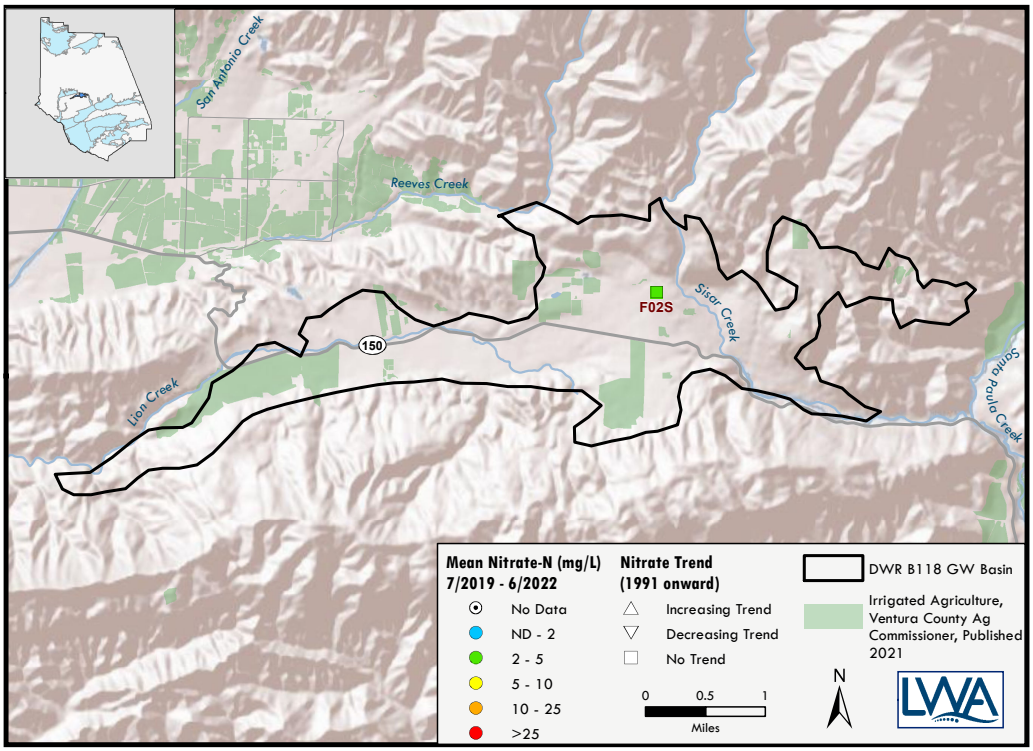


Figure 4. Map of Nitrate Trends for Wells in the Upper Ojai Valley Basin

Ojai Valley Basin (DWR Basin No. 4-02)

The Ojai Valley Basin has the largest capacity of the Ventura River watershed's four groundwater basins. The western portion of the Ojai Valley Basin is occupied by the City of Ojai; the eastern portion of the basin is predominantly rural and agricultural. Approximately 29% of the Ojai Valley Basin is occupied by irrigated agricultural lands. Generally, the main crops grown in the Ojai Valley Basin are citrus and avocados.

The Ojai Valley Basin is a bowl shaped alluvial-filled basin that is bounded on the west and east by non-water-bearing Tertiary aged rocks, on the south by the Santa Ana Fault and Black Mountain, and on the north by the Topatopa Mountains (Ojai Basin Groundwater Management Agency [OBGMA], 2016). Groundwater in the Ojai Valley Basin is encountered in alluvium of Holocene and Pleistocene age, which consists of sand, gravel, and clay (DWR, 2003). The basin is deepest in the center and southern areas where sediments have built up against the boundary defined by the Santa Ana Fault (OBGMA, 2016). The thickness of the water-bearing alluvium is as much as 715 feet (OBGMA, 2016).

The Ojai Valley Basin has areas of confined, semi-confined, and unconfined groundwater. Unconfined conditions exist in the northern and eastern portions of the basin, in the areas of the alluvial fan heads adjacent to the mountains (OBGMA, 2016). Groundwater in the remainder of the aquifer system is, depending on the amount of water in storage and groundwater level position, mostly confined to semi-confined (OBGMA, 2016). Groundwater generally flows in a southwesterly direction; however, it also flows towards the municipal wells in the central portion of the basin (OBGMA, 2016).

The trend results for individual wells that passed the screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 5-6. One well that qualified for trends analysis had a mean nitrate concentration that exceed the MCL, and one well exhibited an increasing trend in nitrate concentrations between 1991-2022.

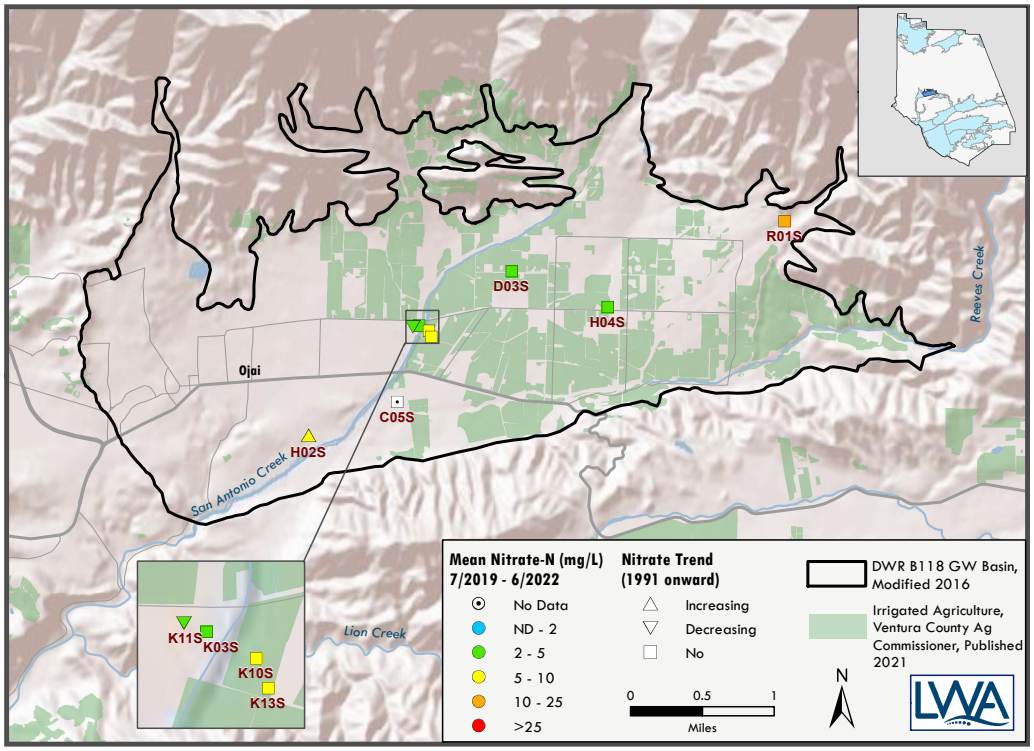
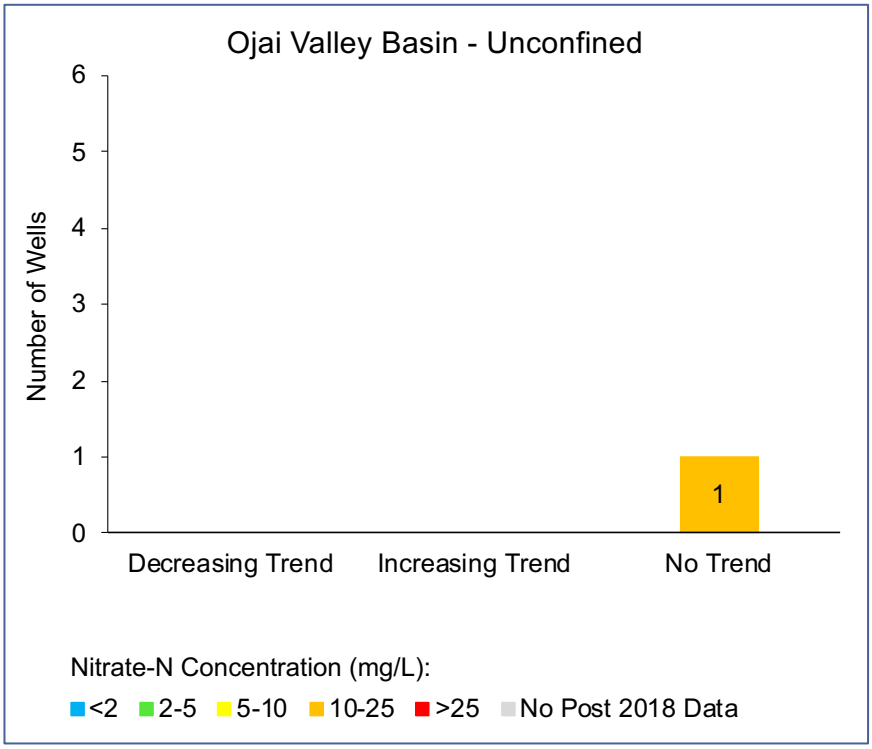


Figure 5. Map of Nitrate Trends for Wells in the Ojai Valley Basin



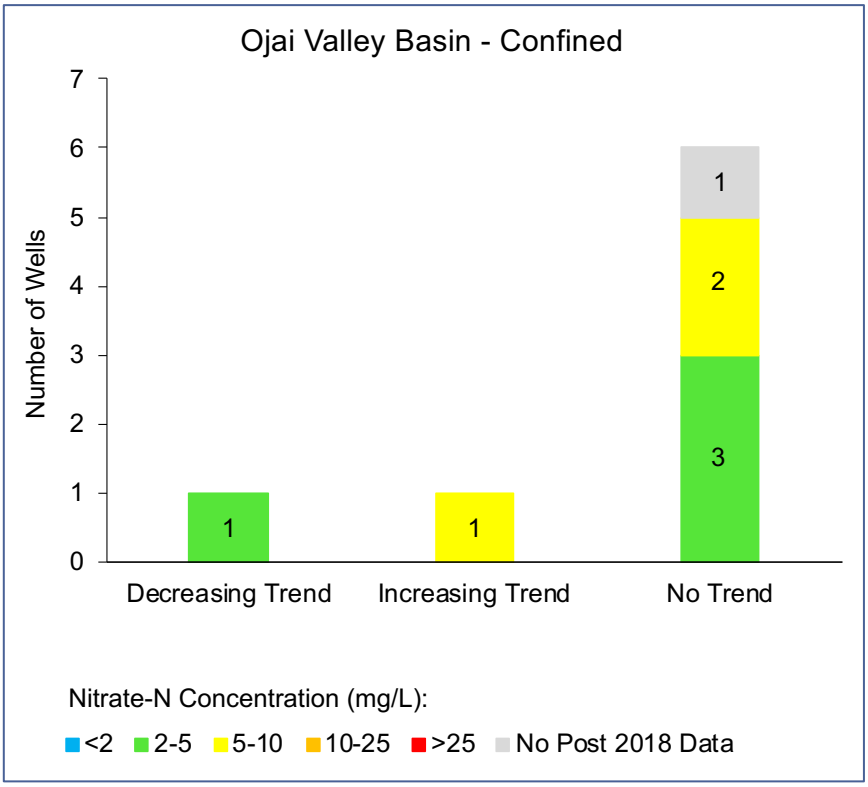


Figure 6. Breakdown of Trends for Wells in the Ojai Valley Basin

Upper Ventura River Subbasin (DWR Basin No. 4-03.01)

The Upper Ventura River Subbasin is an alluvial subbasin bounded on the south by the Lower Ventura River Subbasin, on the east by the Ojai Valley Groundwater Basin, and elsewhere by nearly impermeable rocks of the Santa Ynez Mountains (DWR, 2003). Groundwater in the Upper Ventura River Subbasin is encountered in Holocene and Pleistocene age alluvium that ranges from approximately 60 to 200 feet thick in the main part of the subbasin and 5 to 30 feet thick in the San Antonio and Coyote Creek areas (DWR, 2003). The subbasin is considered to be unconfined and groundwater flow is generally southward, following the surface drainage (DWR, 2003).

Land use in the Upper Ventura River Subbasin is a mix of residential, rural, and agriculture. The Ventura River runs north-south through the subbasin. Approximately 10% of the basin is occupied by agricultural lands. Generally, the main crops grown in the Upper Ventura River Subbasin are citrus and avocados.

The trend results for wells that passed the screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 7-8. Recent nitrate concentrations are lowest in the upgradient (north) part of the subbasin and near the southern basin boundary. None of the wells had a mean nitrate concentration for 2019-2022 that exceeded the MCL and only two of the fourteen wells currently show an increasing trend in nitrate concentration.

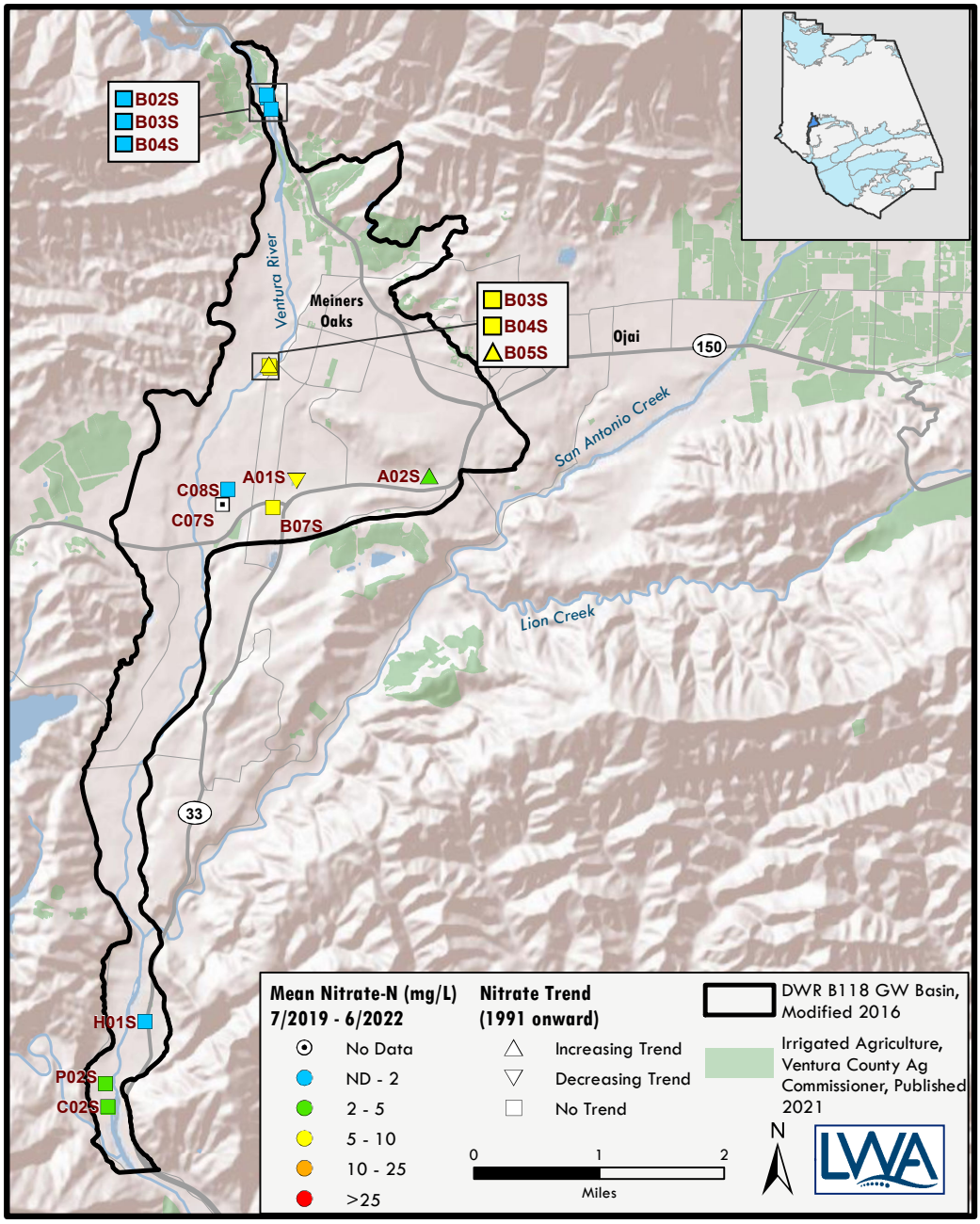


Figure 7. Map of Nitrate Trends for Wells in the Upper Ventura River Subbasin

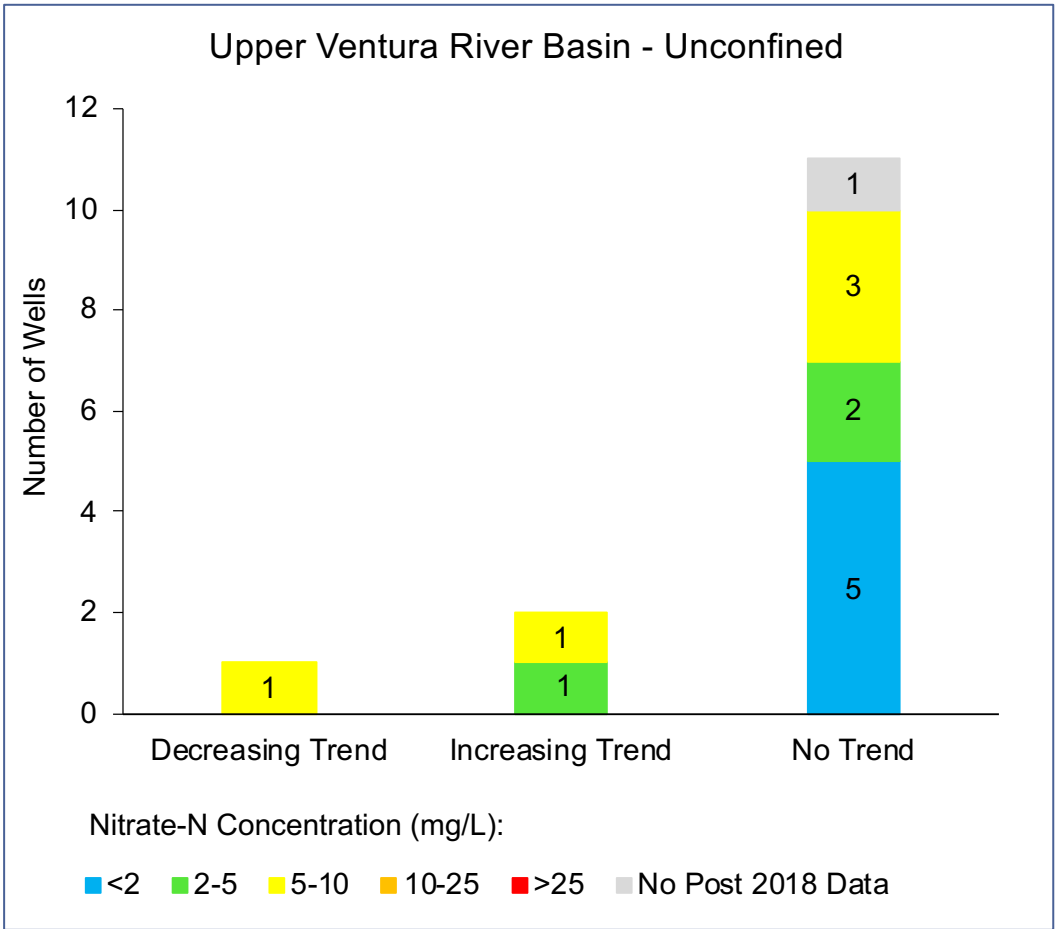


Figure 8. Breakdown of Trends for Wells in the Upper Ventura River Subbasin

Lower Ventura River Subbasin (DWR Basin No. 4-03.02)

The Lower Ventura River Subbasin is an alluvial subbasin bounded on the north by the Upper Ventura River Subbasin, on the south by the Pacific Ocean and Mound Subbasin, and elsewhere by nearly impermeable rocks of the Santa Ynez Mountains (DWR, 2003). Groundwater in the Upper Ventura River Subbasin is encountered in Holocene and Pleistocene age alluvium that ranges from approximately 60 to 100 feet thick (DWR, 2003). The subbasin is considered unconfined and groundwater flow is generally southward, following the surface drainage (DWR, 2003).

Land use in the Lower Ventura River Subbasin is a mix of residential, rural, and agriculture. The Ventura River runs north-south through the basin. Approximately 10% of the basin is occupied by irrigated agricultural lands. Generally, the main crops grown in the Lower Ventura River Subbasin are citrus, avocados, and berries.

Only one well in this subbasin passed the screening criteria and has enough samples for trend analysis. The results for this well are presented in Figures 9-10; nitrate-N concentrations are < 2 mg/L in this well.[13]

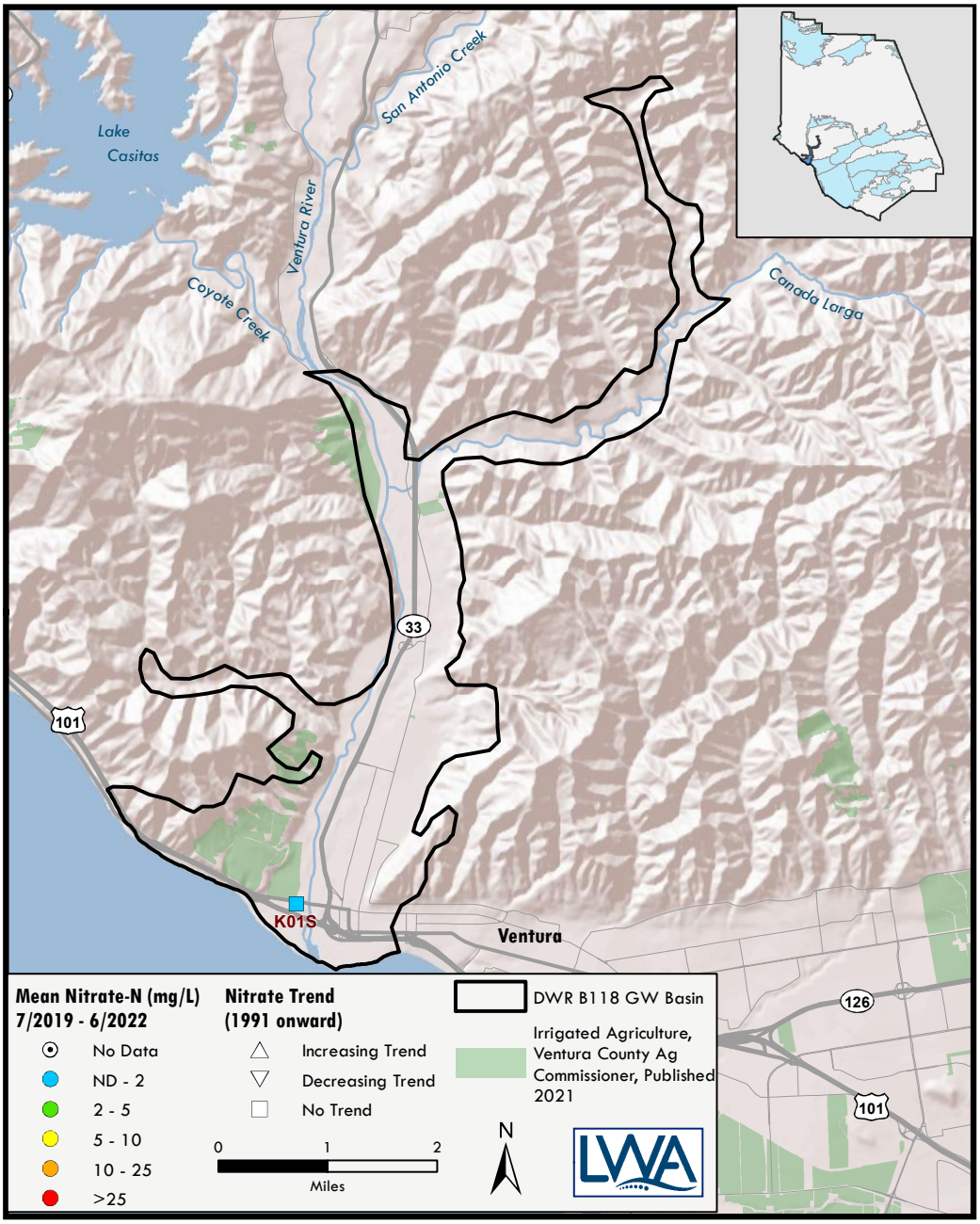


Figure 9. Map of Nitrate Trends for Wells in the Lower Ventura River Subbasin

[13] Two other wells located in the very southern end of the subbasin, that did not pass the screening criteria for trends analysis, also had average nitrate concentrations < 2 mg/L nitrate-N during 2013-2015, as reported in the 2017 annual monitoring report.

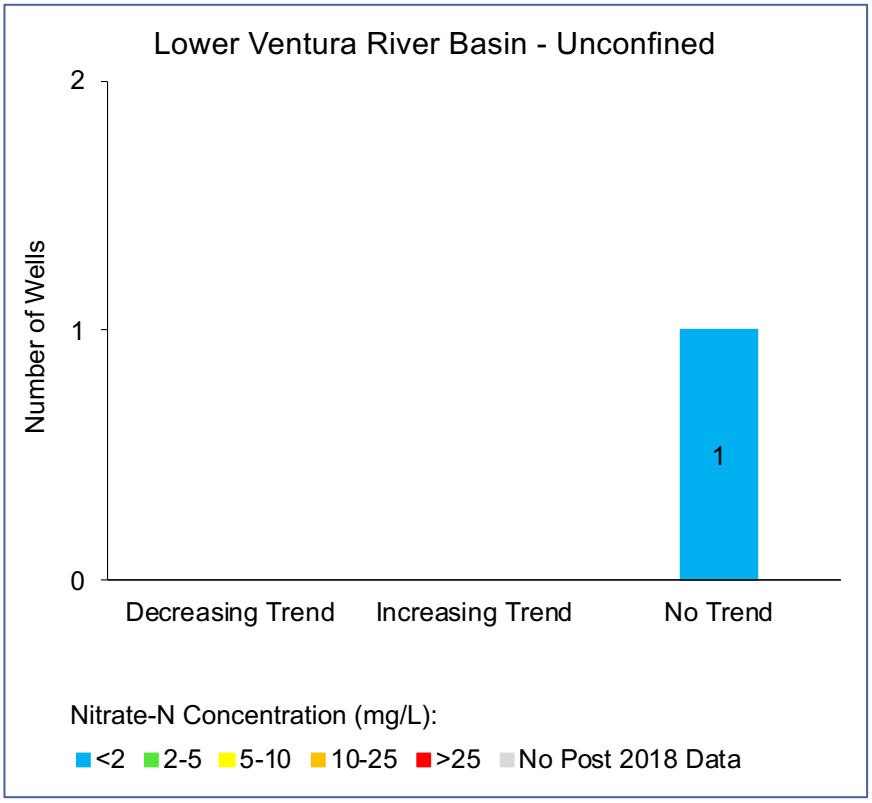


Figure 10. Breakdown of Trends for Wells in the Lower Ventura River Subbasin

SANTA CLARA RIVER VALLEY BASINS

The groundwater basins in the Santa Clara River Valley are located within the more regional Ventura Basin, which is an elongate east-to-west trending structurally complex syncline within the Transverse Range province (Yeats, et. al., 1981). The Santa Clara River Valley occupies the Ventura Basin, which is one of the major sedimentary basins in the geomorphic province. The principal water-bearing units are generally limited to the upper Pleistocene to Holocene alluvium and lower Pleistocene San Pedro Formation (California State Water Resources Board [CSWRB], 1953).

Oxnard Subbasin (DWR Subbasin No. 4-04.02)

The Oxnard Subbasin is the largest subbasin of the Santa Clara River Valley Basin in Ventura County. The western portion of the Oxnard Subbasin is occupied primarily by the City of Oxnard. The eastern portion of the subbasin is predominantly agricultural. Approximately 42% of the Oxnard Subbasin is occupied by agricultural lands. Generally, the main crops grown in the Oxnard Subbasin are row crops, berries, citrus, and avocados. Although DWR includes the Oxnard Subbasin as part of the Santa Clara River Valley Basin, it underlies portions of the Calleguas Creek and Oxnard Coastal Watersheds.

The Oxnard Subbasin is characterized by a low-lying alluvial plain which gently rises away from the Pacific Ocean. The Pacific Ocean borders the basin to the west. The Mound Subbasin is directly adjacent to the Oxnard Subbasin on the north side and the Pleasant Valley and Las

Posas Basins are directly adjacent on the eastern side. The southeastern boundary of the subbasin is formed by the contact with nearly impermeable rocks of the Santa Monica Mountains.

The groundwater system in the Oxnard Subbasin includes a main recharge area termed the "Forebay", and a confined aquifer system that extends throughout the main part of the subbasin and under the Pacific Ocean. Five aquifers are recognized in this subbasin. The shallowest aquifers consist of Holocene and Pleistocene alluvial deposits and deeper aquifers are found within the lower San Pedro Formation and upper Santa Barbara Formation. The main groundwater flow pattern is from the Forebay (recharge) area in the northeastern corner of the basin toward the Pacific Ocean. During periods of low groundwater levels, landward groundwater flow directions are observed in coastal portions of the basin. Unconfined groundwater conditions are limited to the "Forebay" area. A shallow perched groundwater zone overlies the principal aquifers in the confined portion of the basin. Perched groundwater is not used for water supply.

The trend results for wells that passed all screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 11-13. Somewhat higher nitrate concentrations are generally found in the "Forebay" area where unconfined groundwater conditions coexist with unsewered residential areas[14] and agricultural land use, however, only two wells in the Forebay had 2019-2022 average nitrate concentrations that exceeded the MCL. Recent average nitrate concentrations are generally much lower across much of the remainder of the basin where confined groundwater conditions prevail. Nitrate in public water supply wells that are owned and operated by UWCD and the City of Oxnard is managed by blending with other sources of groundwater and/or imported water. In addition, recharge basins in the Forebay receive water diverted from the Santa Clara River and are operated in part to manage nitrate levels in groundwater.

[14] The El Rio neighborhood was converted from septic to sewer within the last 10 years. Much of the northern portion of the Forebay area remains unsewered.

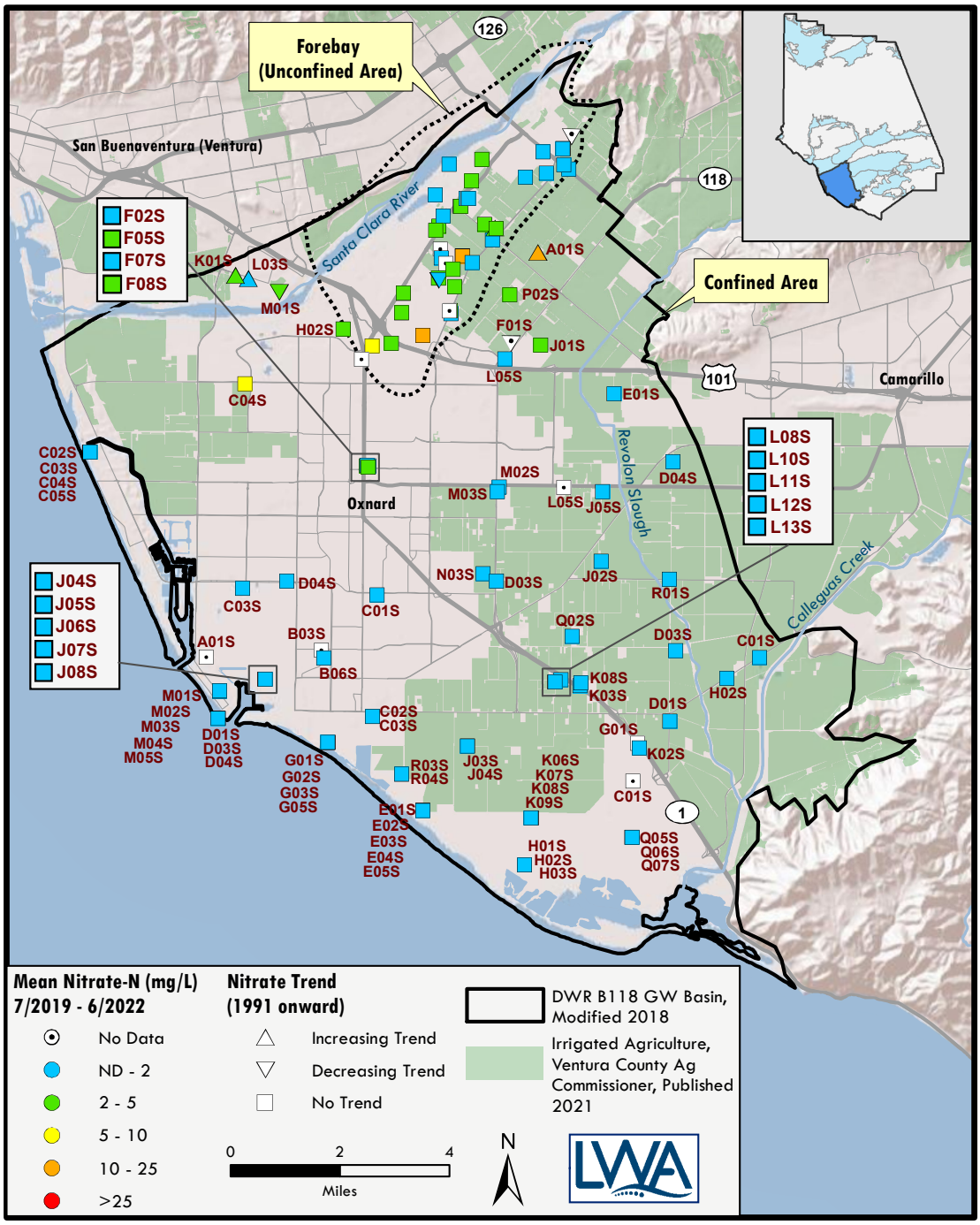


Figure 11. Map of Nitrate Trends for Wells in the Oxnard Subbasin

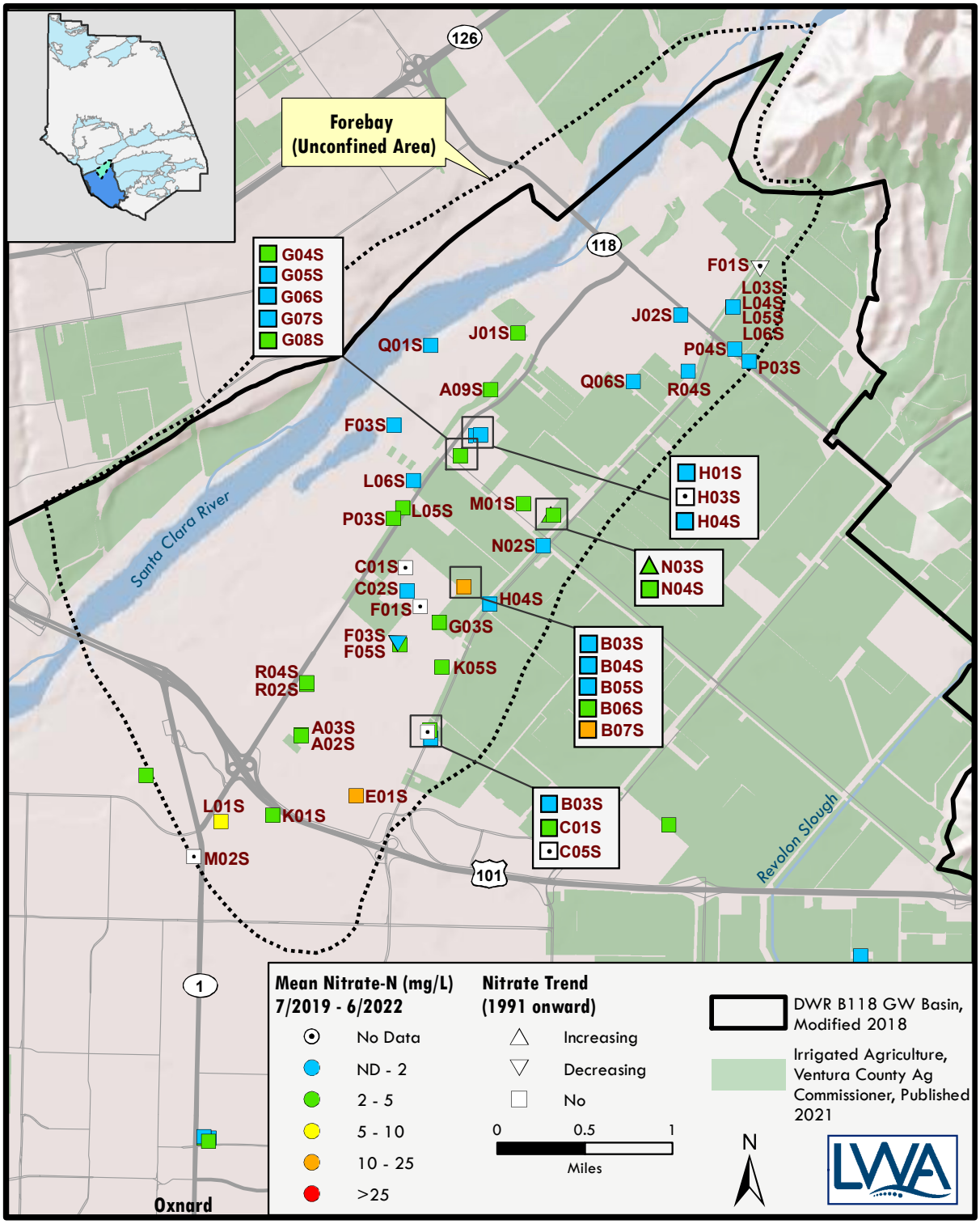


Figure 12. Map of Nitrate Trends for Wells in the Oxnard Forebay

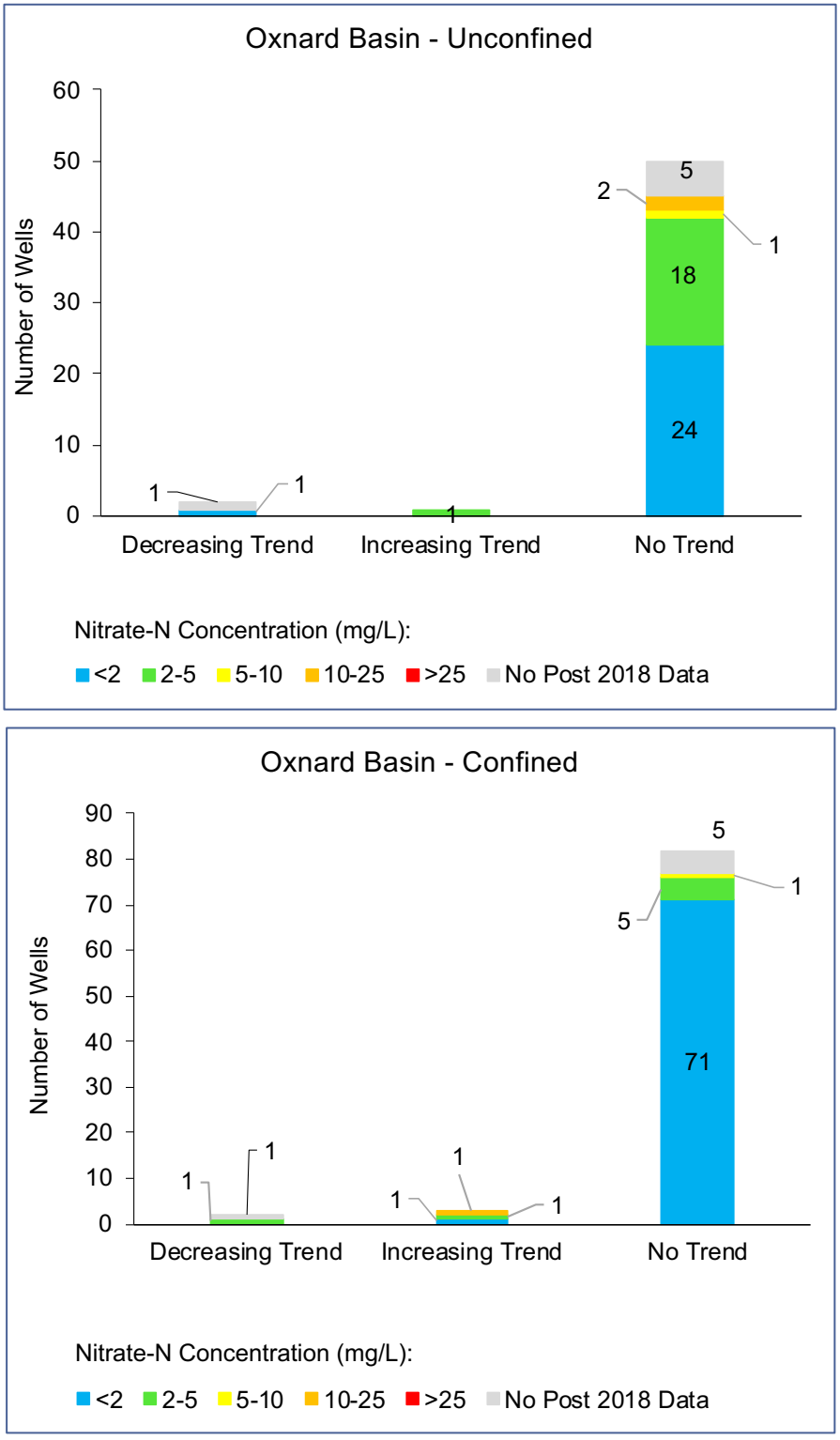


Figure 13. Breakdown of Trends for Wells in the Oxnard Subbasin

Mound Subbasin (DWR Subbasin No. 4-04.03)

The Mound Subbasin is the westernmost basin within the Santa Clara River Valley Watershed. Most of the Mound Subbasin is occupied by the city/suburban environment of San Buenaventura (Ventura), California. Approximately 15% of the Mound Subbasin is occupied by agricultural lands. Generally, the main crops grown in the Mound Subbasin consist of citrus, avocados, berries, and row crops.

The Mound Subbasin is characterized by a low-lying alluvial plain which gently rises in a northerly direction. The southern boundary approximately coincides with the axis of the Montalvo anticline and extends from the mouth of the Santa Clara River toward South Mountain. The northern boundary is the Ventura Foothills north of the City of Ventura. The eastern boundary is the Country Club fault. The Pacific Ocean borders the subbasin to the west. The Oxnard Subbasin is directly adjacent to the Mound Subbasin on the south side and the Santa Paula Subbasin is directly adjacent on the eastern side. The Mound Subbasin is characterized by a significant east-west trending fold axis (Ventura syncline) and a significant amount of faulting. Alluvial deposits and the San Pedro formation represent the principal water bearing strata. The main groundwater flow pattern is down the axis of the subbasin from east to west. Little published information exists concerning the extent of confined versus unconfined groundwater conditions in the Mound Subbasin.

The trend results for wells that passed the screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 14-15. None of the five wells that passed the screening criteria had mean nitrate-N concentrations for 2019-2022 that exceed 2 mg/L.

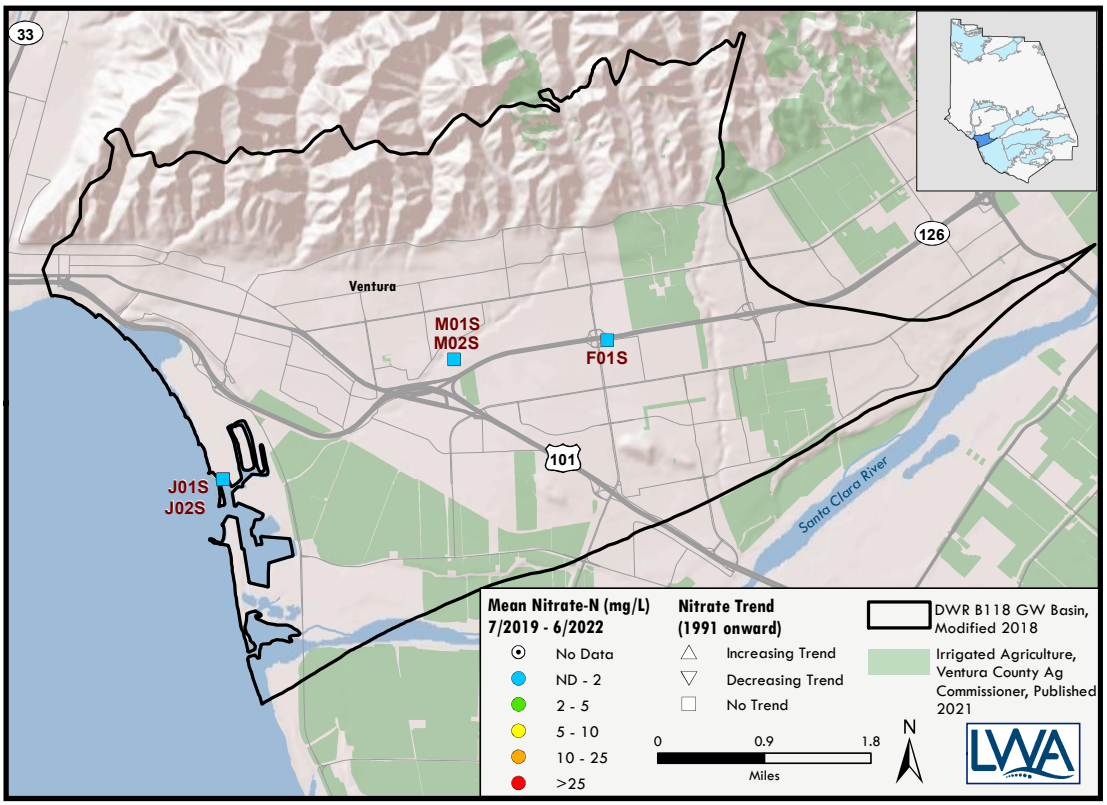


Figure 14. Map of Nitrate Trends for Wells in the Mound Subbasin

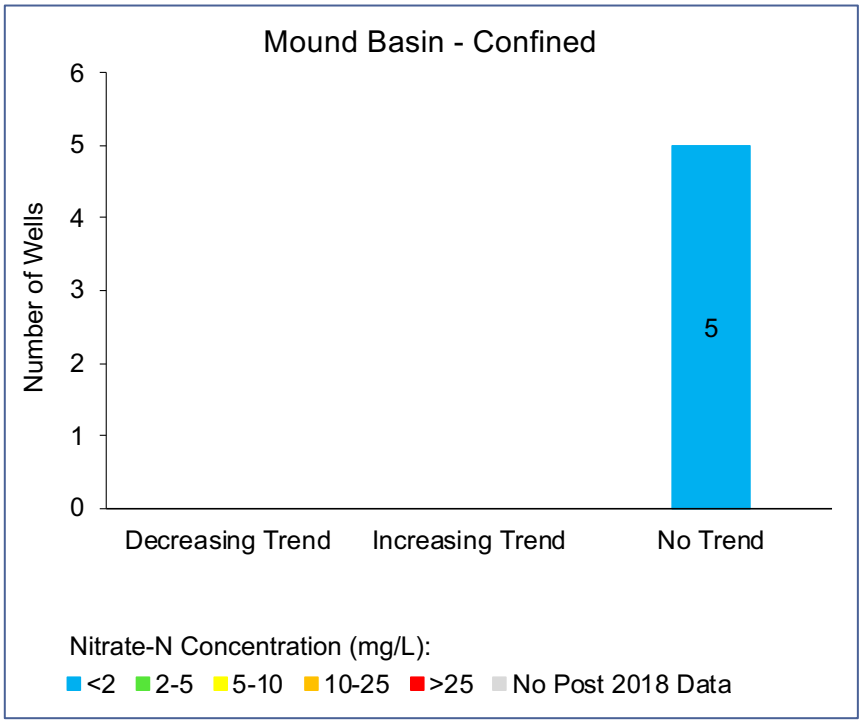


Figure 15. Breakdown of Trends for Wells in the Mound Subbasin

Santa Paula Subbasin (DWR Subbasin No. 4-04.04)

The eastern one-third of the Santa Paula Subbasin is occupied principally by the City of Santa Paula; the western two-thirds of the basin are predominantly rural/agricultural. The City of San Buenaventura overlies the south westernmost portion of the subbasin. Approximately 44% of the Santa Paula Subbasin is occupied by irrigated agricultural lands. Generally, the main crops grown in the Santa Paula Subbasin are citrus, avocados, and row crops.

The northern boundary of the Santa Paula Subbasin is the contact with relatively impervious rocks of the Topatopa Mountains. The southern boundary is formed by the relatively impervious rocks of Oak Ridge and South Mountain, the Oak Ridge fault, and the Saticoy fault (CSWRB 1953). The eastern edge of the subbasin is a bedrock constriction that causes rising groundwater flowing form the Fillmore Subbasin (CSWRB 1953). The western boundary is related to faulting that forms a partial barrier to groundwater flow into the Mound and Oxnard subbasins. The primary water-bearing units in the subbasin include upper Pleistocene to Holocene alluvium and lower Pleistocene San Pedro Formation (CSWRB 1956). The subbasin is generally confined except along the basin margins (Daniel B. Stephens & Associates, Inc., 2016). Groundwater flow is generally southwesterly, following the axis of the basin.

The trend results for wells that passed the screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 16-17. Average nitrate concentrations for all wells in the basin are well below the nitrate MCL.

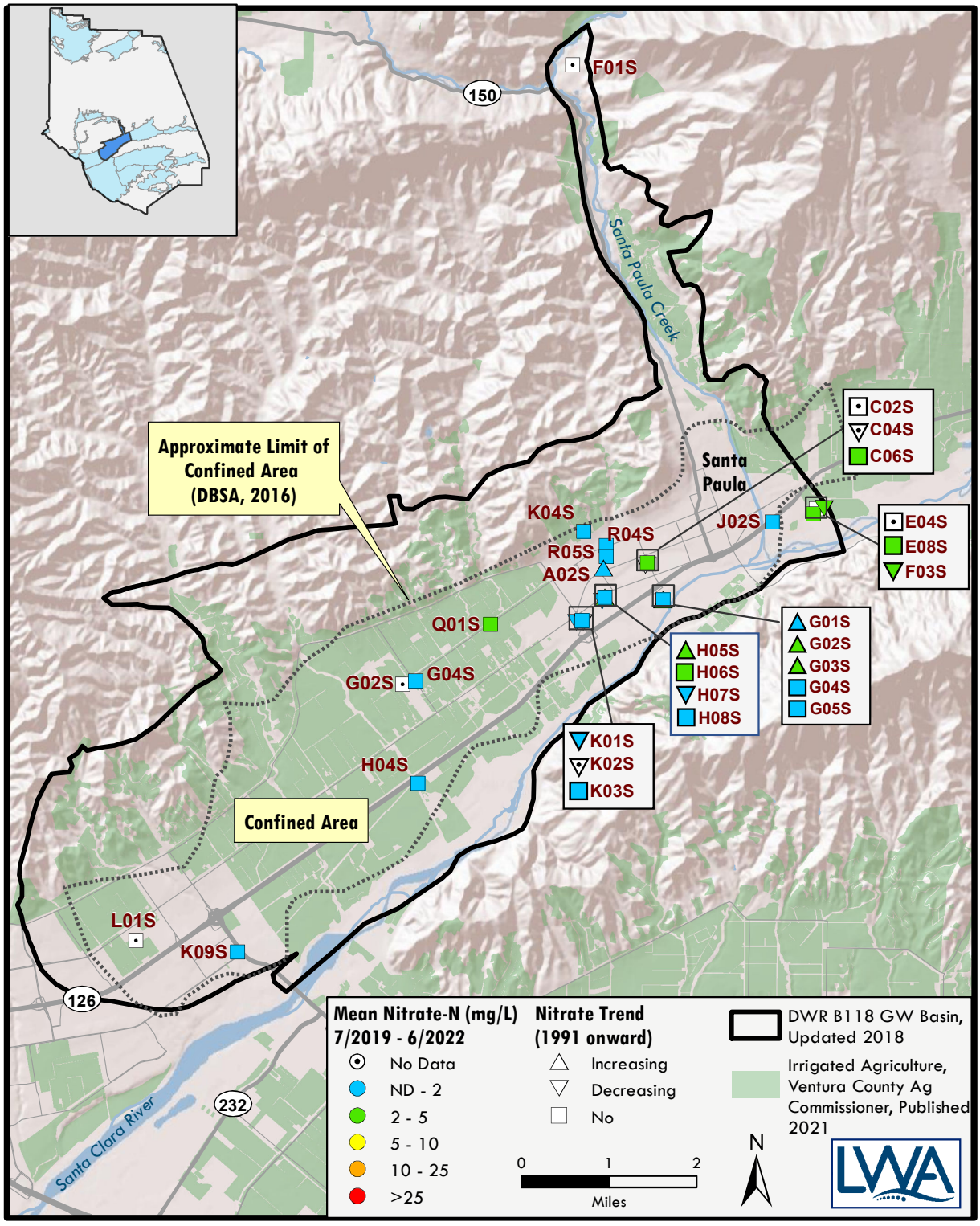


Figure 16. Map of Nitrate Trends for Wells in the Santa Paula Subbasin

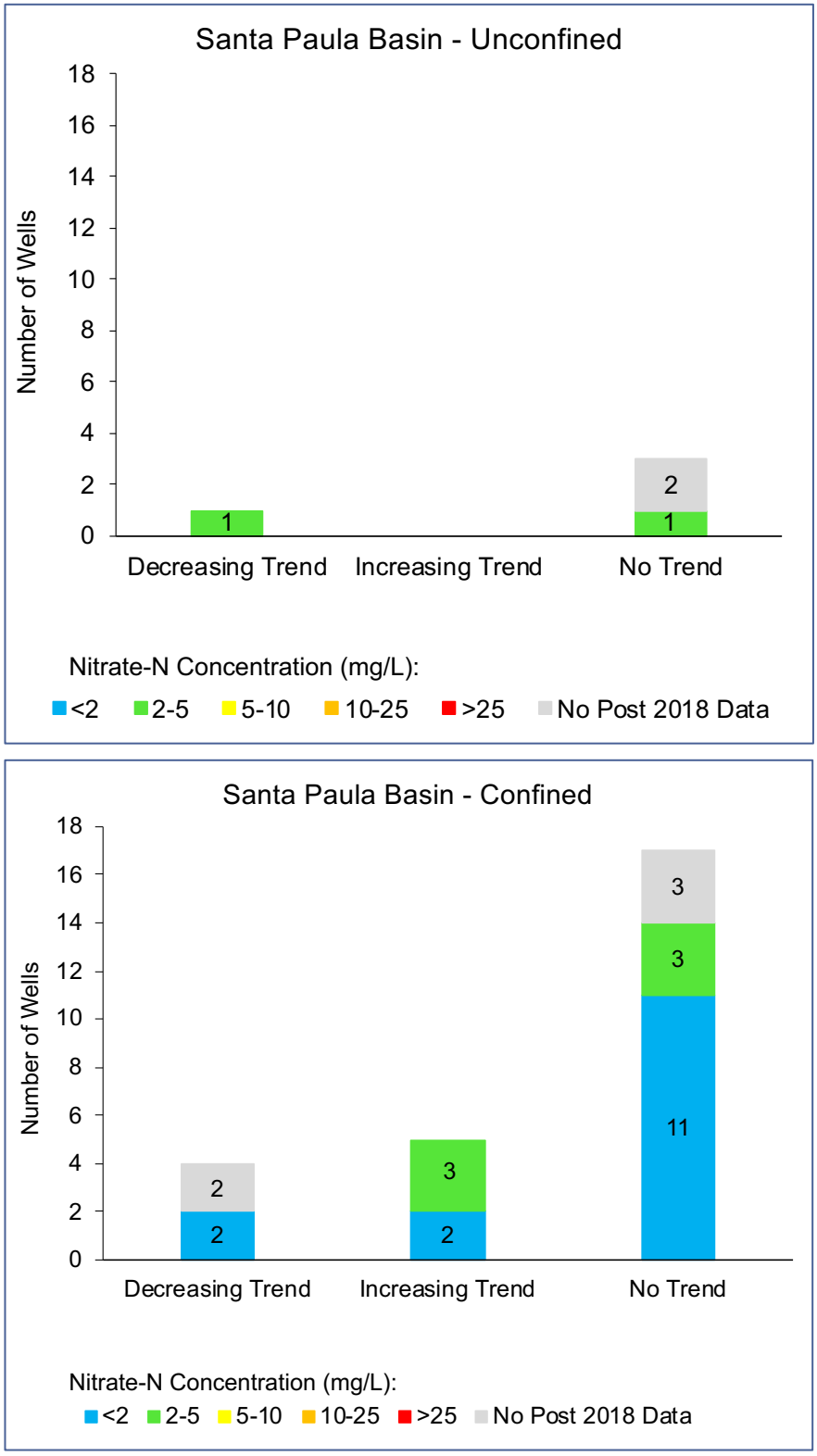


Figure 17. Breakdown of Trends for Wells in the Santa Paula Subbasin

Fillmore Subbasin (DWR Subbasin No. 4-04.05)

Except for the City of Fillmore, land use in the Fillmore Subbasin is principally rural, agricultural, and open space associated with the Santa Clara River and Sespe Creek. Approximately 55% of the Fillmore Subbasin is occupied by agricultural lands. Generally, the main crops grown in the Fillmore Subbasin are primarily citrus, avocados, and row crops.

The northern boundary of the Fillmore Subbasin is the contact with relatively impervious rocks of the Topatopa Mountains and the San Cayetano Fault (DWR, 2003). The southern boundary is formed by the relatively impervious rocks of Oak Ridge and the Oak Ridge fault (DWR, 2003). The western and eastern boundaries of the subbasin are bedrock constrictions that cause rising groundwater flowing toward the Santa Paula Subbasin and from the Piru Subbasin, respectively (CSWRB 1953). The primary water-bearing units in the subbasin include upper Pleistocene to Holocene alluvium and lower Pleistocene San Pedro Formation (CSWRB 1956). The subbasin is generally unconfined. Groundwater flow is generally westerly, following the axis of the basin (DWR, 2003).

The trend results for wells that passed all screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 18-19. Except for two wells north of the Santa Clara River, average nitrate concentrations in the basin for 2019-2022 are below the nitrate MCL. No public water system wells exceed the nitrate MCL.

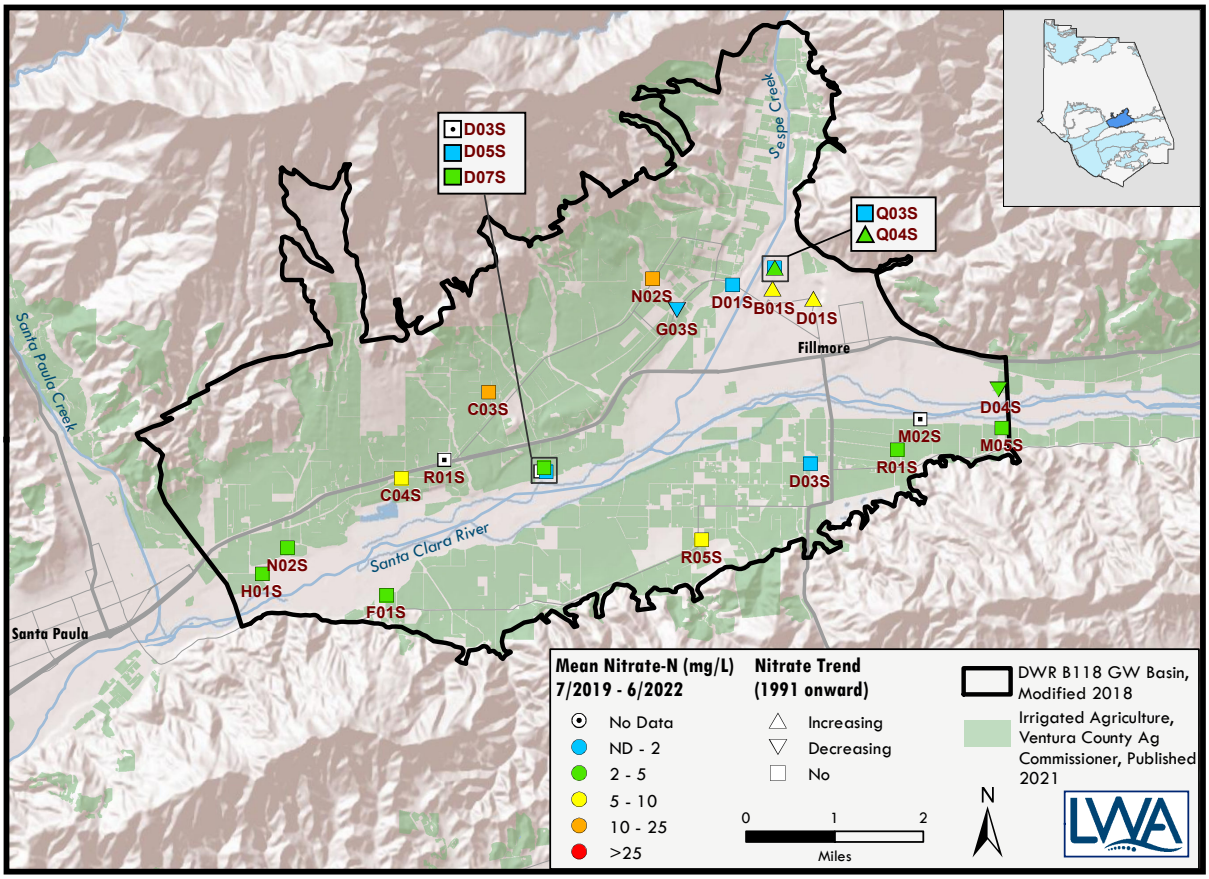


Figure 18. Map of Nitrate Trends for Wells in the Fillmore Subbasin

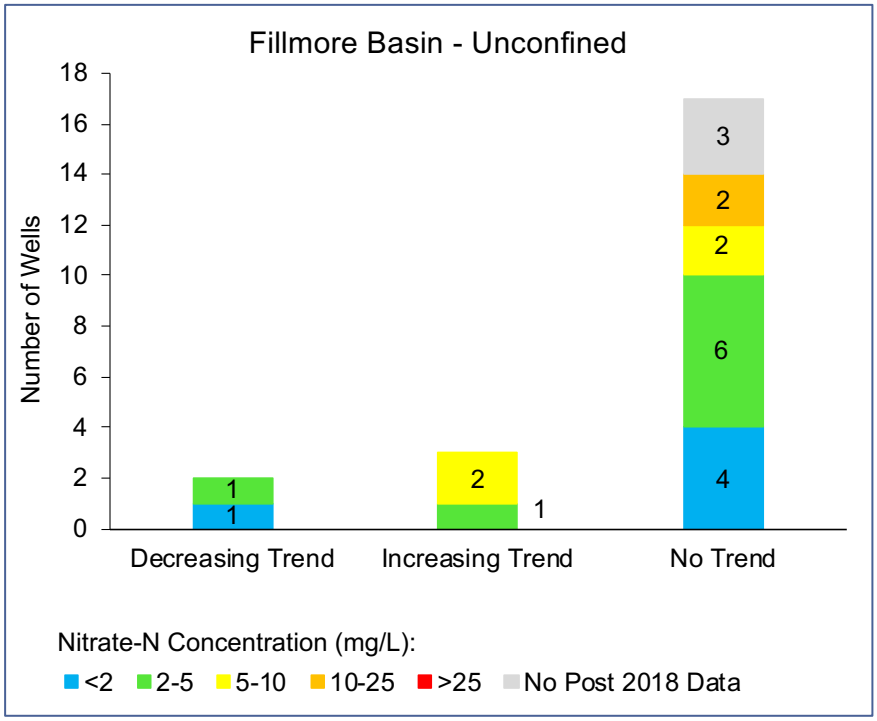


Figure 19. Breakdown of Trends for Wells in the Fillmore Subbasin

Piru Subbasin (DWR Subbasin No. 4-04.06)

Except for the unincorporated community of Piru, land use in the Piru Subbasin is principally rural residential, agricultural, and open space associated with the Santa Clara River. Approximately 54% of the Piru Subbasin is occupied by agricultural lands. Generally, the main crops grown in the Piru Subbasin are citrus, avocados, and row crops.

The northern boundary of the Piru Subbasin is the contact with relatively impervious rocks of the Topatopa Mountains and the San Cayetano Fault (DWR, 2003). The southern boundary is formed by the relatively impervious rocks of Oak Ridge and Santa Susana Mountains (DWR, 2003). The western boundary of the subbasin is a bedrock constriction that causes rising groundwater flowing toward the Fillmore Subbasin (CSWRB 1953). The primary water-bearing units in the subbasin include upper Pleistocene to Holocene alluvium and lower Pleistocene San Pedro Formation (CSWRB 1956). The subbasin is generally unconfined. Groundwater flow is generally westerly, following the axis of the basin (DWR, 2003).

The trend results for wells that passed the climatic cycle screening criterion, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 20-21. No well had an average nitrate concentration above the MCL, and nitrate in most wells is well below the MCL.

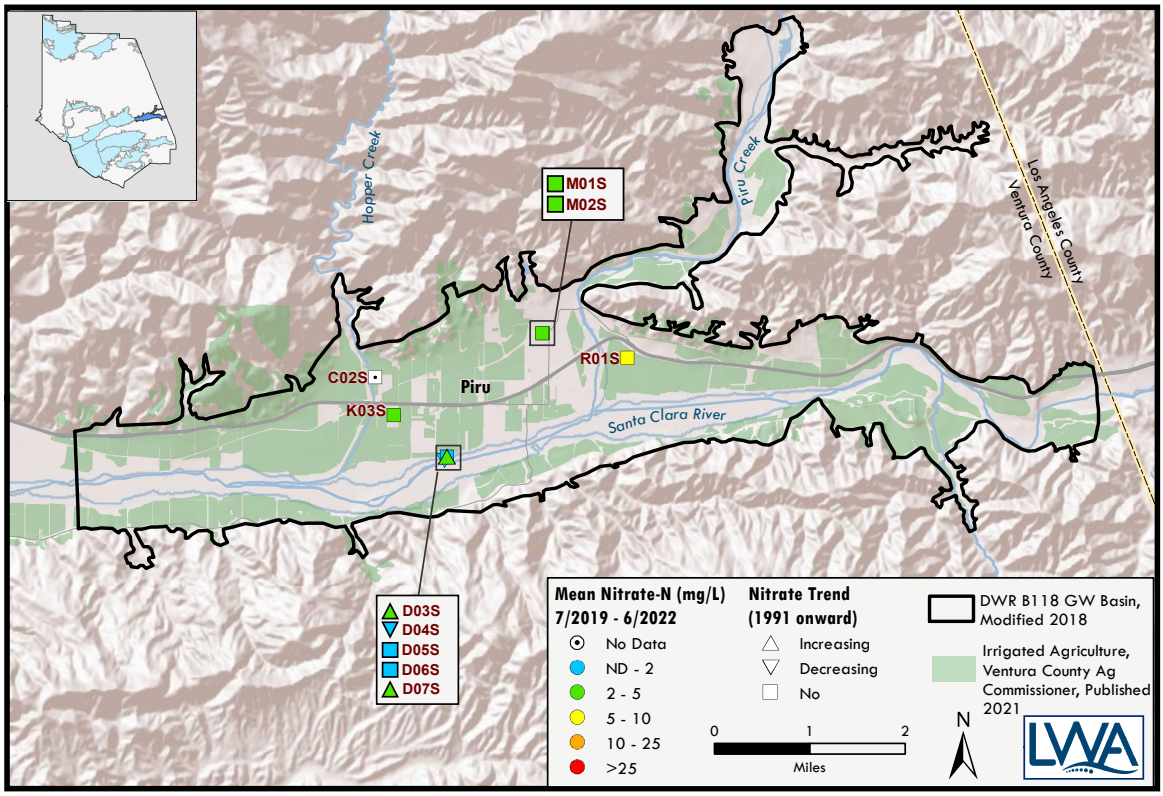


Figure 20. Map of Nitrate Trends for Wells in the Piru Subbasin

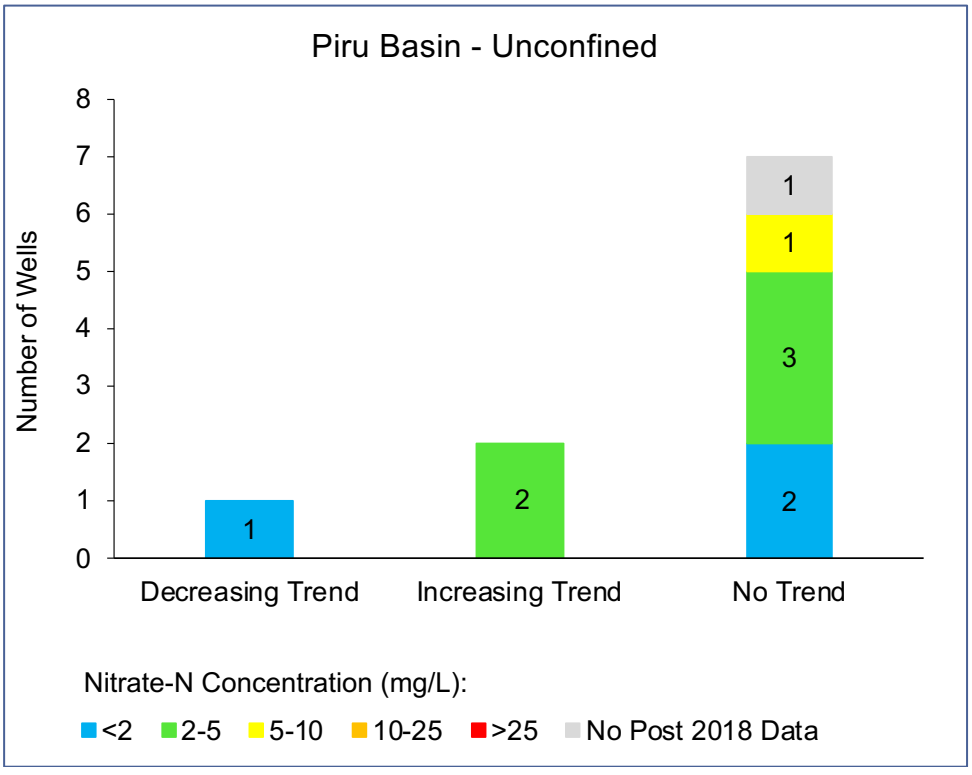


Figure 21. Breakdown of Trends for Wells in the Piru Subbasin

CALLEGUAS CREEK WATERSHED BASINS

Six groundwater basins are located wholly within the Calleguas Creek Watershed: Pleasant Valley Basin, Arroyo Santa Rosa Valley Basin, Las Posas Valley Basin, Simi Valley Basin, Conejo Valley Basin, and the Tierra Rejada Basin. As previously explained, the Simi Valley and Conejo Valley Basins were not evaluated due to the minimal amount of agricultural irrigated land overlying these basins. In addition, although the Oxnard Basin underlies portions of the lower Calleguas Creek watershed, DWR includes the Oxnard Basin as part of the Santa Clara River Valley Basin, and it was described above with the other basins in the Santa Clara River Valley Basin.

Pleasant Valley Basin (DWR Subbasin No. 4-06)

The northern portion of the Pleasant Valley Basin is occupied primarily by the City of Camarillo; the southern portion of the basin is predominantly agriculture. Approximately 35% of the Pleasant Valley Basin is occupied by agricultural lands. Generally, the main crops grown in the Pleasant Valley Basin are row crops and berries.

The Pleasant Valley Basin is characterized by a low-lying alluvial plain which rises gently to the north. The Oxnard Subbasin borders the basin to the west and south. The Camarillo Hills and Las Posas Hills form the northern boundary of the basin. The Las Posas Subbasin also borders the Pleasant Valley Basin to the north in the gap between the Camarillo and Las Posas Hills. The eastern boundary of the subbasin is formed by the Bailey Fault and contact with nearly impermeable rocks of the Santa Monica Mountains. The Arroyo Santa Rosa Valley Basin lies northeast of the Pleasant Valley Basin.

The groundwater system in the Pleasant Valley Basin includes an unnamed recharge area in the northern portion of the basin in the gap between the Camarillo and Las Posas Hills. The remainder of the basin is largely confined. The Pleasant Valley Basin is differentiated from the Oxnard Subbasin based on the general lack of the upper aquifers that are present in the Oxnard Subbasin. The deep aquifers present within the Pleasant Valley Basin are found within the lower San Pedro Formation and the upper Santa Barbara Formation. The main groundwater flow pattern is generally from recharge area in the north part of the basin southwest toward the Oxnard Subbasin.

The trend results for wells that passed the screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 22-23. Average nitrate concentrations in the basin are well below the nitrate MCL. No public water system wells exceed the nitrate MCL.

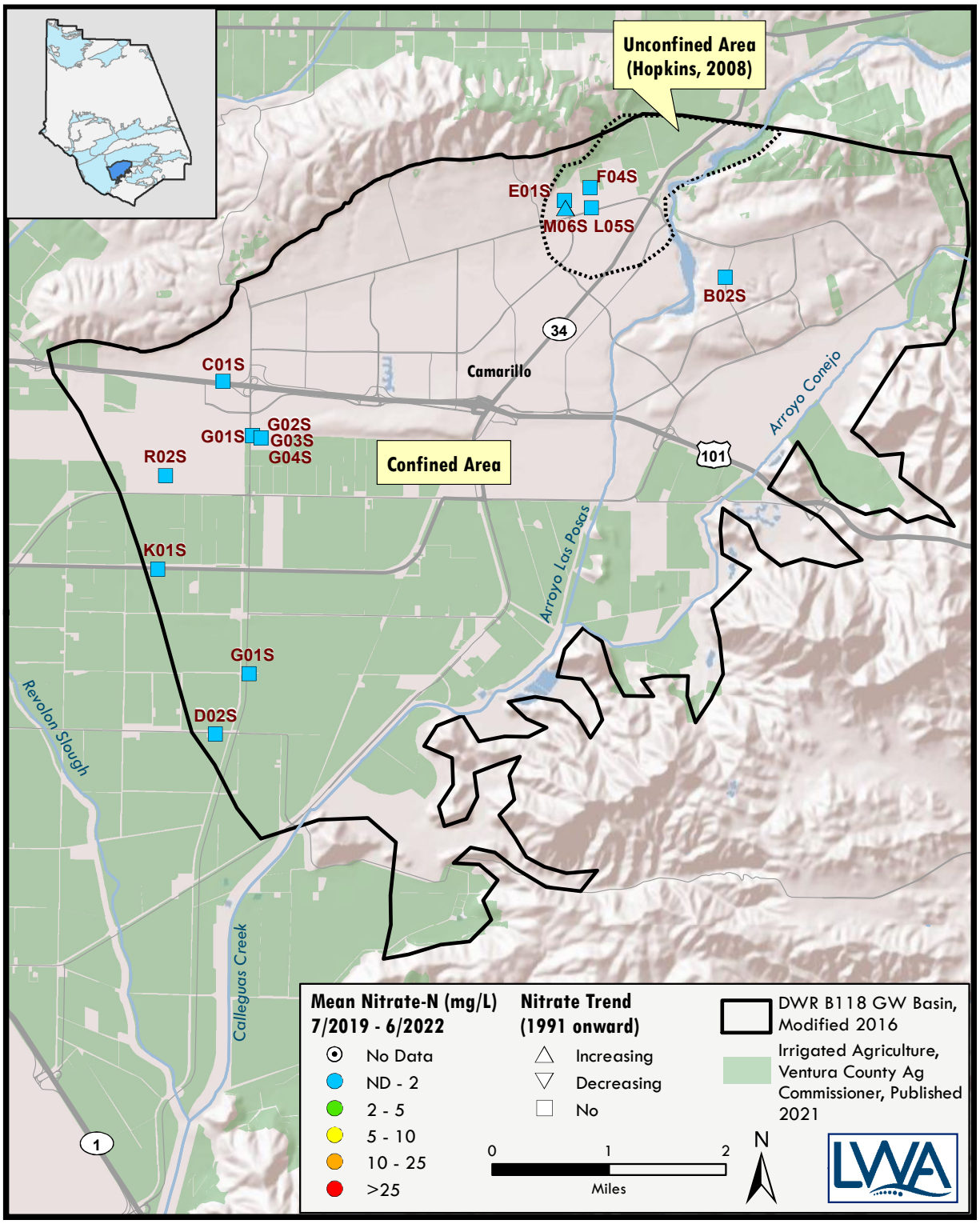


Figure 22. Map of Nitrate Trends for Wells in the Pleasant Valley Basin

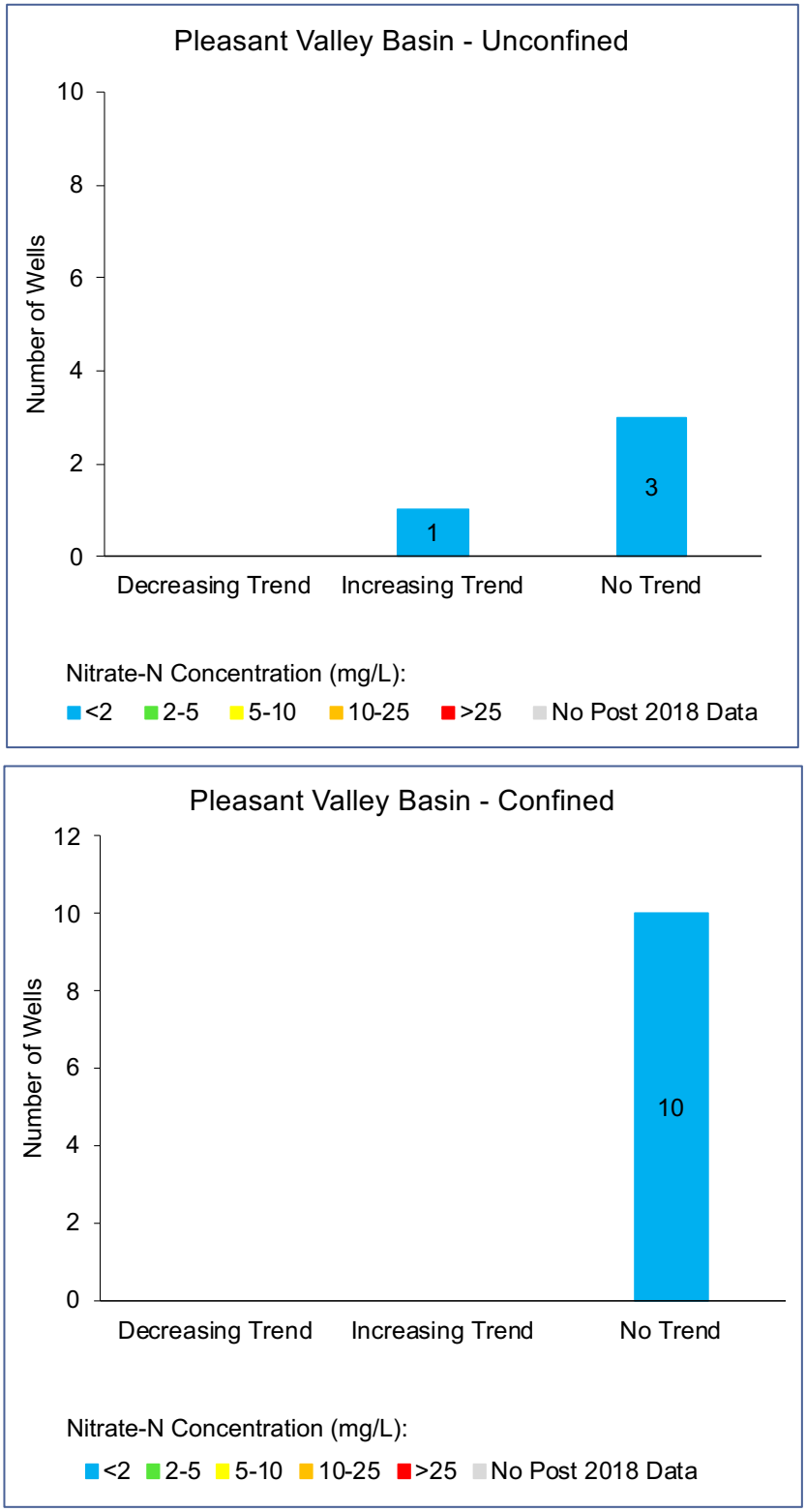


Figure 23. Breakdown of Trends for Wells in the Pleasant Valley Basin

Arroyo Santa Rosa Valley Basin (DWR Subbasin No. 4-07)

Land use in the Arroyo Santa Rosa Valley Basin is primarily rural residential and agriculture. Approximately 50% of the Arroyo Santa Rosa Valley Basin is occupied by agricultural lands. Generally, the main crops grown in the Arroyo Santa Rosa Valley Basin are citrus, avocados, and row crops.

The Arroyo Santa Rosa Valley Basin is a relatively small alluvial fill valley underlain by the water-bearing upper San Pedro Formation (DWR, 2003). The Arroyo Santa Rosa Valley Basin is bounded by the Las Posas Hills and Santa Rosa Fault to the north and the Santa Monica Mountains to the south and east. The western basin boundary with the Pleasant Valley Basin consists of a constriction in the Holocene alluvium. The Bailey Fault forms a partial barrier to groundwater flow in the western portion of the basin.

The groundwater system in the Arroyo Santa Rosa Valley Basin is encountered in Holocene and Pleistocene-age alluvium and the San Pedro Formation (DWR, 2003). The basin is generally unconfined, except in the San Pedro Formation which is limited to the western approximately one third of the basin (west of the Bailey Fault) (DWR, 2003). The main groundwater flow pattern in the basin is generally from east to west.

The trend results for wells that passed the screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 24-25. Three wells had average nitrate concentrations above the MCL, although two of them show a decreasing trend for the period 1991-2022. Nitrate has historically been an issue in the Arroyo Santa Rosa Basin, with average nitrate concentrations in the basin frequently exceeding the MCL, including in several public water system wells owned by Camrosa Water District. Camrosa Water District manages nitrate by blending with imported water.

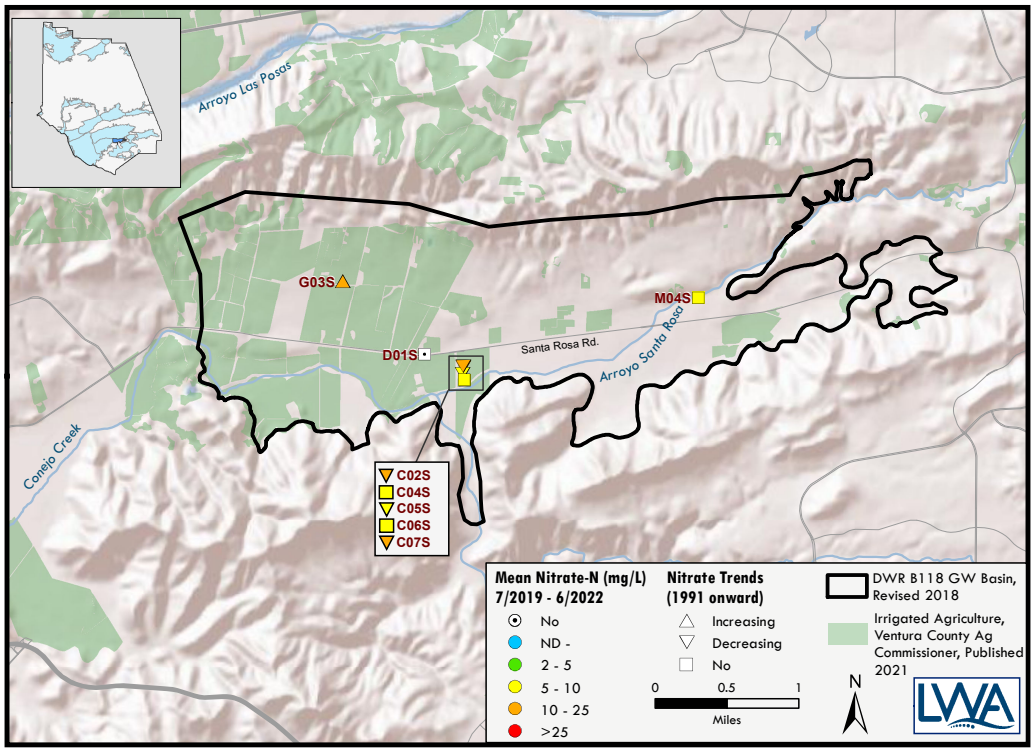


Figure 24. Map of Nitrate Trends for Wells in the Arroyo Santa Rosa Valley Basin

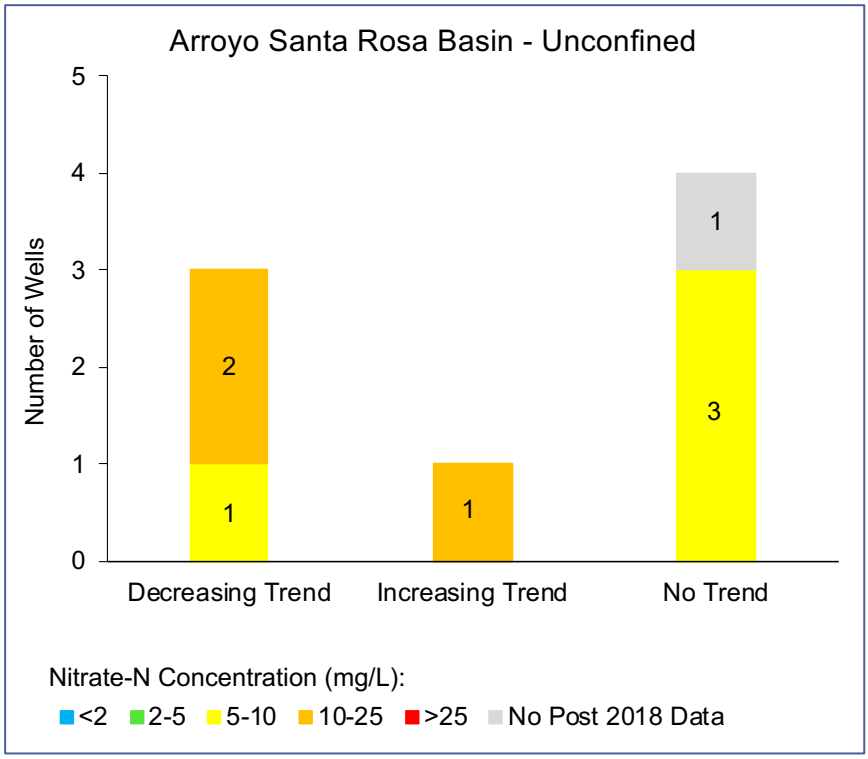


Figure 25. Breakdown of Trends for Wells in the Arroyo Santa Rosa Valley Basin

Las Posas Valley Basin (DWR Subbasin No. 4-08)

Except for the City of Moorpark to the east, land use in the Las Posas Valley Basin is primarily rural residential and agriculture. Approximately 48% of the Las Posas Valley Basin is occupied by agricultural lands. Generally, the main crops grown in the Las Posas Valley Basin are citrus, avocados, berries, and row crops.

The upper aquifers present in the Oxnard Plain Subbasin are generally not present in the Las Posas Valley Basin. The principal aquifer in the Las Posas Valley Basin is the Fox Canyon Aquifer of the lower San Pedro Formation. Locally, alluvium associated with the Arroyo Las Posas is an important aquifer as are alluvial fan deposits within the upper San Pedro Formation that form the Fairview/Epworth Gravels Aquifer in the northeastern part of the basin. The Las Posas Valley Basin is bounded on the north by the non-water-bearing rocks of South Mountain and Oak Ridge Hills and the Springville and Santa Rosa Fault systems to the south. The basin is bounded on the east by the Santa Susana Mountains and is in hydraulic communication with the Oxnard Subbasin to the west.

Much of the Las Posas Valley Basin is considered confined. Unconfined areas are generally limited to the aquifer outcrop areas on the basin margins, the shallow, alluvial aquifer associated with the Arroyo Las Posas floodplain, and the Fairview/Epworth Gravels Aquifer in the northeastern part of the basin. A north-south trending fault located near the gap between the Camarillo and Las Posas Hills (Somis Fault) bisects the Las Posas Valley Basin into two hydraulically disconnected subbasins. The main groundwater flow direction is the western subbasin is generally from northwest to southeast. The main groundwater flow in eastern subbasin is generally from the north, south, and east toward the center of the basin where pumping is concentrated.

The trend results for wells that passed the screening criteria, binned according to mean nitrate concentrations during 2019-2022, are presented in Figures 26-28. In Figures 27-28, the portion of the basin west of the Somis Fault is referred to as the West Las Posas Valley Subbasin and the portion of the basin to the east of the Somis Fault is referred to as the East/South Las Posas Valley Subbasin. This geographic distinction aligns with the West- and East Las Posas Management Areas, respectively, that are used by the Fox Canyon Groundwater Management Agency. Average nitrate concentrations in the basin are generally well below the nitrate MCL, as would be expected in a principally confined basin. No public water system wells exceed the nitrate MCL. As explained in the data sources section above, CMWD has ceased to monitor a number of wells in the Las Posas Valley Basin that are currently included in the annual trends reporting; this is evidenced by the number of wells in Figures 26-28 shown as having no data for 2019-2022. It may become inappropriate at a future date to continue reporting trends for these wells.

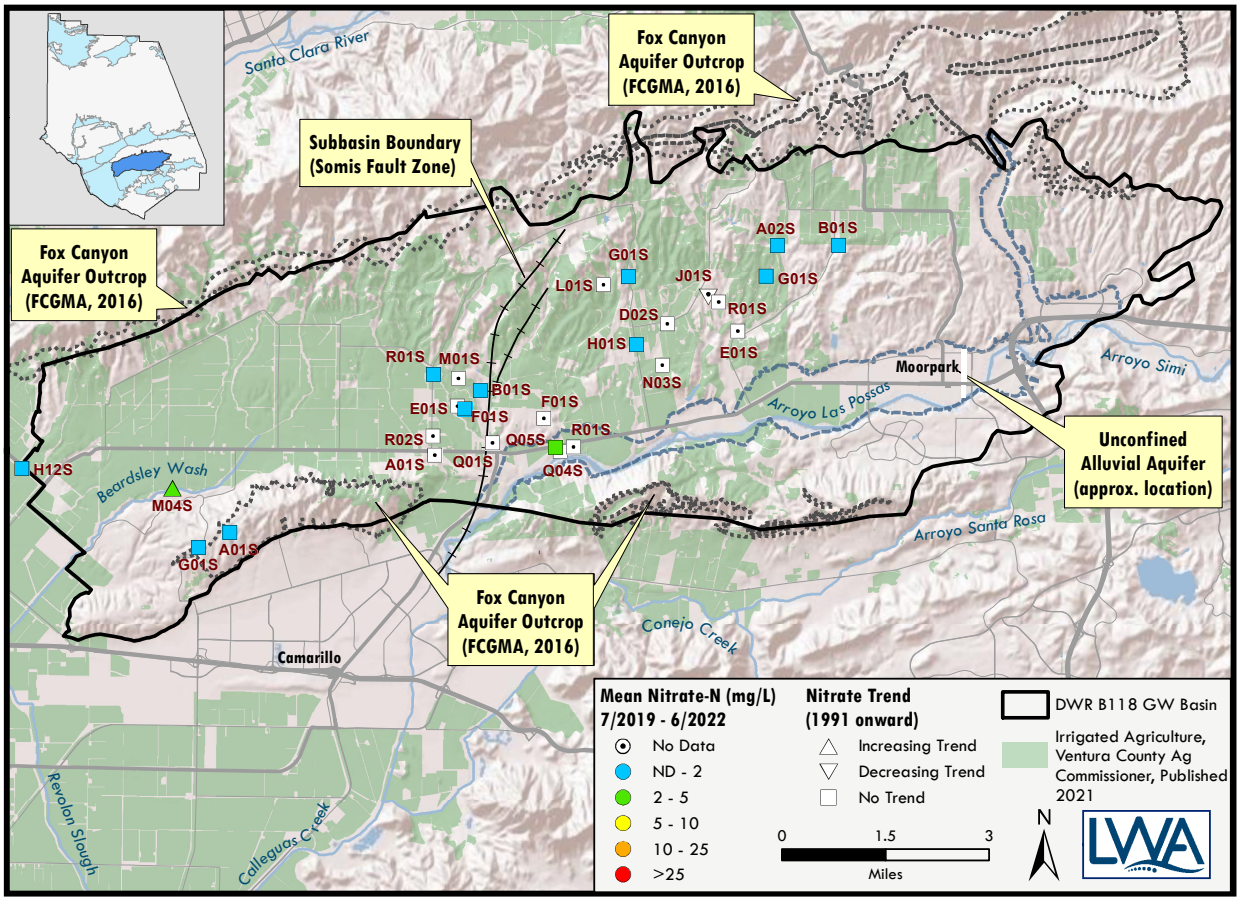


Figure 26. Map of Nitrate Trends for Wells in the Las Posas Valley Basin

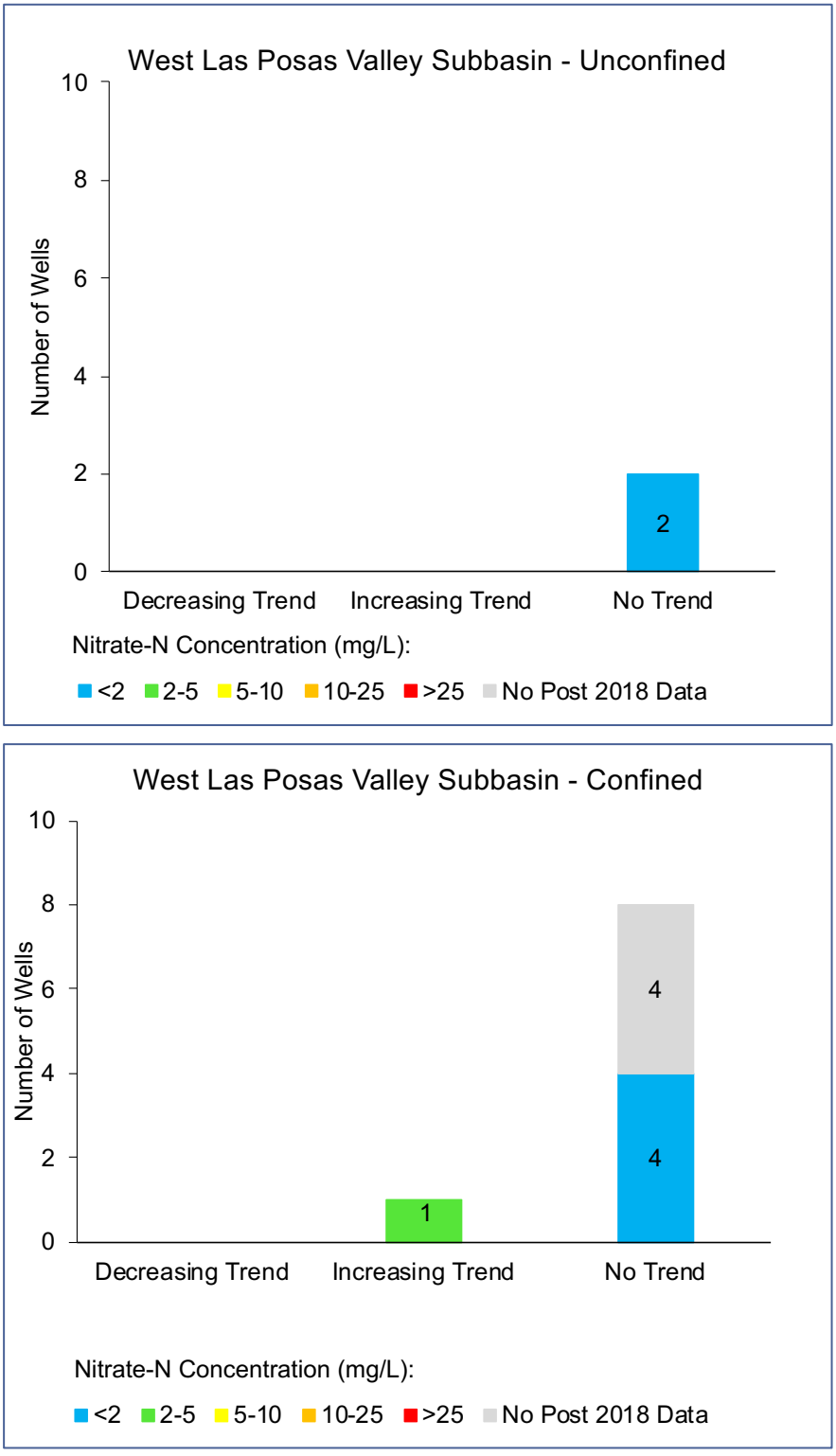
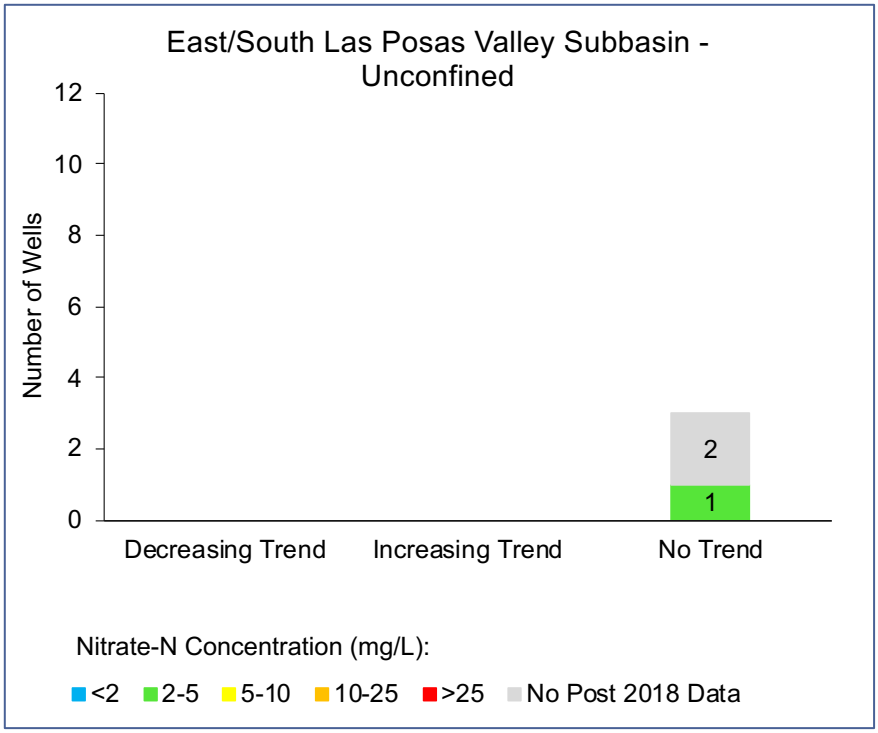


Figure 27. Breakdown of Trends for Wells in the West Las Posas Valley Subbasin



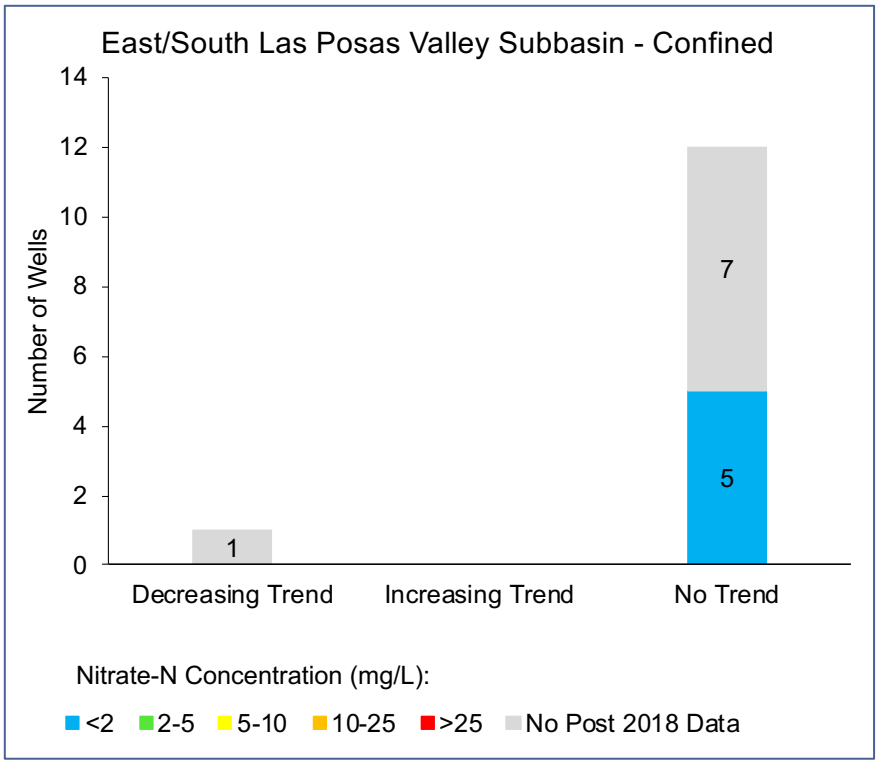


Figure 28. Breakdown of Trends for Wells in the East/South Las Posas Valley Subbasin

Tierra Rejada Basin (DWR Subbasin No. 4-15)

The Tierra Rejada Basin is relatively small basin located upstream of the Arroyo Santa Rosa Basin. Land use in the Tierra Rejada Basin is a mix of residential, agricultural, golf courses, and

open space. Approximately 16% of the Tierra Rejada Basin is occupied by agricultural lands. Generally, the main crops grown in the Tierra Rejada Basin are avocados and row crops.

Groundwater in the basin is found in alluvium and the Modelo, Topanga, and Conejo Formations (DWR, 2003). Quaternary age alluvium is generally found only near the center of the valley where it is interpreted as about 25 feet thick (Schaaf 1998). This unit can bear water, but is not the major producer in the basin (DWR, 2003). The Miocene age Modelo Formation consists of marine sandstone and shale and unconformably overlies the Topanga and Conejo Formations (CSWRB 1953). The Miocene age Topanga Formation contains sandstone, conglomerate and shale in this basin (DWR, 2003). The Miocene age Conejo Formation consists of volcanic tuff, debris flow, and basaltic flow and breccia deposits (CSWRB 1956). There is very limited available information concerning the degree of confinement or groundwater flow directions in the Tierra Rejada Basin.

Two wells passed the screening criteria in this basin (Figures 29-30). Nine other regularly sampled wells with variable recent nitrate concentrations did not pass the screening criteria. In order to adequately characterize nitrate trends in this basin it may be necessary to adjust the screening criteria for well selection in the future. The well near the western margin of the basin, with an average nitrate-N concentration < 2 mg/L, is the only public water system well in the basin.

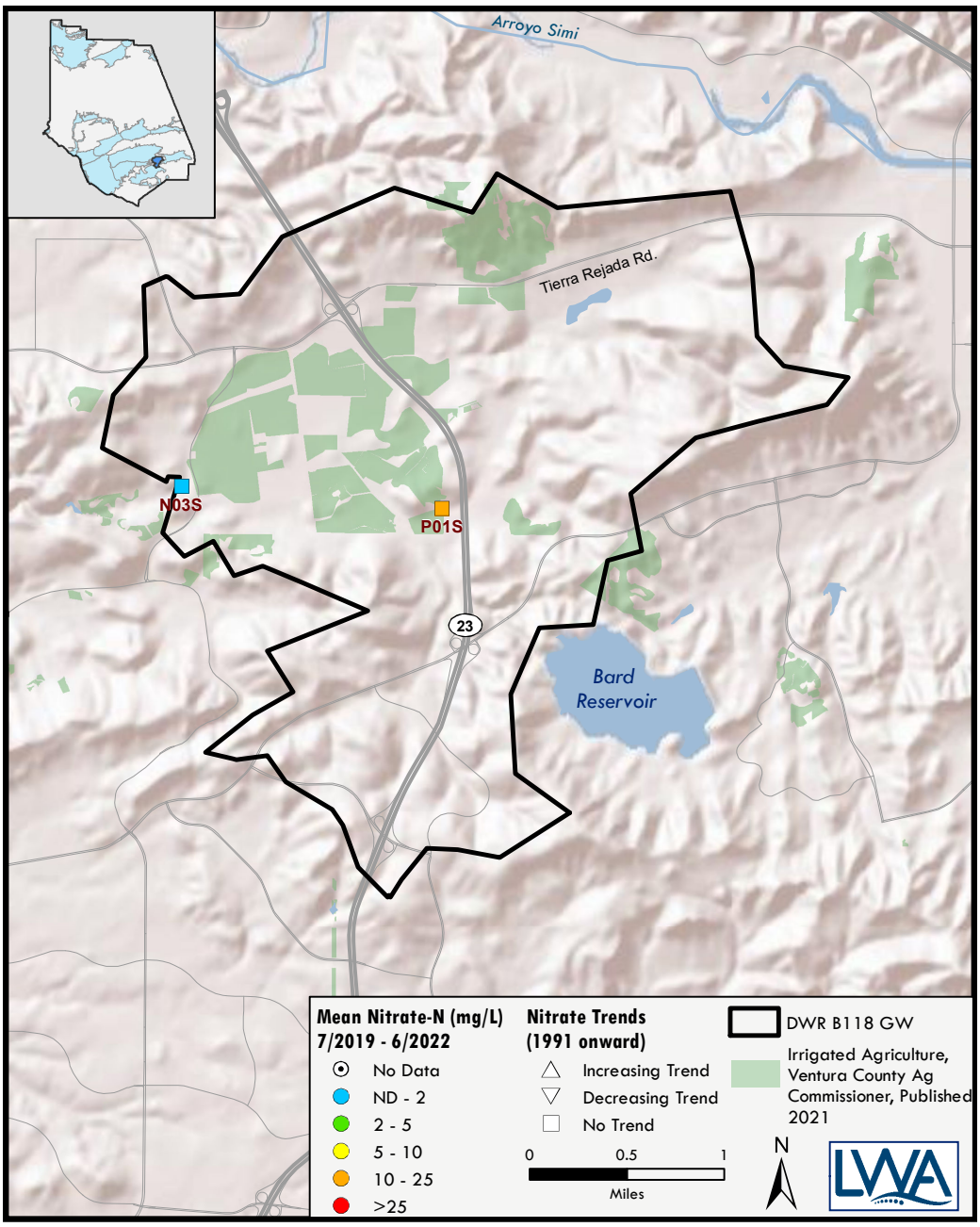


Figure 29. Nitrate Trends for Wells in the Tierra Rejada Basin

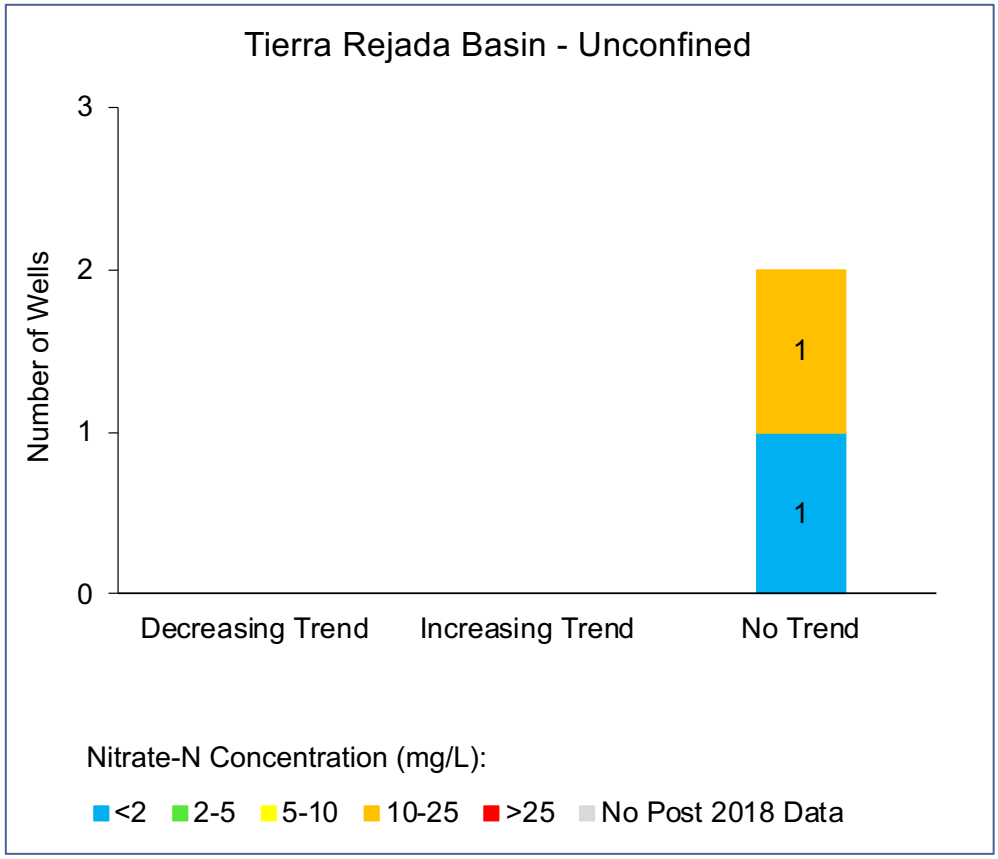


Figure 30. Breakdown of Trends for Wells in the Tierra Rejada Basin

MALIBU CREEK WATERSHED

One basin retained for trends monitoring (Hidden Valley Basin) is in the Malibu Creek Watershed.

Hidden Valley Basin (DWR Subbasin No. 4-16)

The Hidden Valley Basin is relatively small basin located south of the Conejo Basin in the Santa Monica Mountains. Land use in the Hidden Valley Basin a mix of residential, rural, and agricultural. Approximately 27% of the Hidden Valley Basin is occupied by agricultural lands, although very little of this area is irrigated. Grains are the principal crop grown in the Hidden Valley Basin.

Groundwater in the Hidden Valley Basin is encountered in the fractures and interflow zones of the Conejo Formation volcanic deposits and overlying alluvium (DWR, 2003). Groundwater moves southeastward through the basin toward Lake Sherwood (CSWRB, 1953).

No wells passed the screening criteria in this basin. However, during the development of the 2017 annual monitoring report, five wells were identified in the basin with some nitrate data for the period 2013-2015; nitrate concentrations in all five wells were well below the nitrate MCL (the maximum mean concentration, observed in three of the five wells, was 0.3 mg/L), and

the available data for none of them exhibit temporal trends. The location of all five regularly sampled wells that had enough data to generate 2013-2015 mean nitrate concentrations are shown in Figure 31. Post-2015 data for these wells are in Table 1.

Table 1. Post 2015 Nitrate Data for Wells in Hidden Valley Basin

SWN	Sample Date	Nitrate-N (mg/L)
01N19W19H03S	11/14/17	ND
	9/20/19	ND
	12/17/20	ND
	9/23/21	ND
01N20W25C07S	11/30/17	1.2
	11/21/19	3.7
01N20W25F04S	11/30/17	ND
	11/21/19	0.1
	10/19/21	ND
01N19W29E05S	9/20/19	0.6

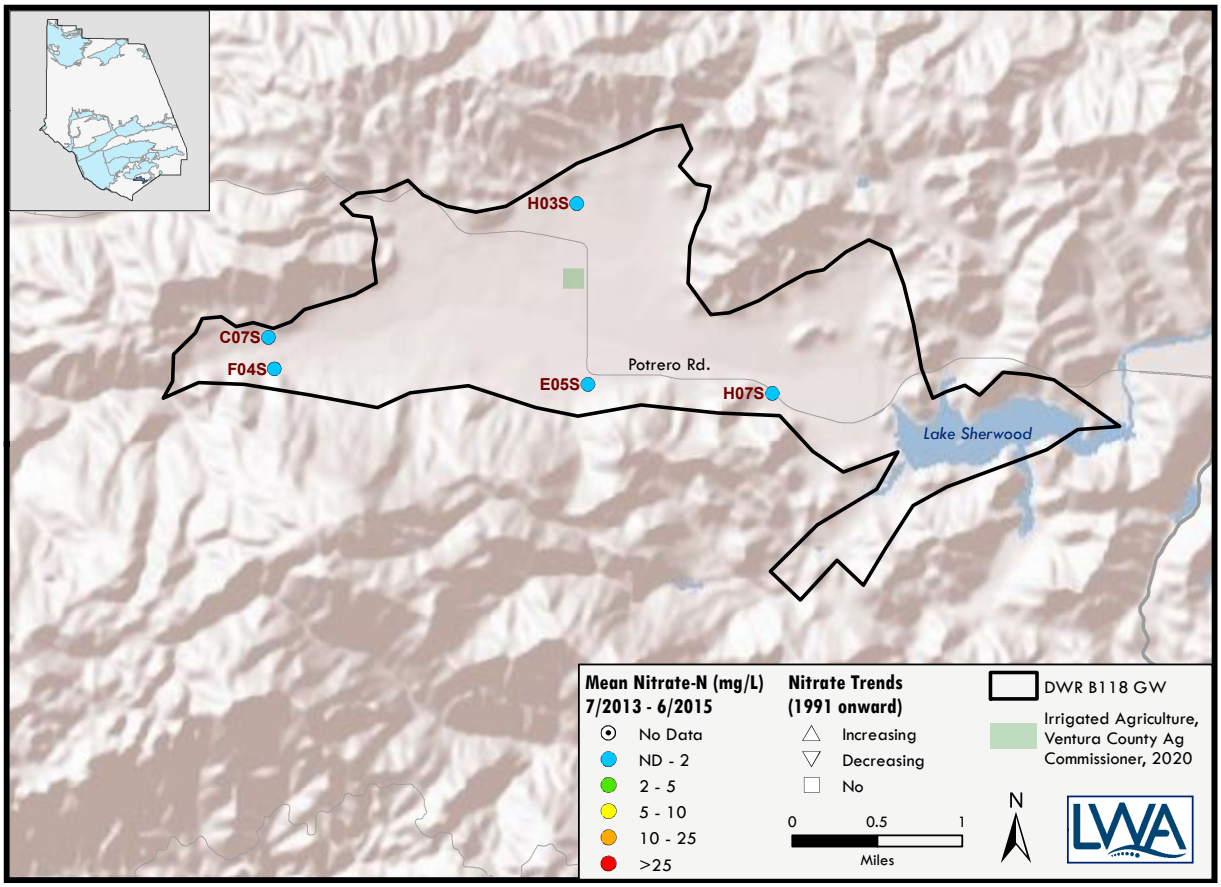


Figure 31. Mean Nitrate-N Concentrations for wells in Hidden Valley Basin for 2013-2015. None of the wells have data sets that passed the climatic screening criterion, and thus trends are not displayed.

SUMMARY

Among all the basins covered by this report, 286 wells passed the screening criteria and, thus, have been identified as suitable, representative wells for nitrate trends reporting. The mean nitrate-N concentrations for the current 3-year averaging period (7/2019-6/2022) exceeded the MCL (10 mg/L nitrate-N) in only 10 of the 286 wells (see Table 2). Recent prior averaging periods (2016-2018, 2017-2019, 2018-2021) yielded 8 wells, 10 wells, and 10 wells with 3-year averages greater than the MCL, respectively. Nineteen wells had mean 2019-2022 nitrate-N concentrations between 5-10 mg/L;[15] in only four cases were nitrate-N concentrations in this range paired with a long-term increasing nitrate-N concentration trend (see Table 2).

Table 2. Numbers of Wells Exceeding the MCL for Nitrate-N or Indicating Potential to Exceed the MCL in the Future

	Number of Wells with 2019-2022 Mean Nitrate-N Concentration 5-10 mg/L and Increasing Trend	Number of Wells with 2019-2022 Mean Nitrate-N Concentration > 10 mg/L
Upper Ventura River Basin	1	
Ojai Valley Basin (confined area)	1	1
Oxnard Basin (in or near Forebay)		3
Fillmore Basin	2	2
Arroyo Santa Rosa Valley Basin		3
Tierra Rejada Basin		1

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[15] The analogous value for the previous 3-year averaging period was 23 wells.

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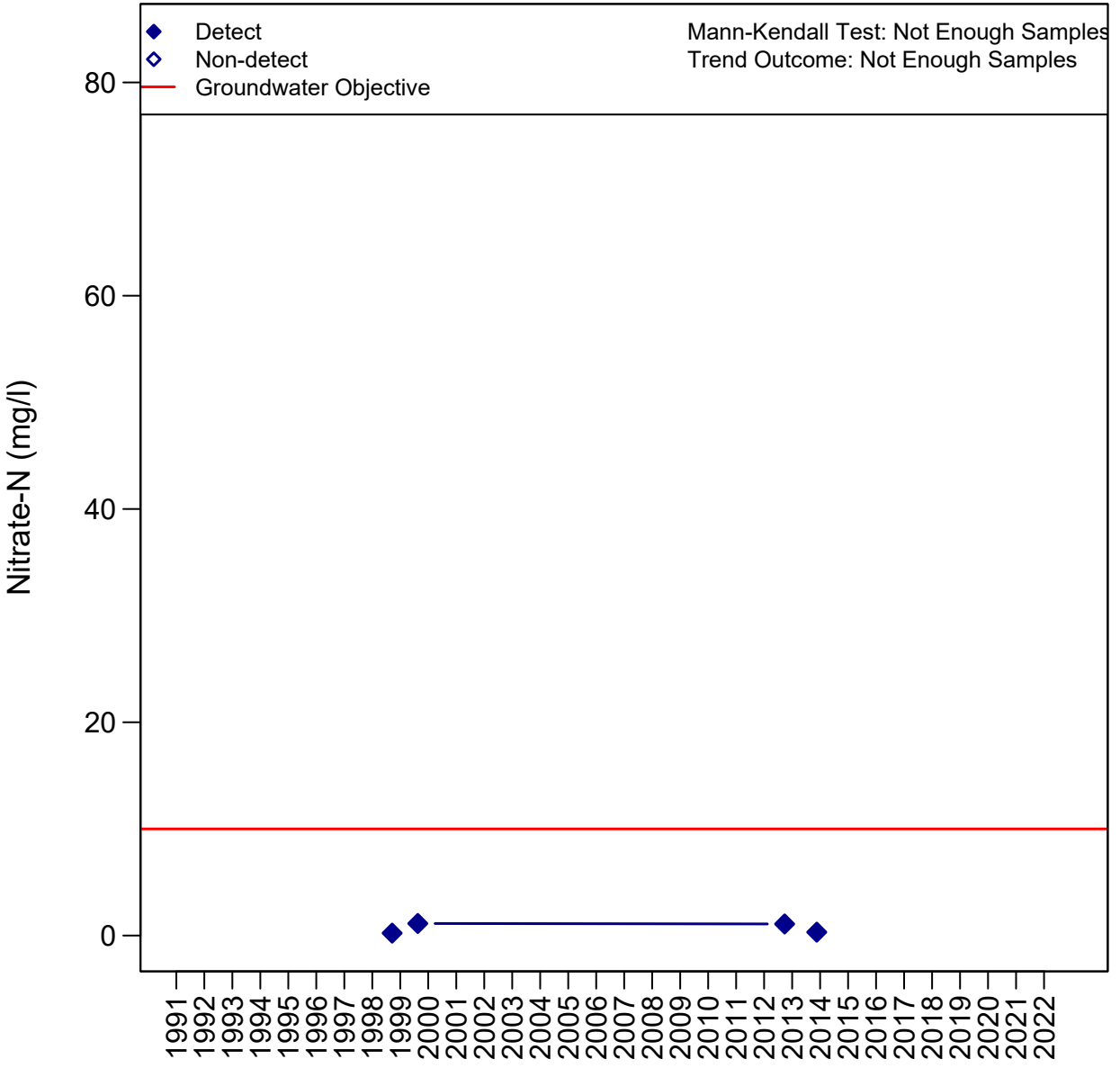
Attachment 1. Nitrate-N Concentration Time Series Plots

Upper Ojai Valley Basin
04N22W10K02S - K02S



Upper Ojai Valley Basin
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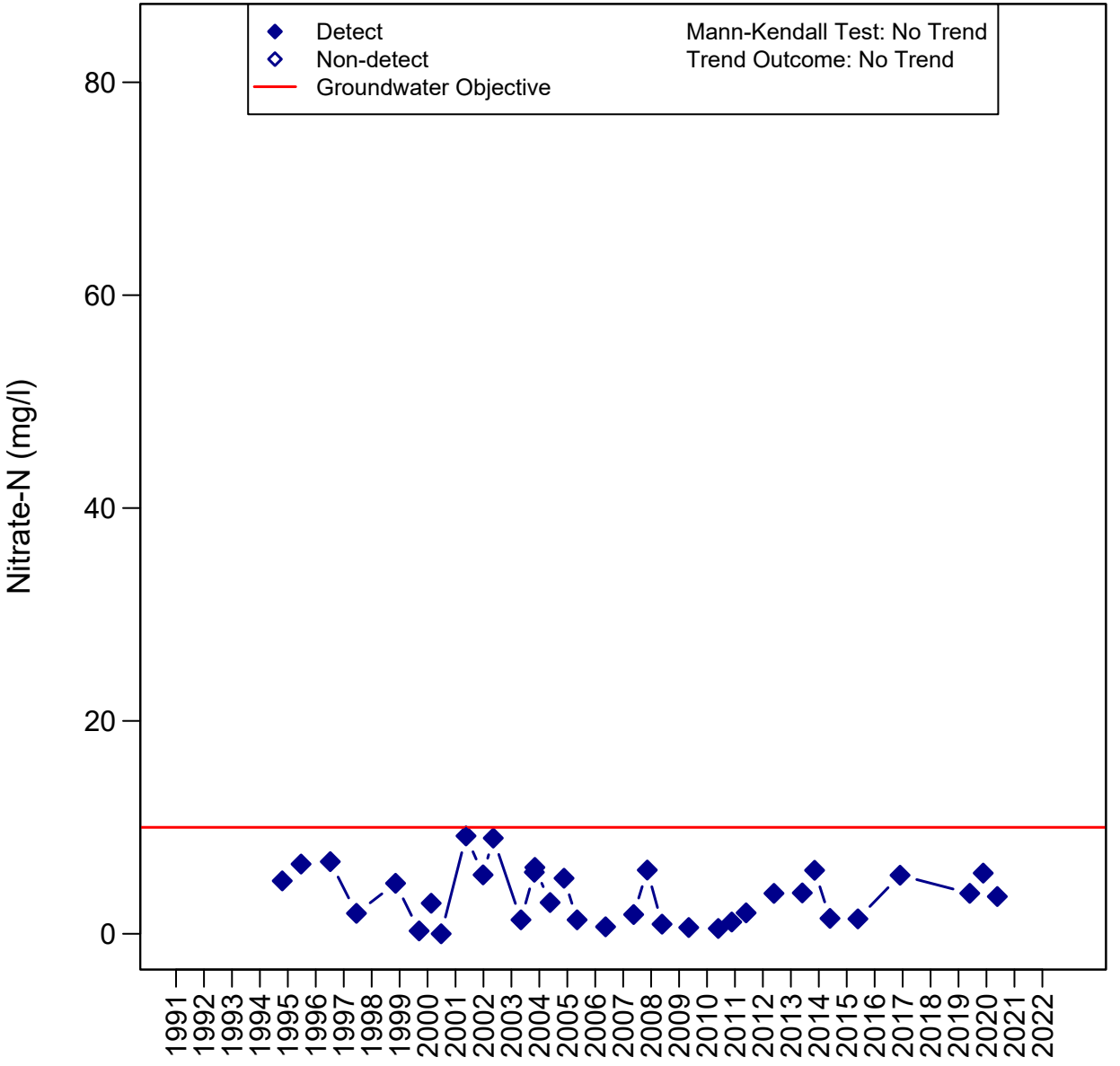
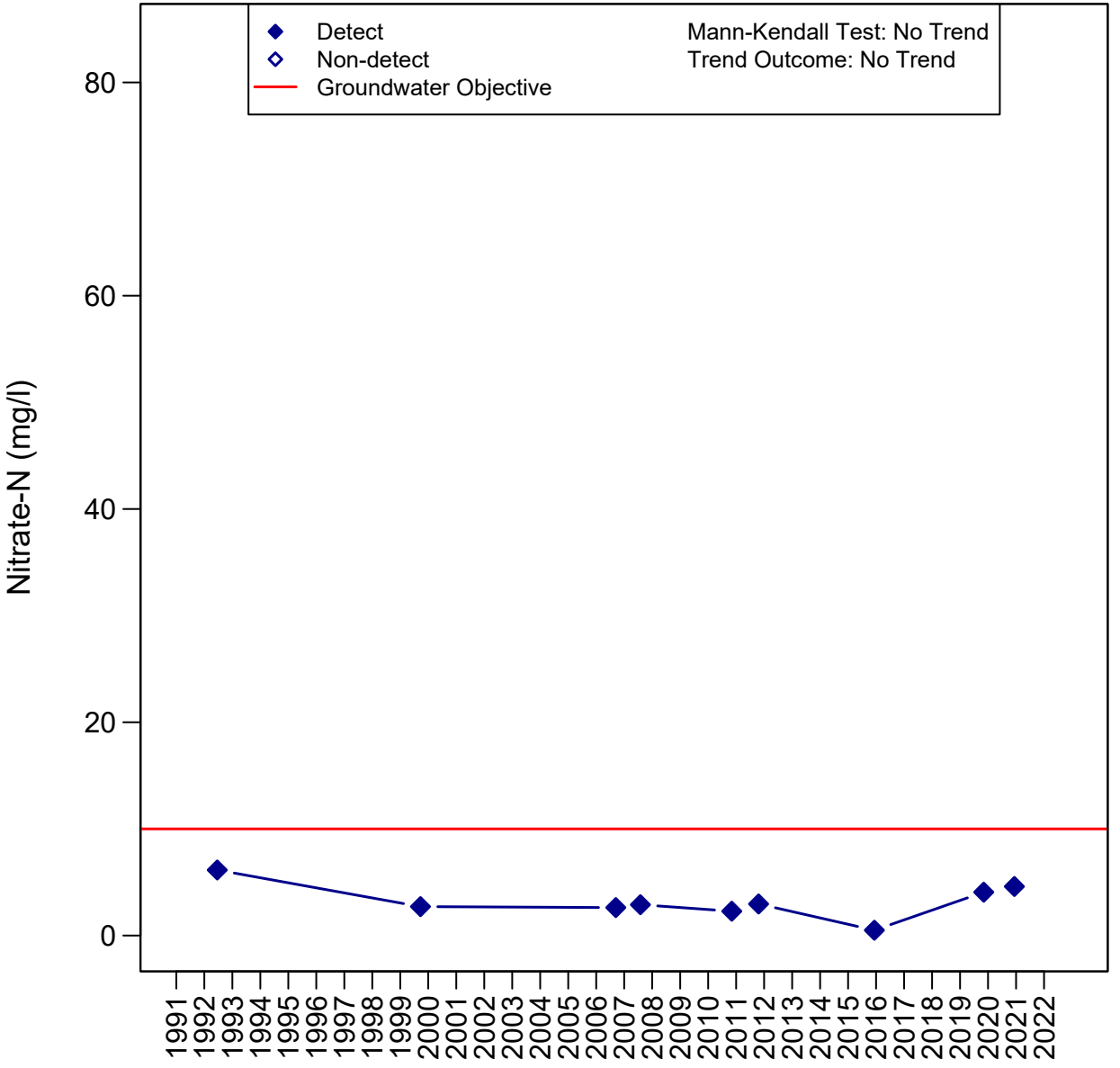
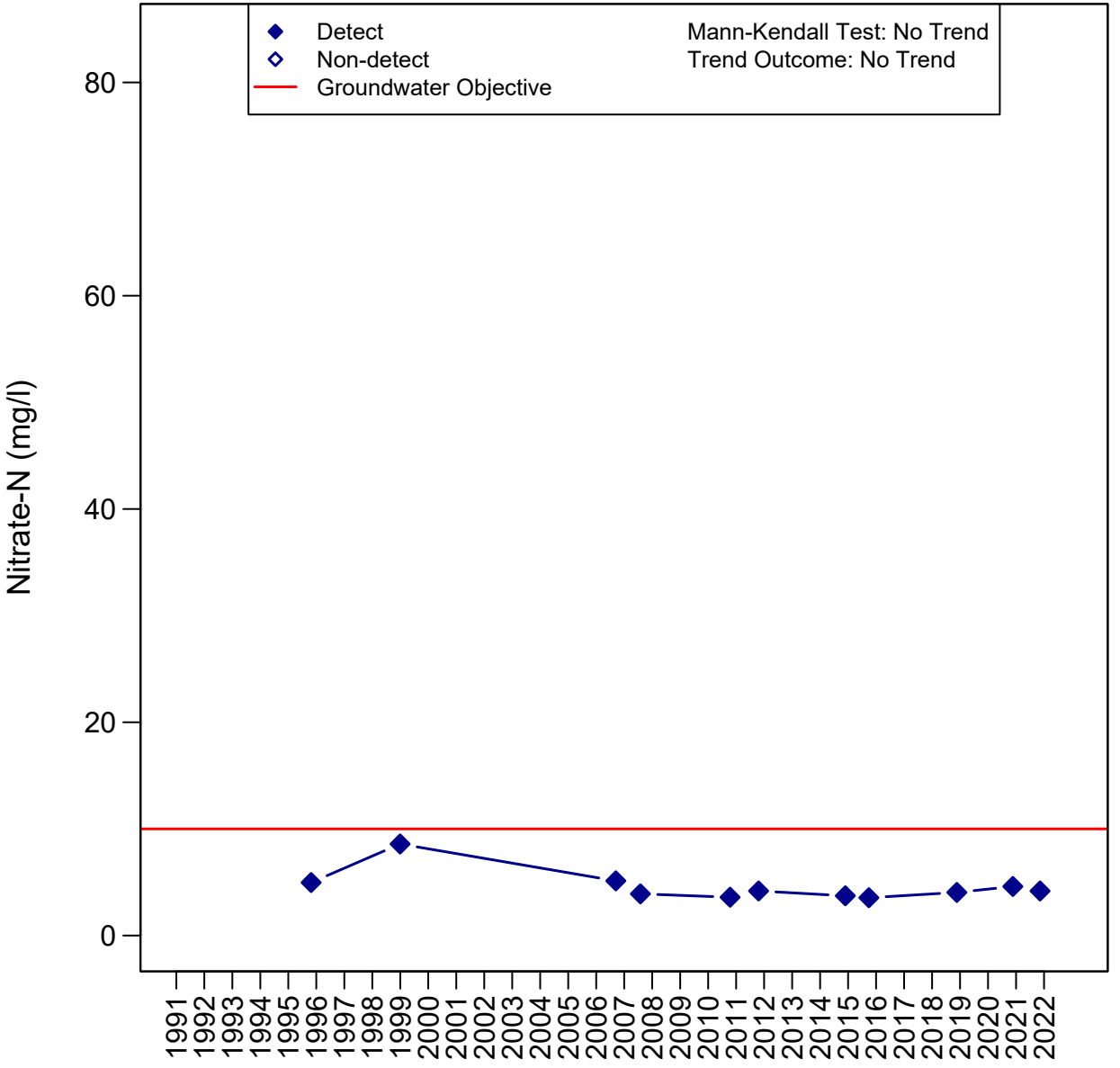


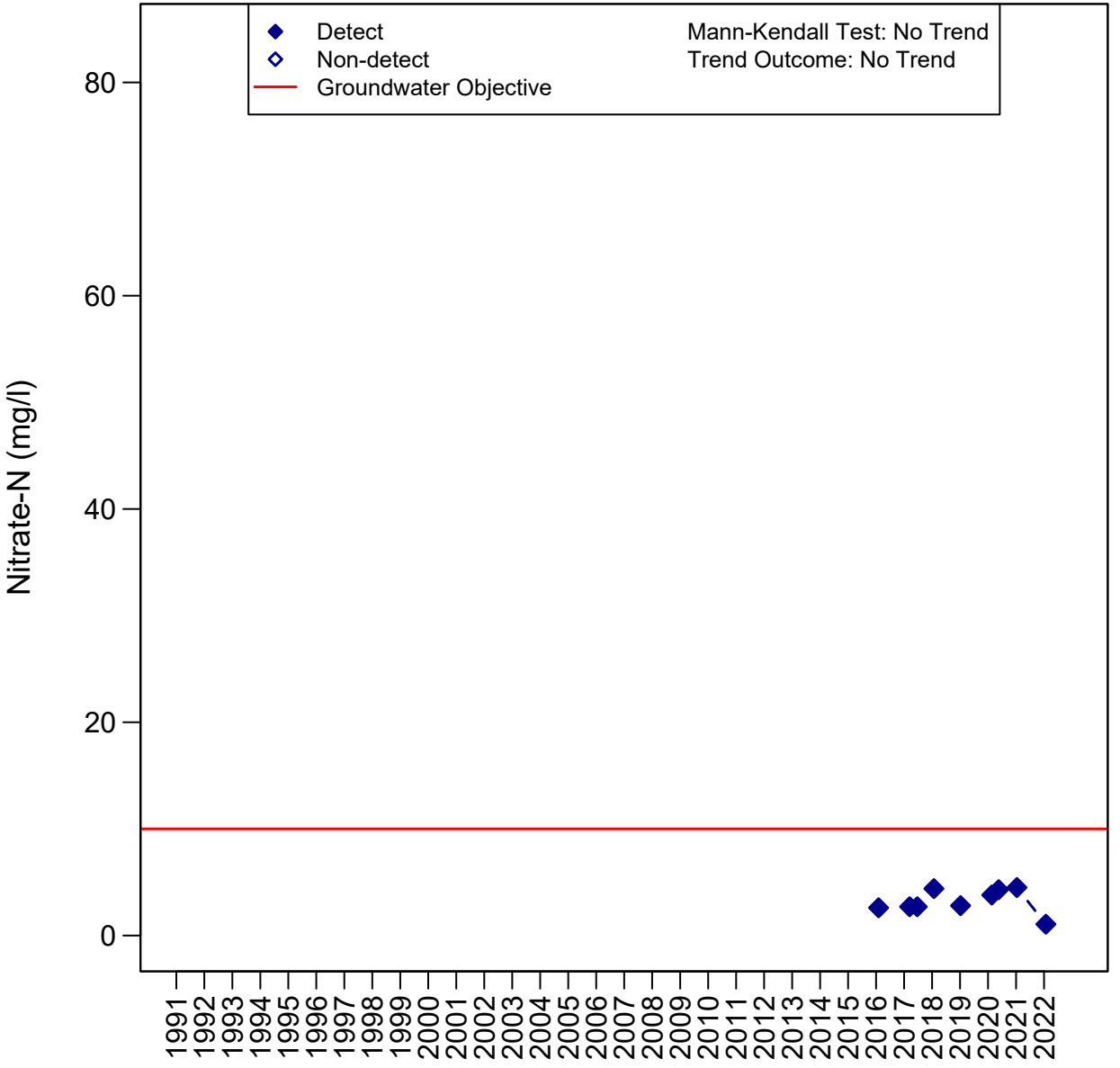
Ojai Valley Basin
04N22W05D03S - D03S



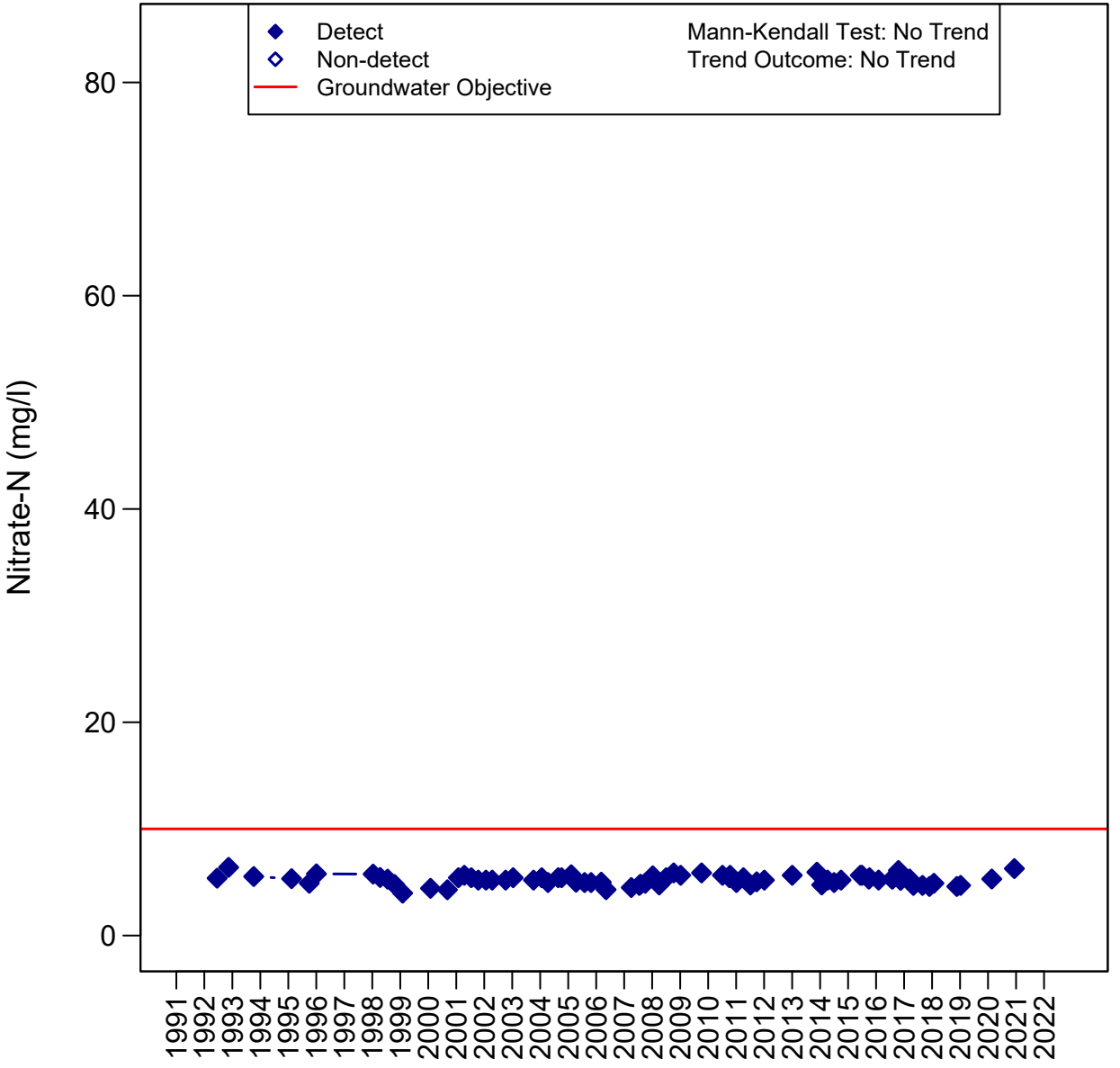
Ojai Valley Basin
04N22W05H04S - H04S



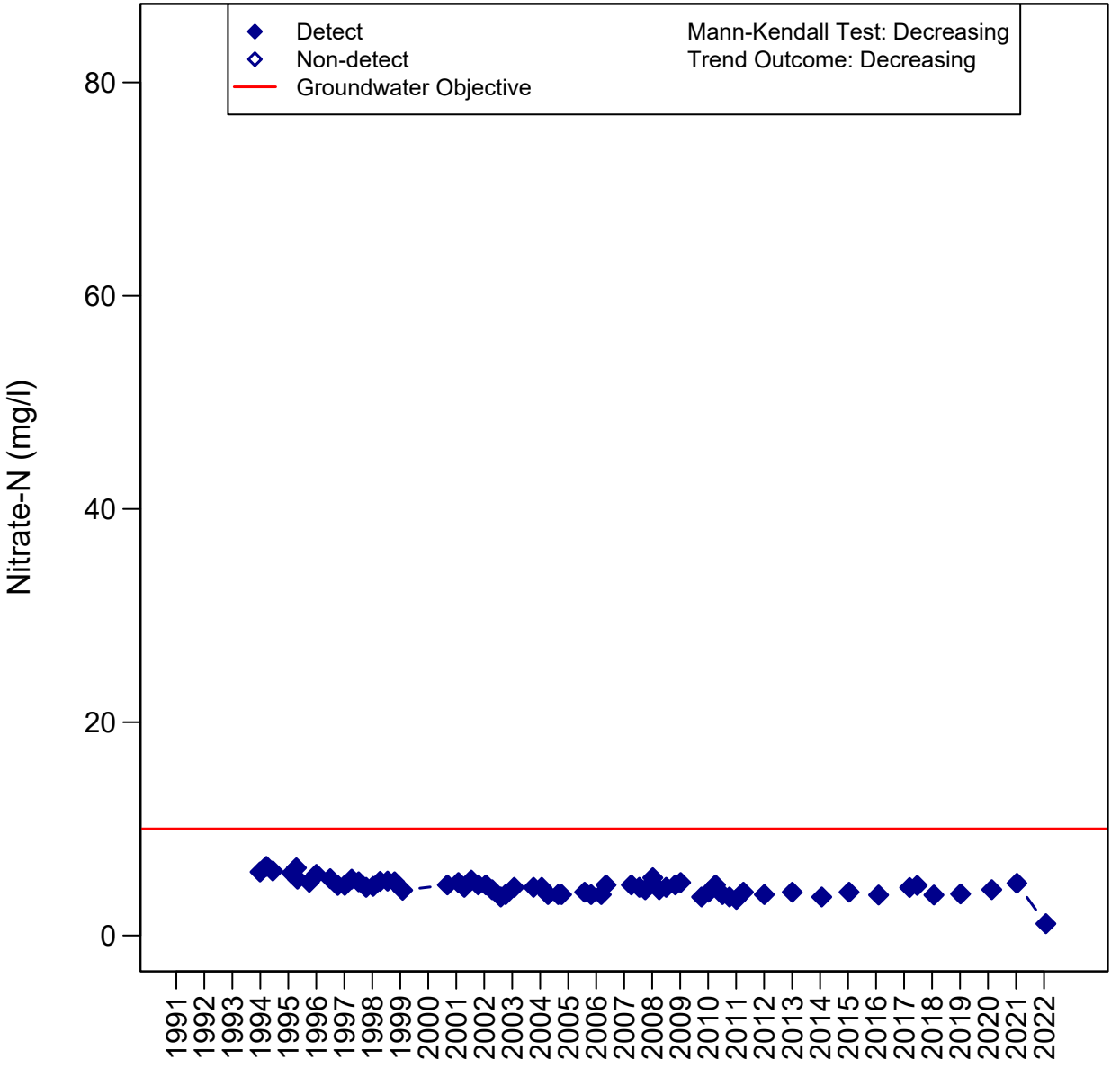
Ojai Valley Basin
04N22W06K03S - K03S



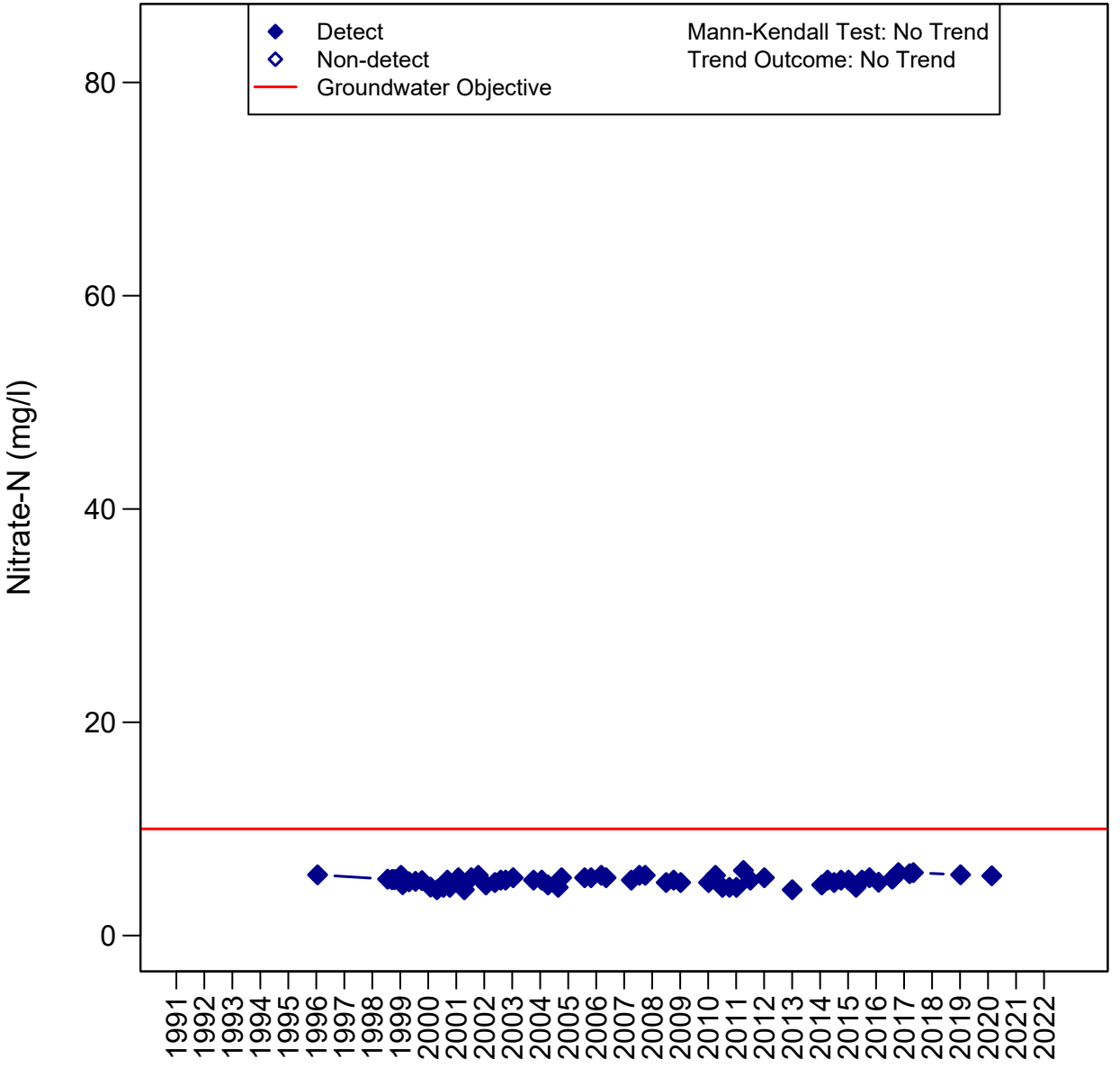
Ojai Valley Basin
04N22W06K10S - K10S



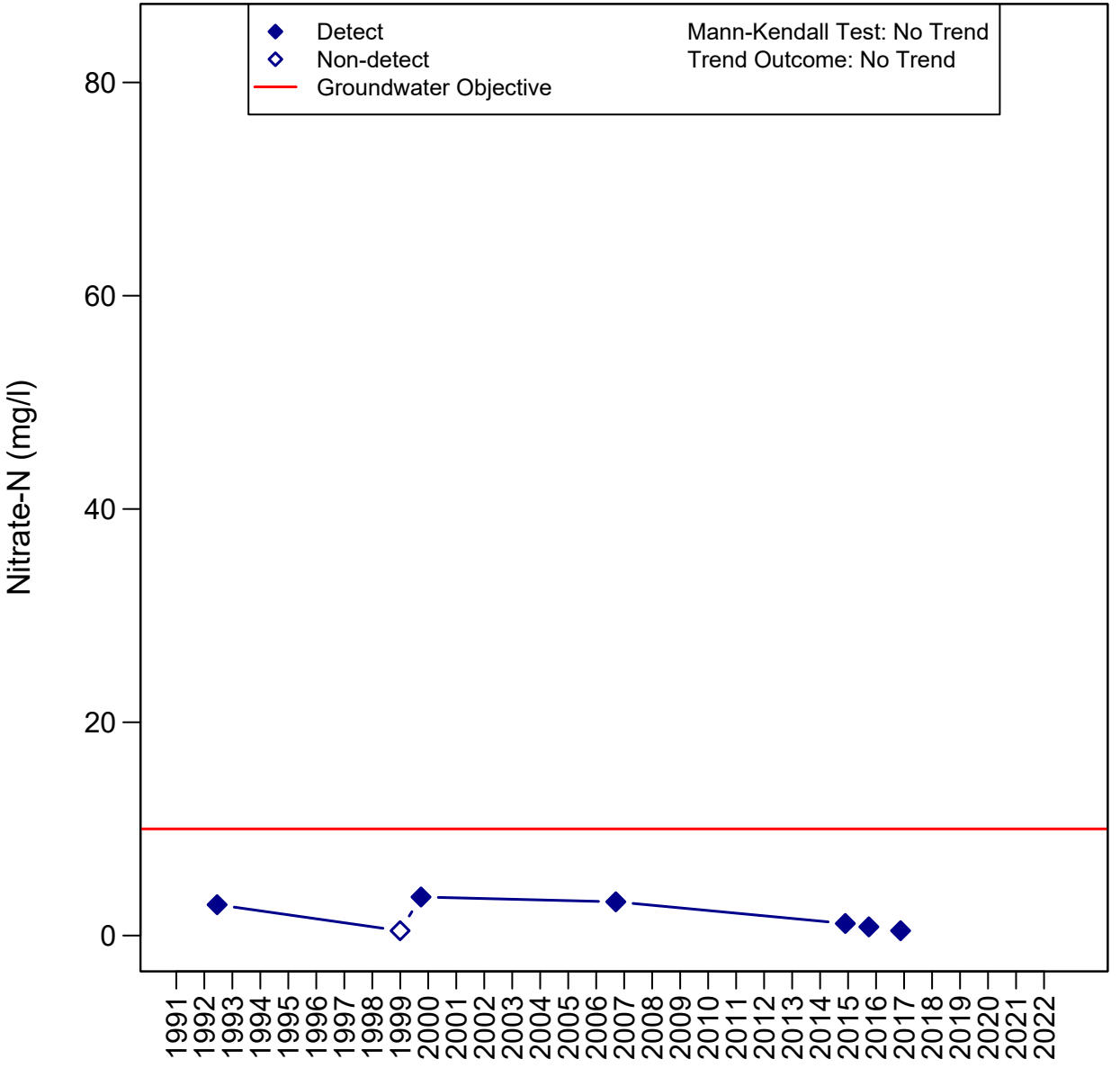
Ojai Valley Basin
04N22W06K11S - K11S



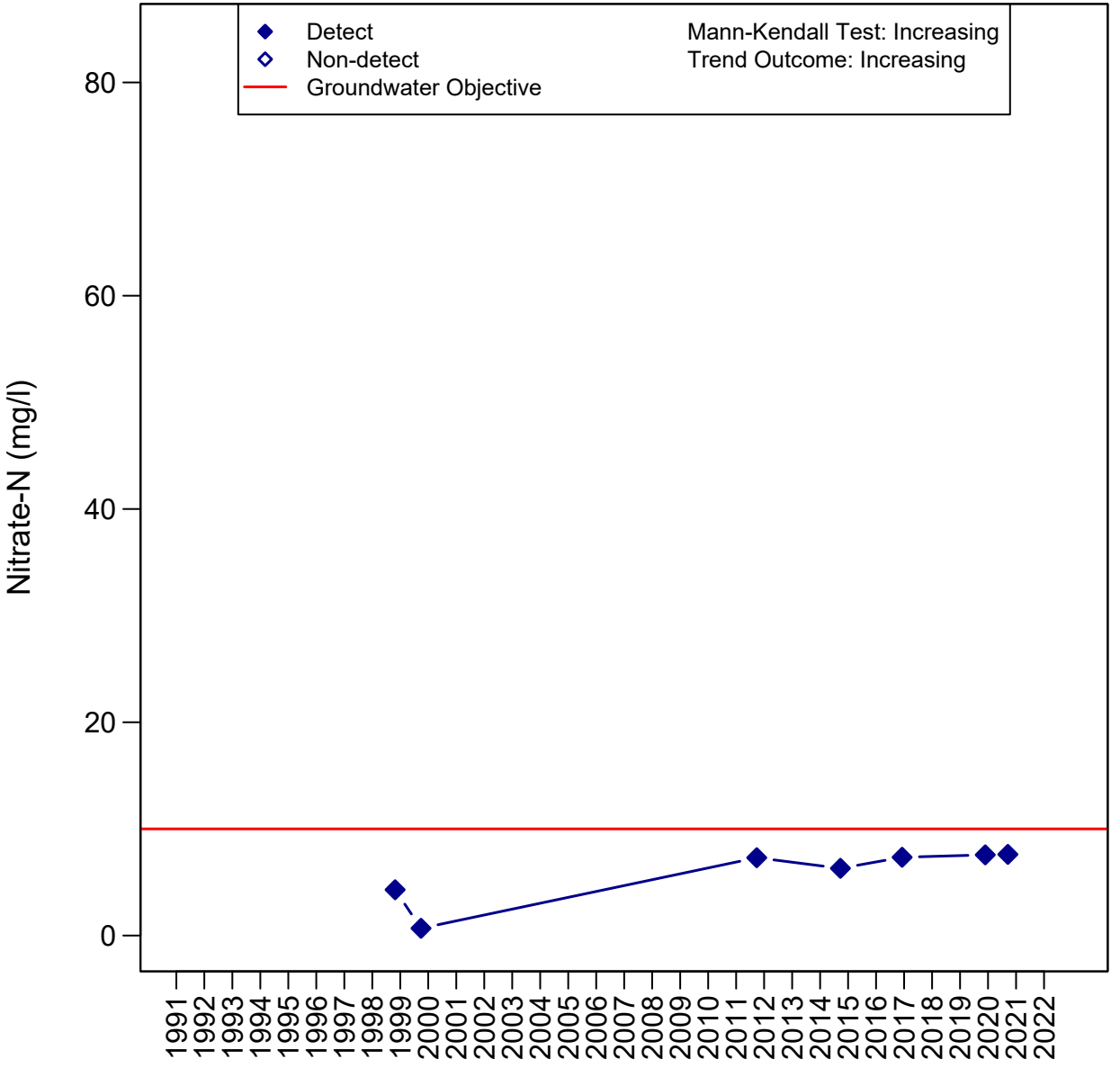
Ojai Valley Basin
04N22W06K13S - K13S



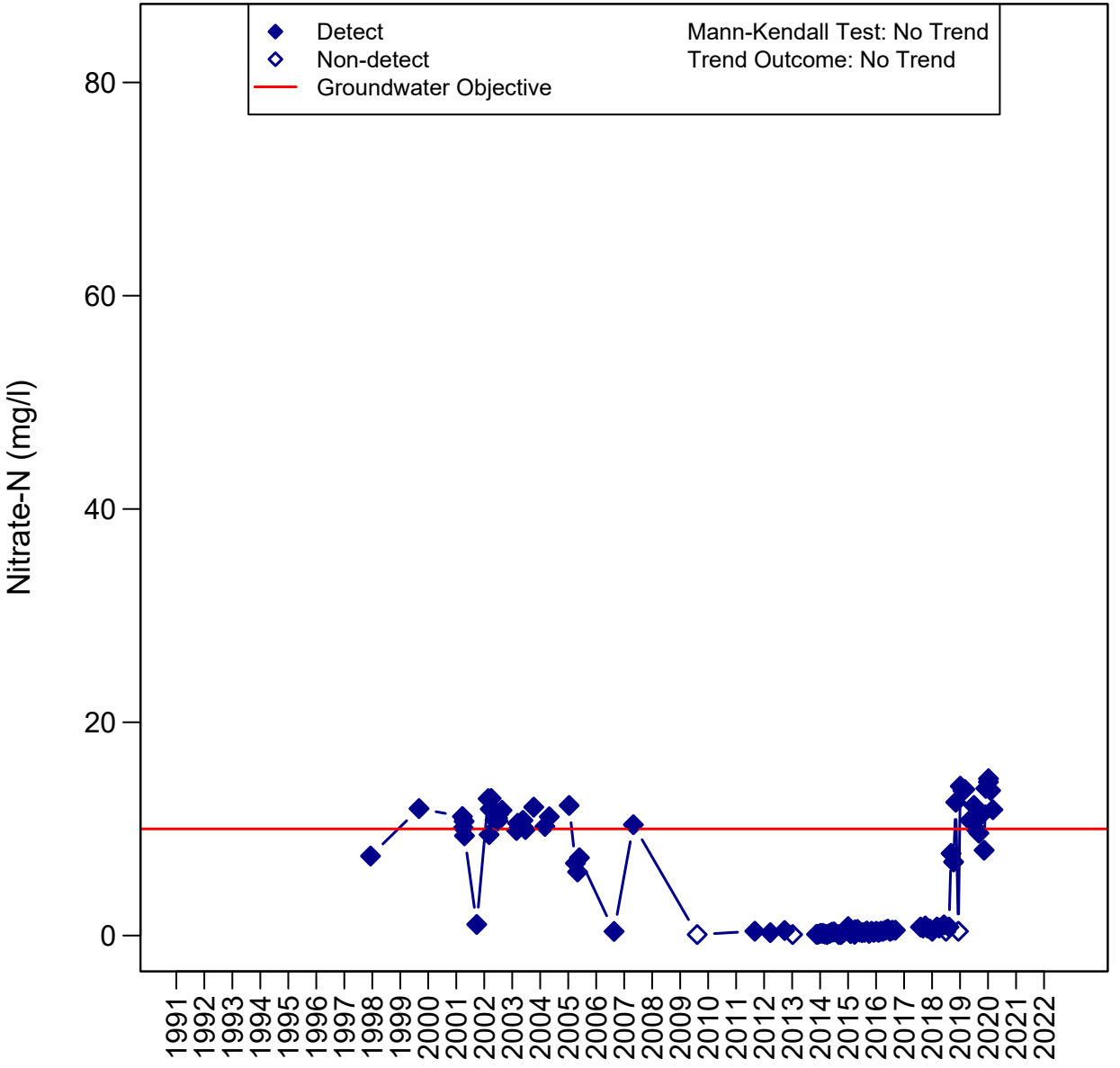
Ojai Valley Basin
04N22W07C05S - C05S



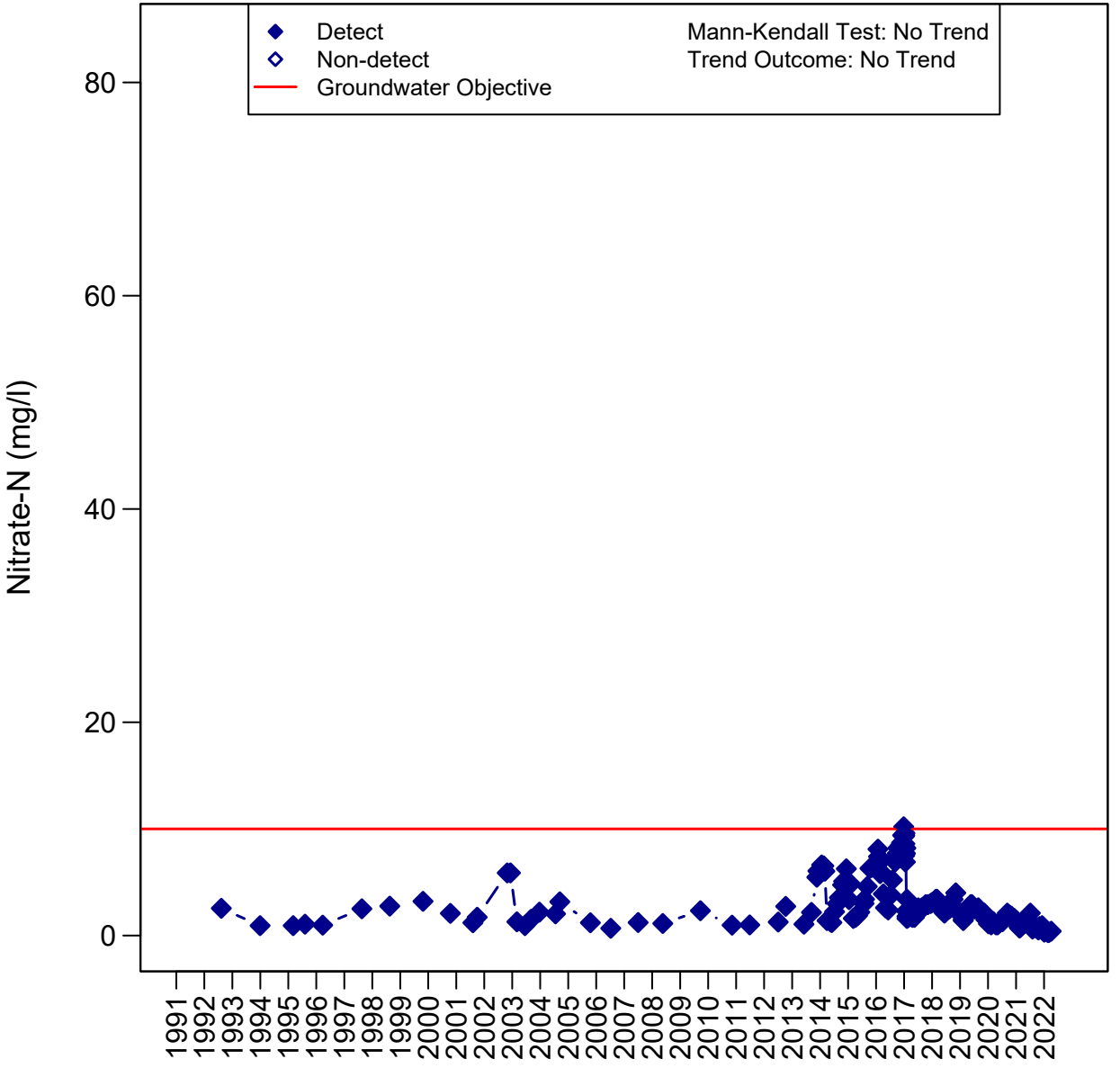
Ojai Valley Basin
04N23W12H02S - H02S



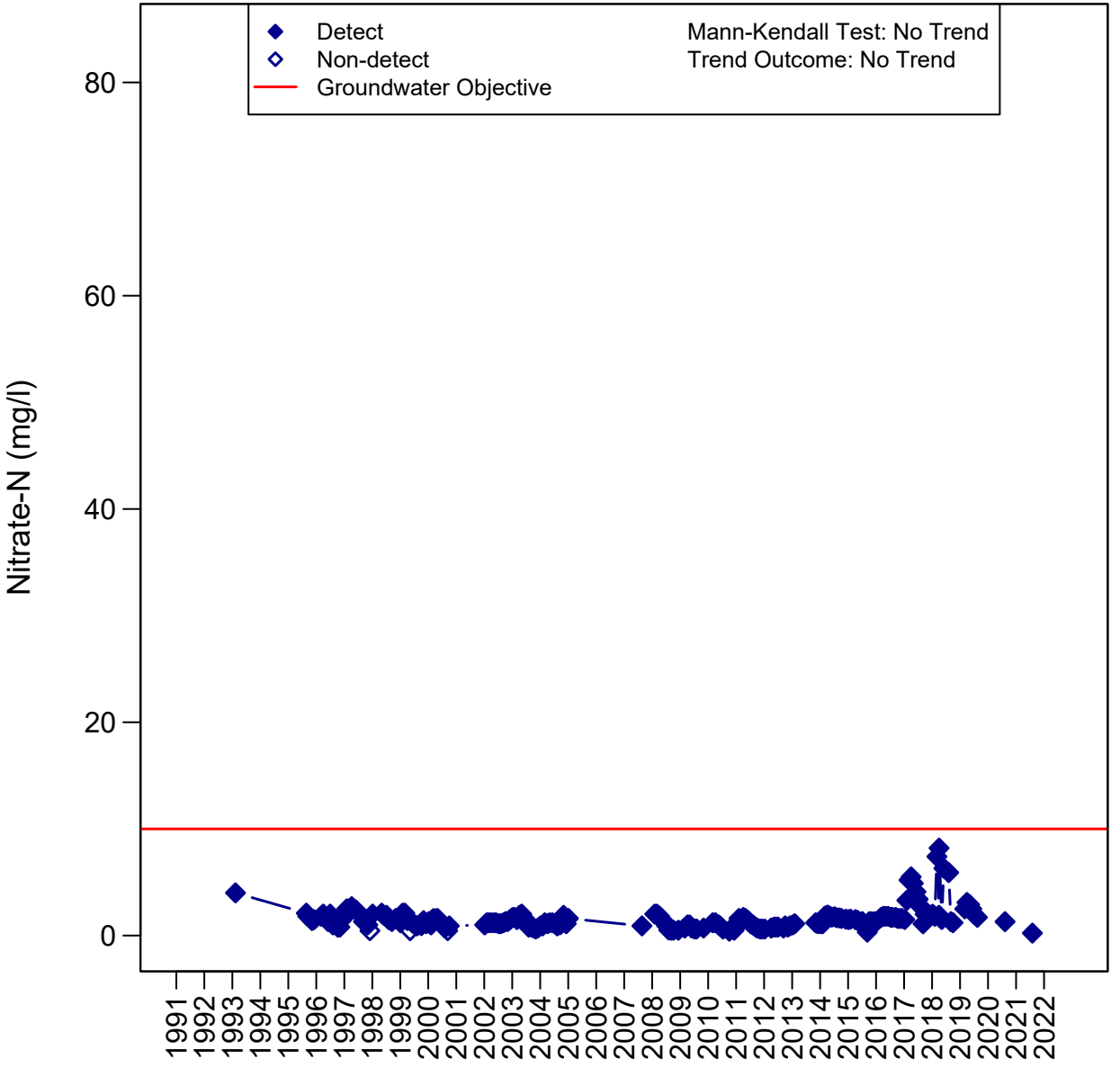
Ojai Valley Basin
05N22W33R01S - R01S

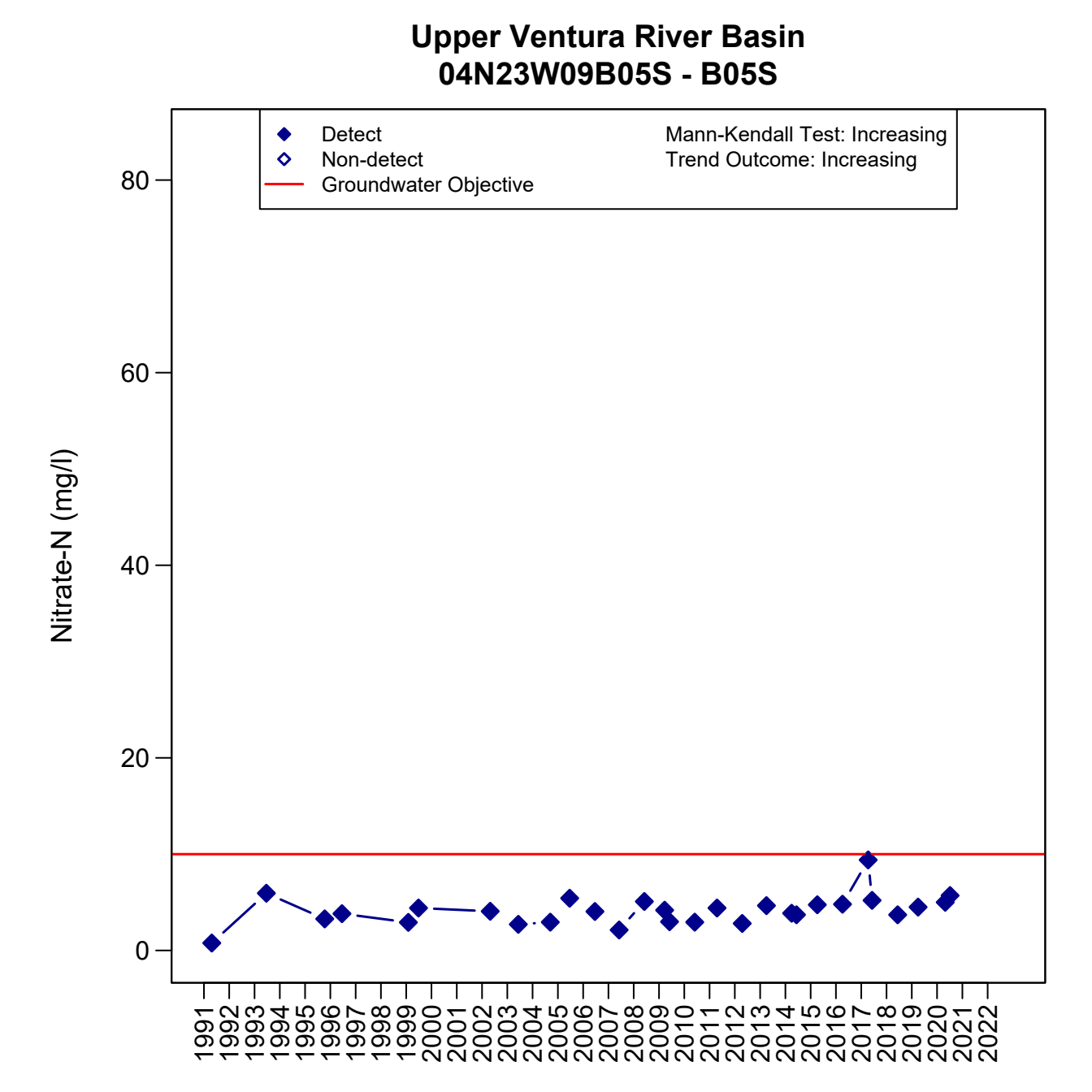


Upper Ventura River Basin
04N23W16C08S - C08S



Upper Ventura River Basin
03N23W08C02S - C02S




Upper Ventura River Basin
04N23W09B05S - B05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: Increasing
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
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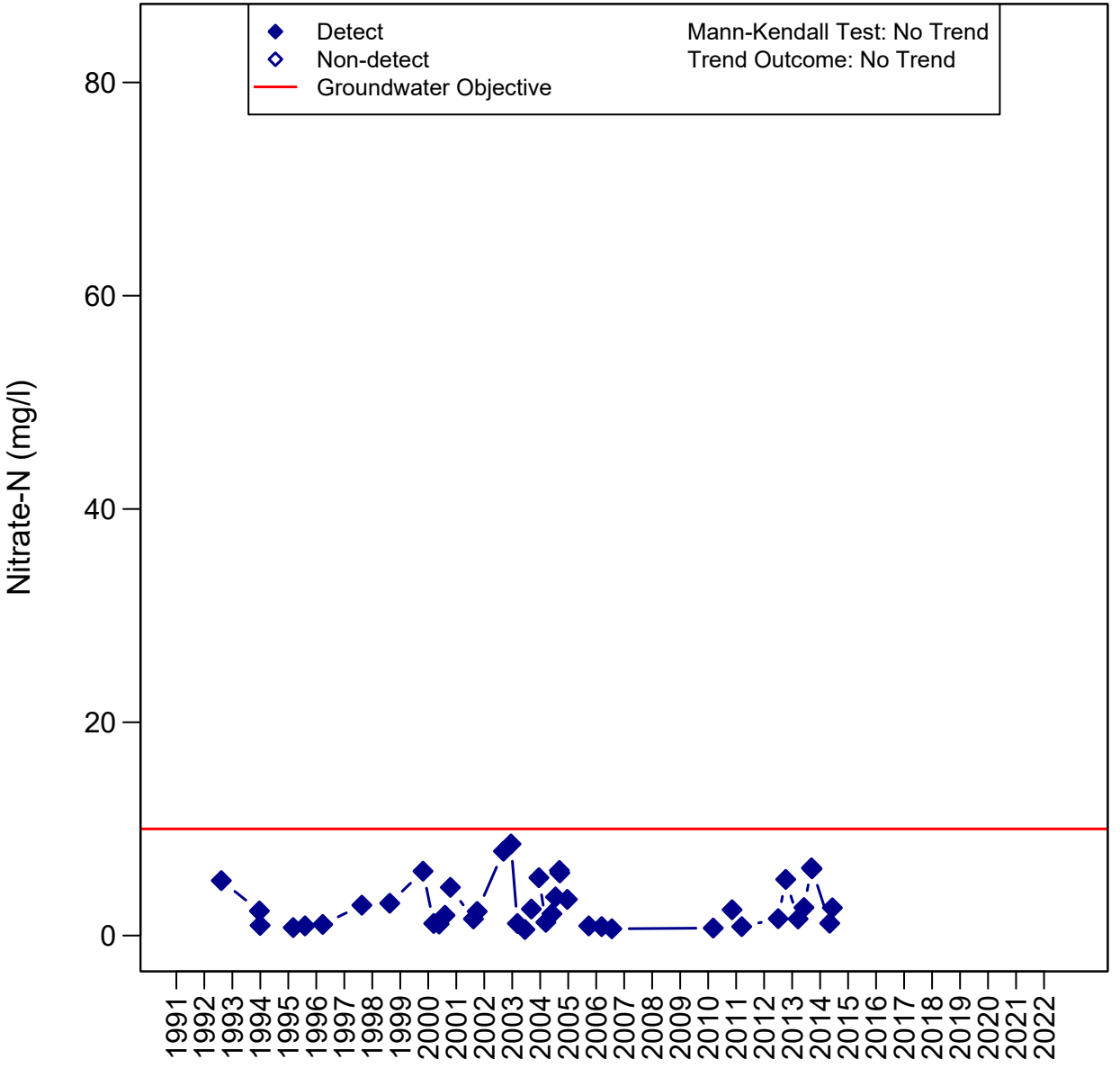
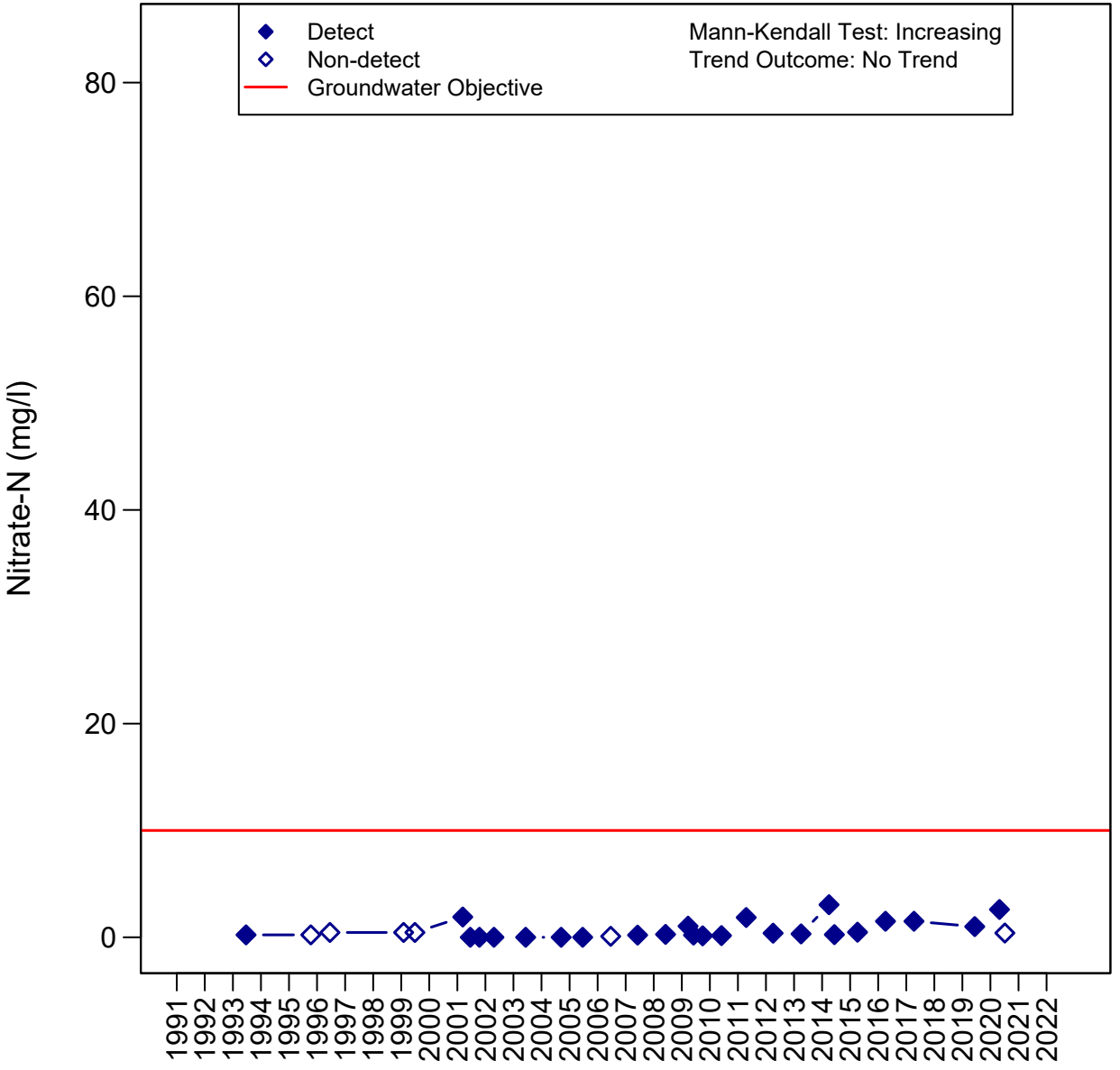
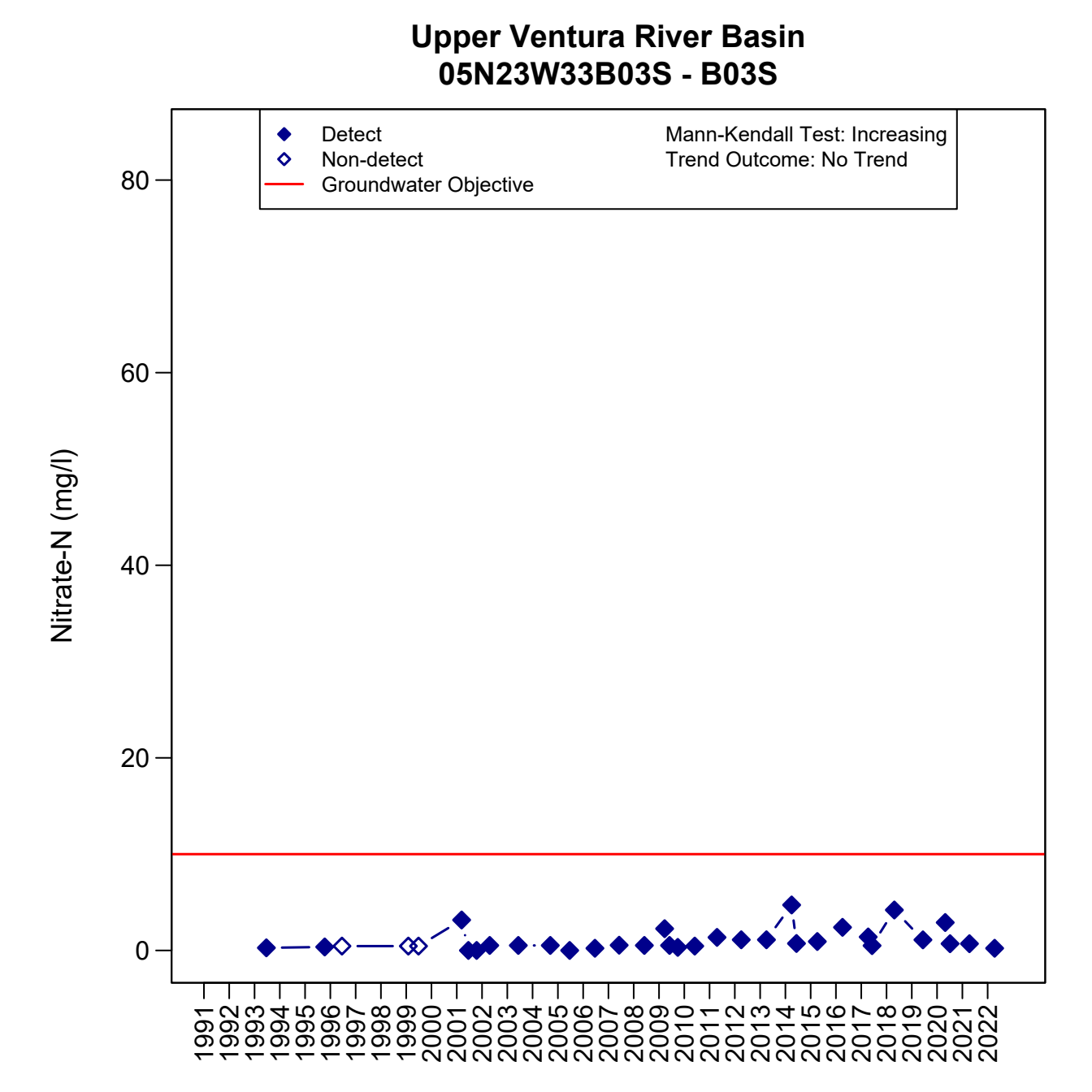
2020
2021
2022

Upper Ventura River Basin
04N23W16C07S - C07S



Upper Ventura River Basin
05N23W33B02S - B02S




Upper Ventura River Basin
05N23W33B03S - B03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
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2007
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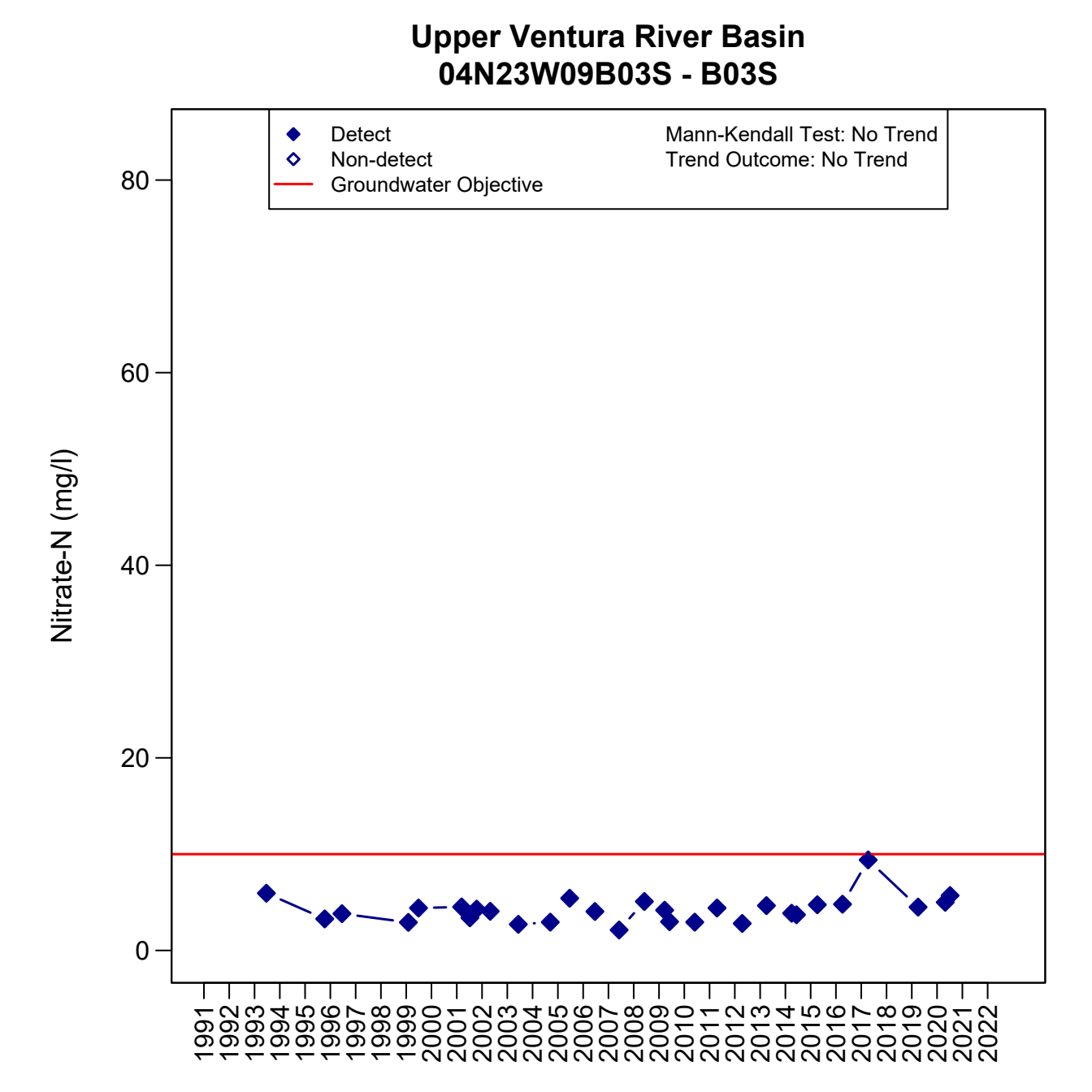
2020
2021
2022


Upper Ventura River Basin
04N23W09B03S - B03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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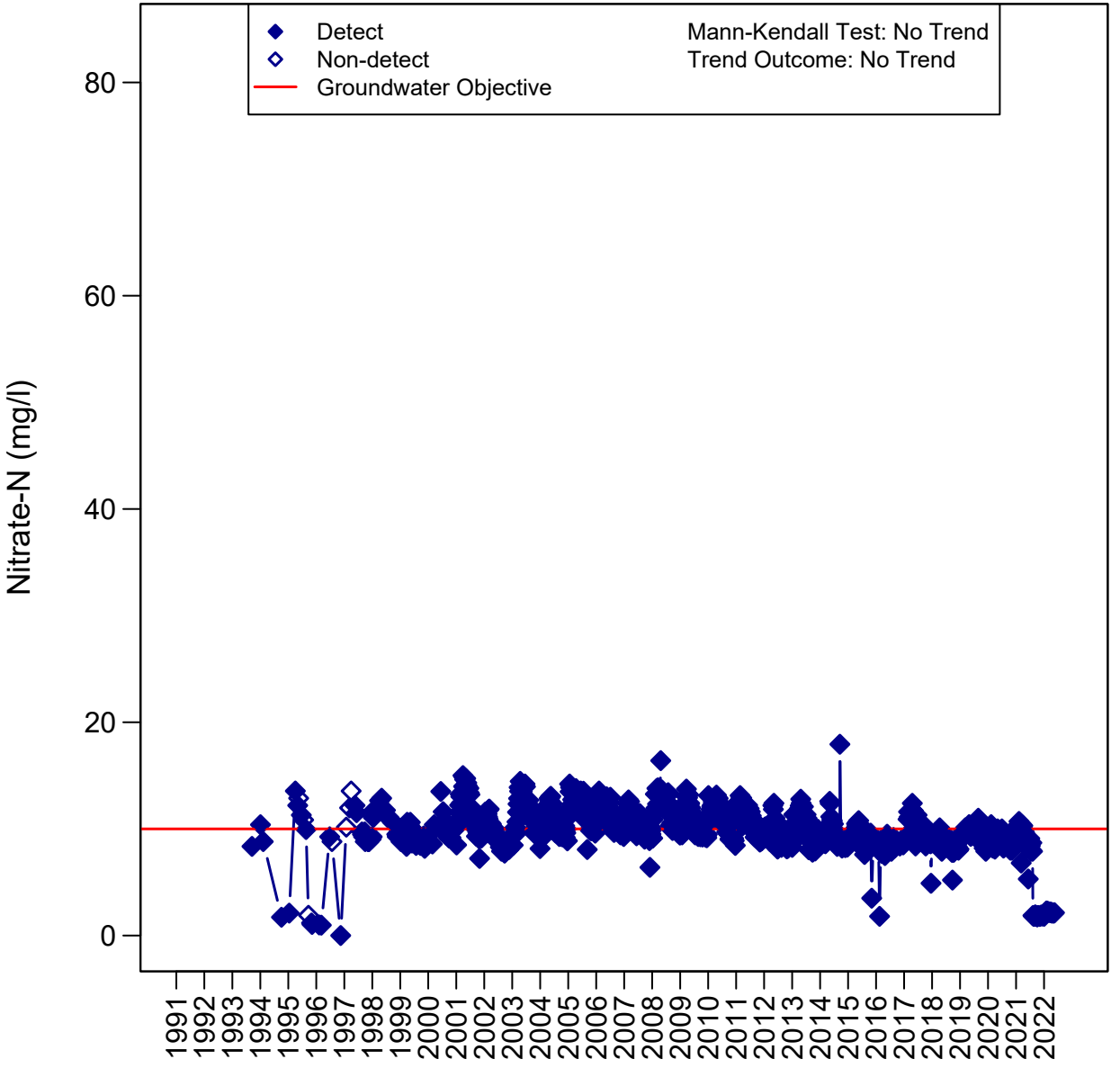
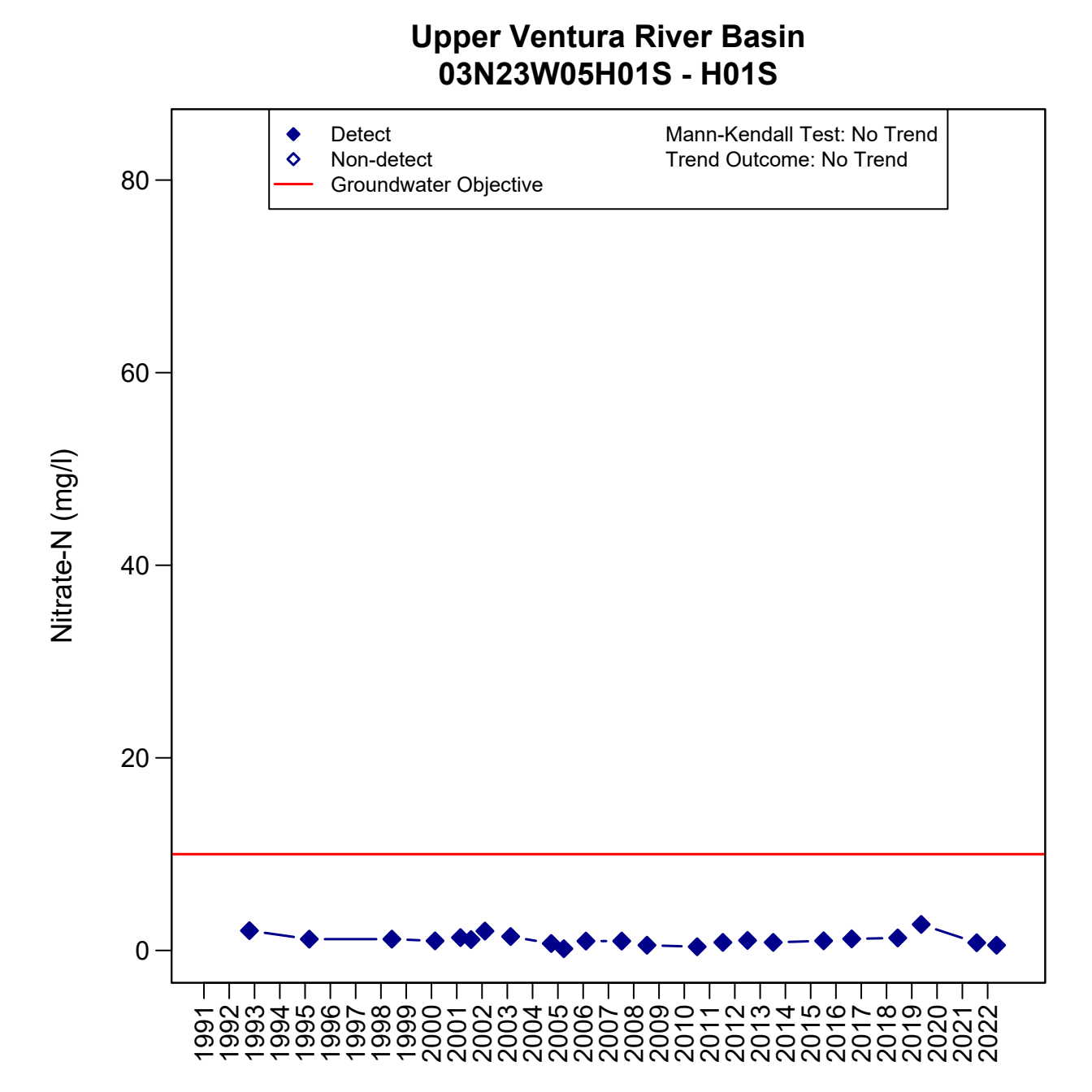
2017
2018
2019
2020
2021
2022

Upper Ventura River Basin
04N23W16B07S - B07S




Upper Ventura River Basin
03N23W05H01S - H01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
80
60
40
20
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
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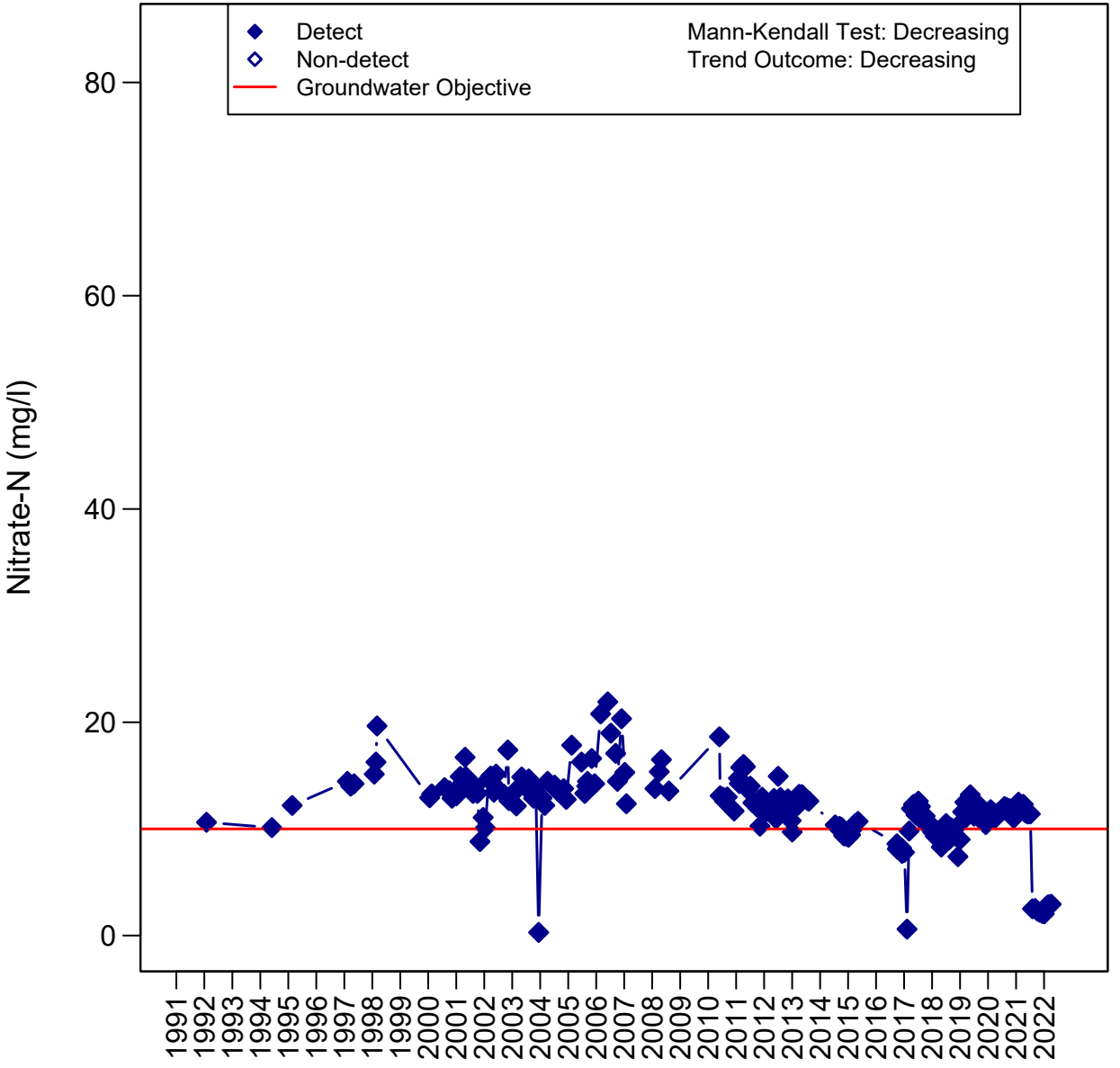
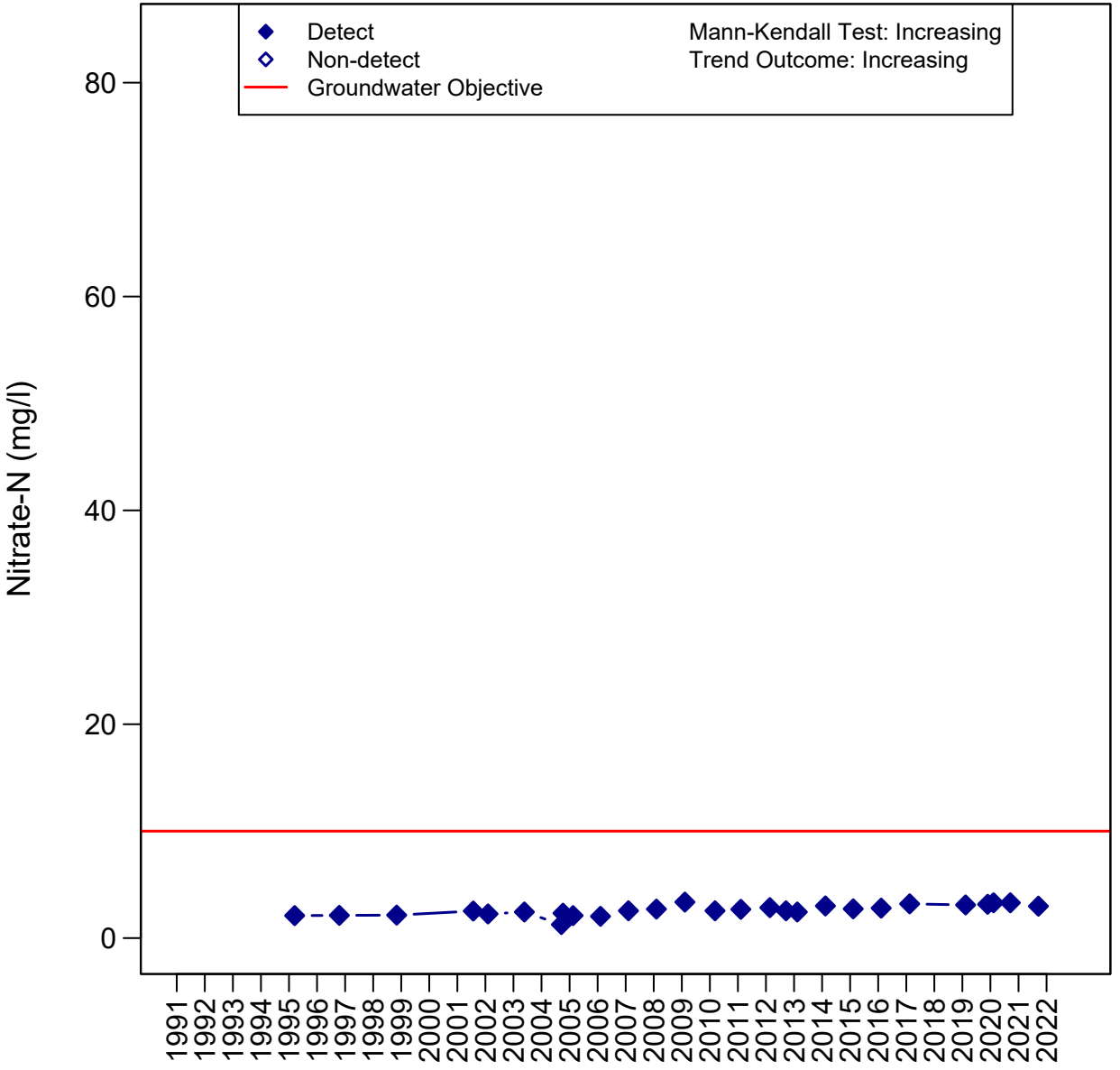
2019
2020
2021
2022

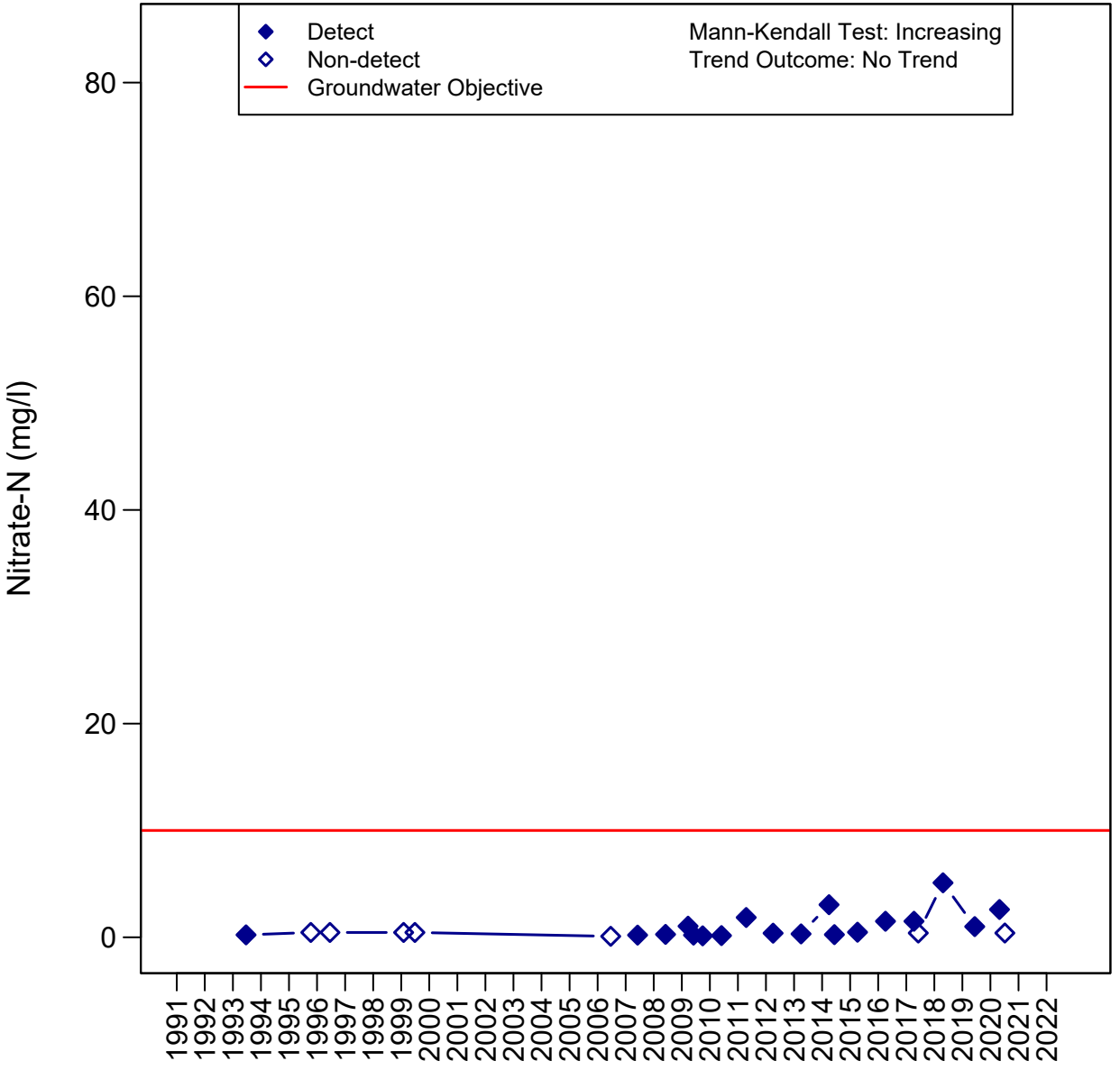
Upper Ventura River Basin
04N23W16A01S - A01S



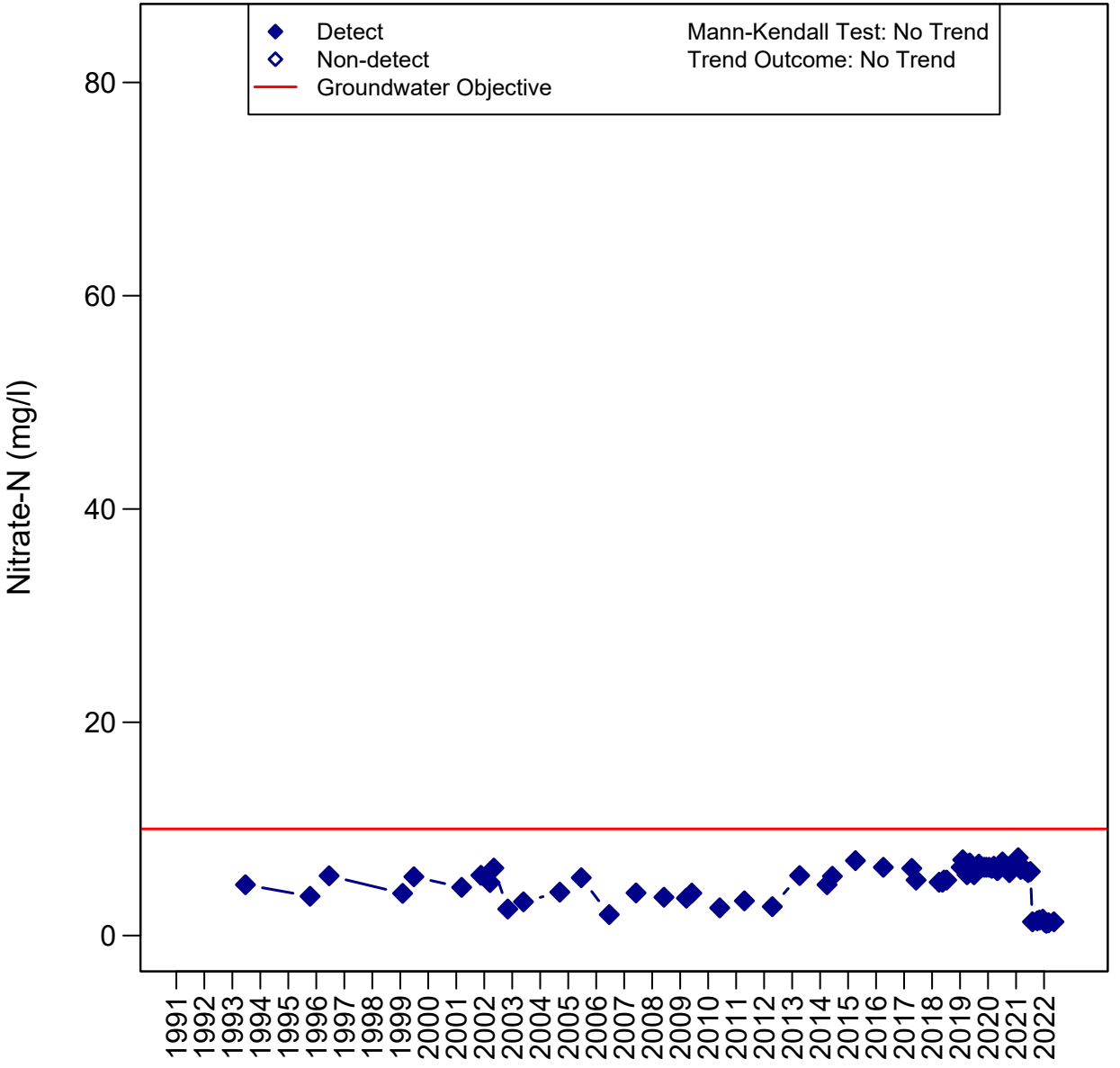
Upper Ventura River Basin
04N23W15A02S - A02S



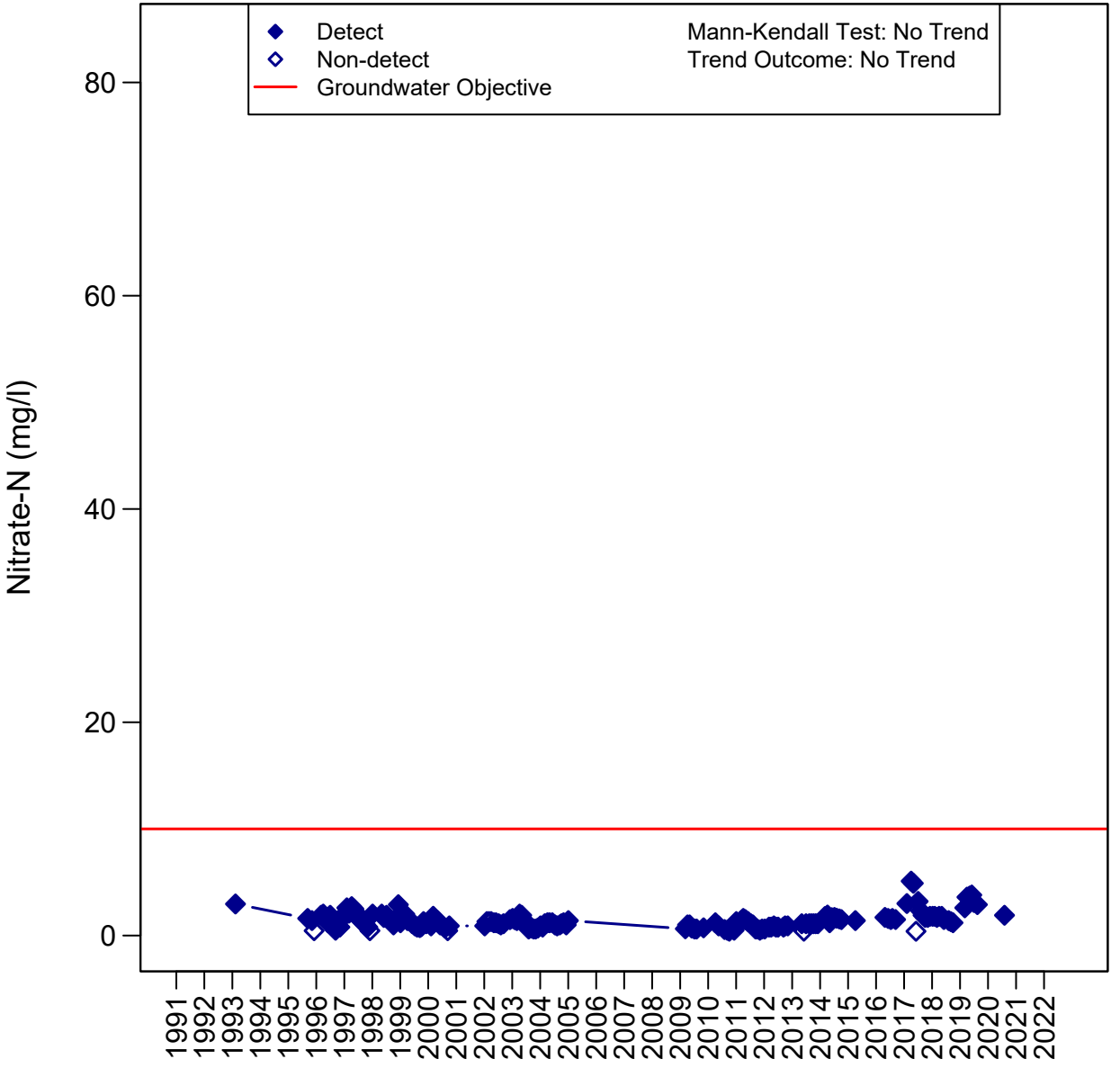
Upper Ventura River Basin
05N23W33B04S - B04S



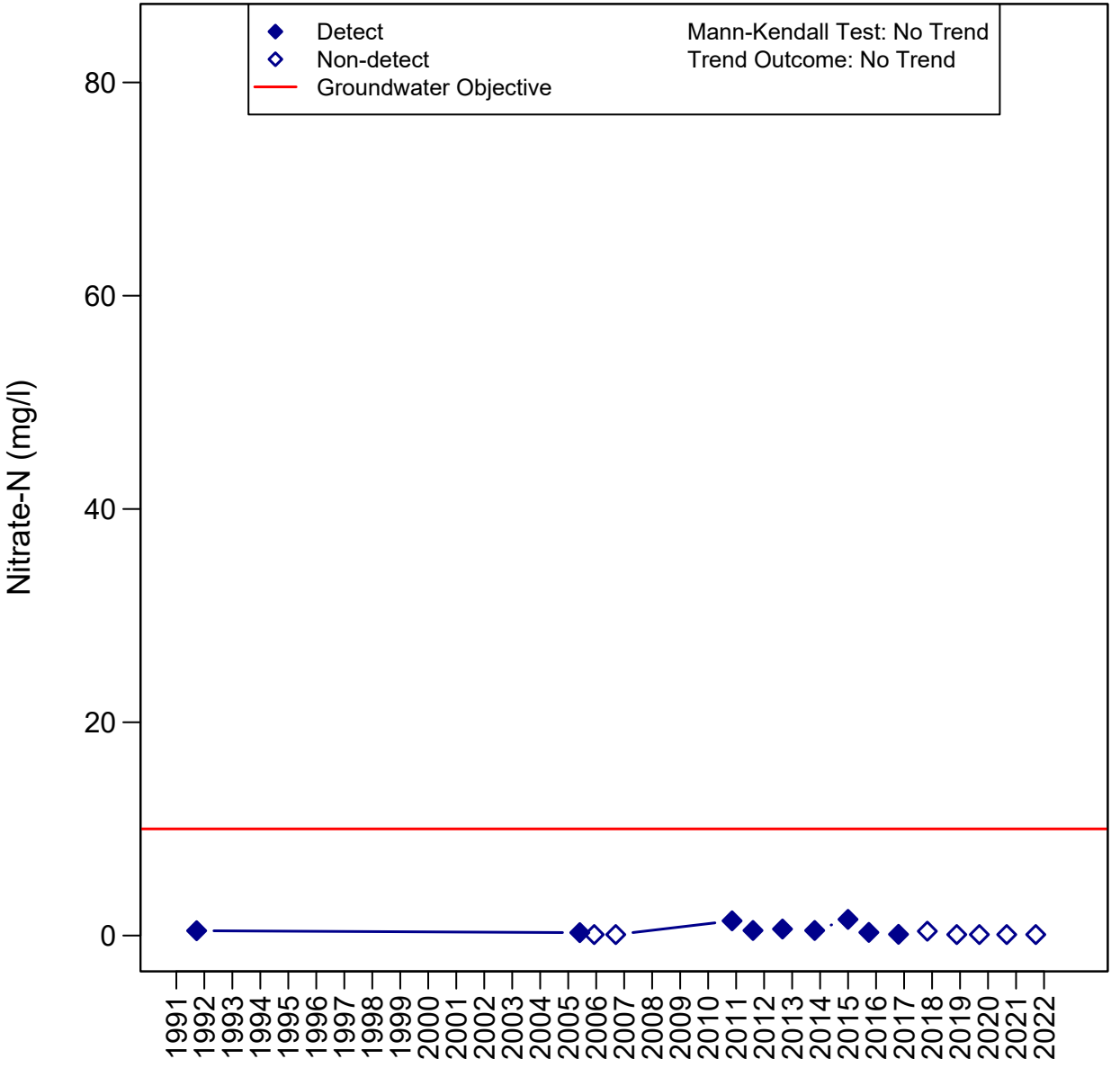
Upper Ventura River Basin
04N23W09B04S - B04S



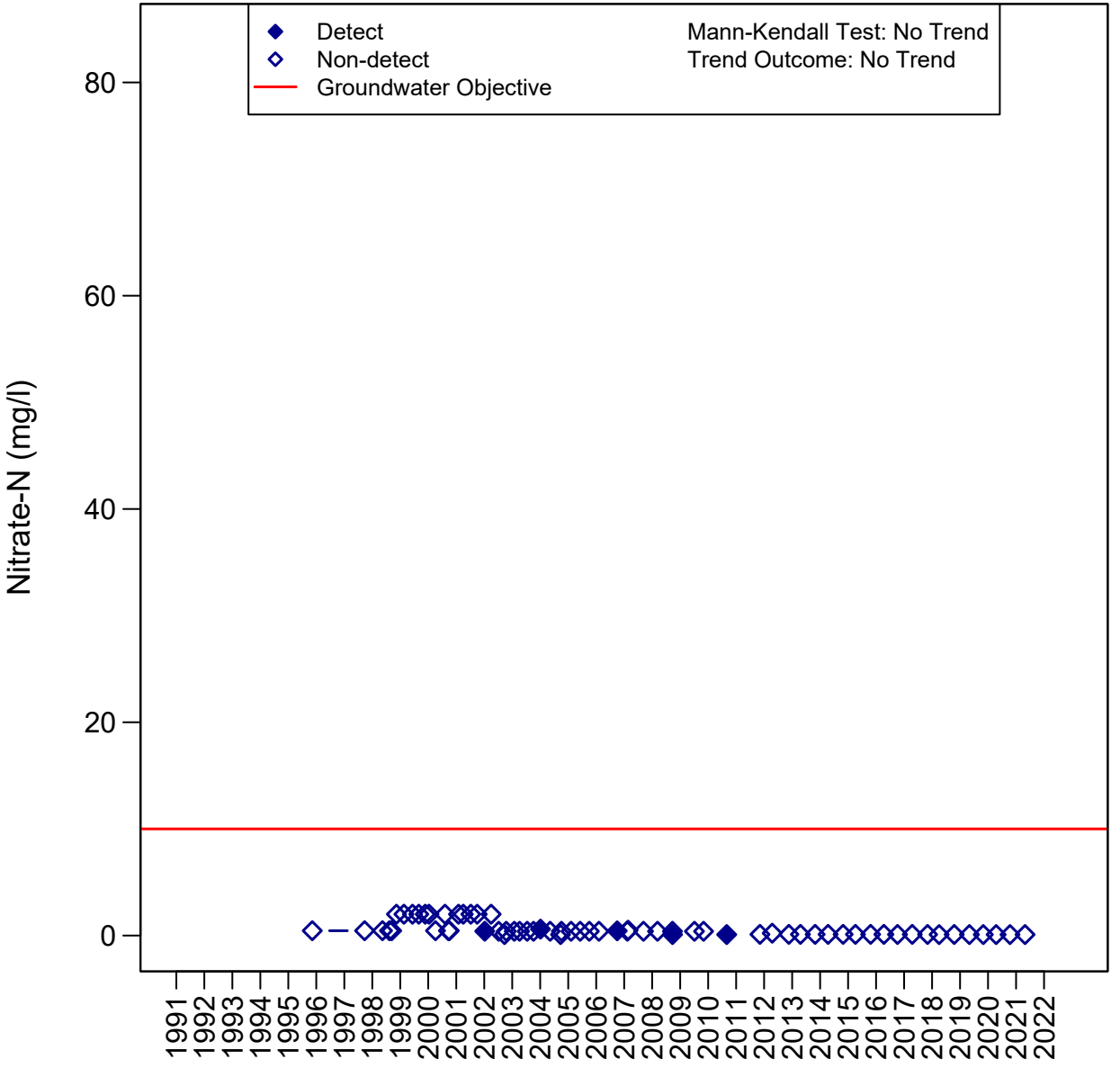
Upper Ventura River Basin
03N23W05P02S - P02S



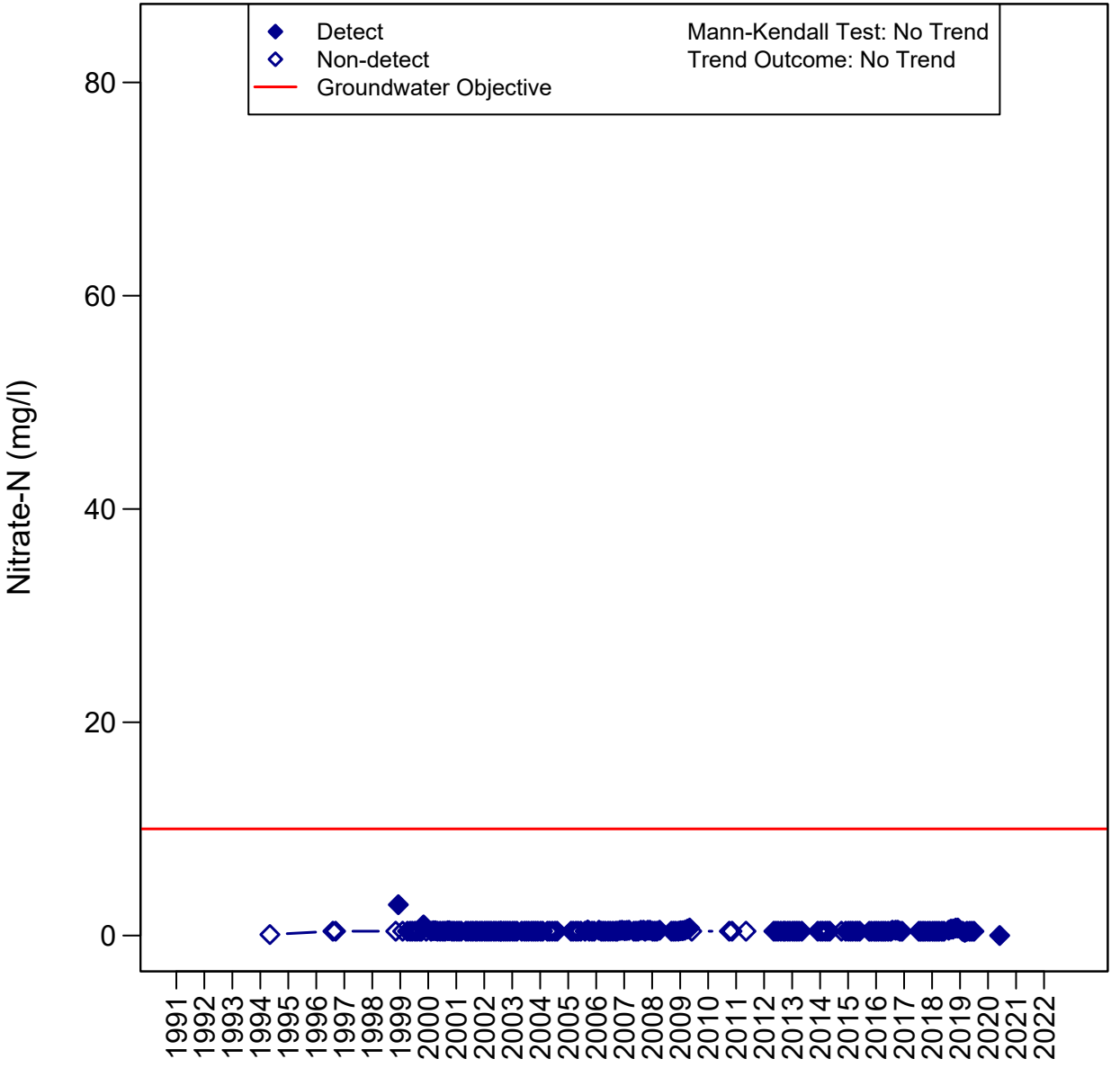
Lower Ventura River Basin
02N23W05K01S - K01S



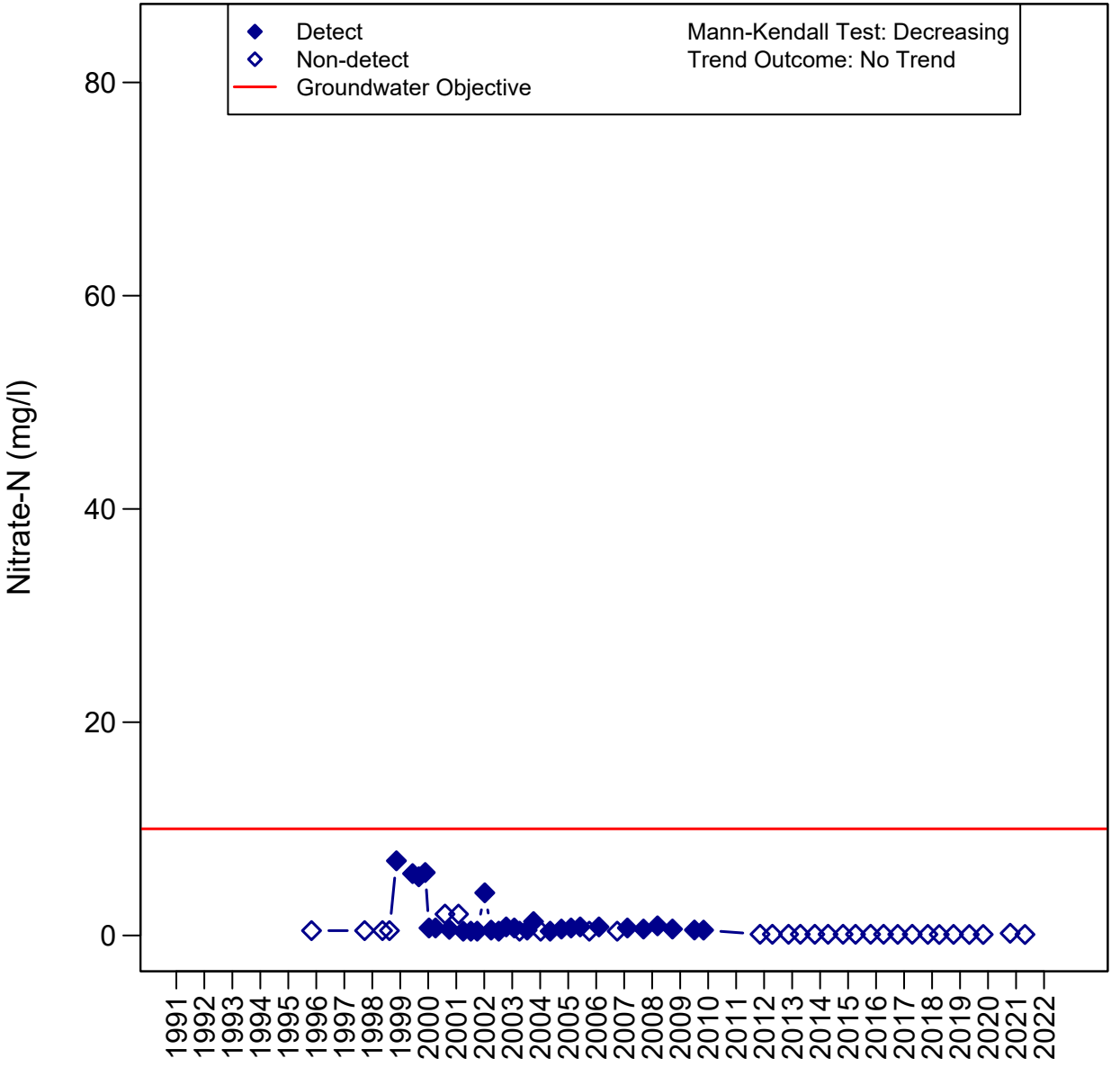
Mound Basin
02N23W15J02S - J02S



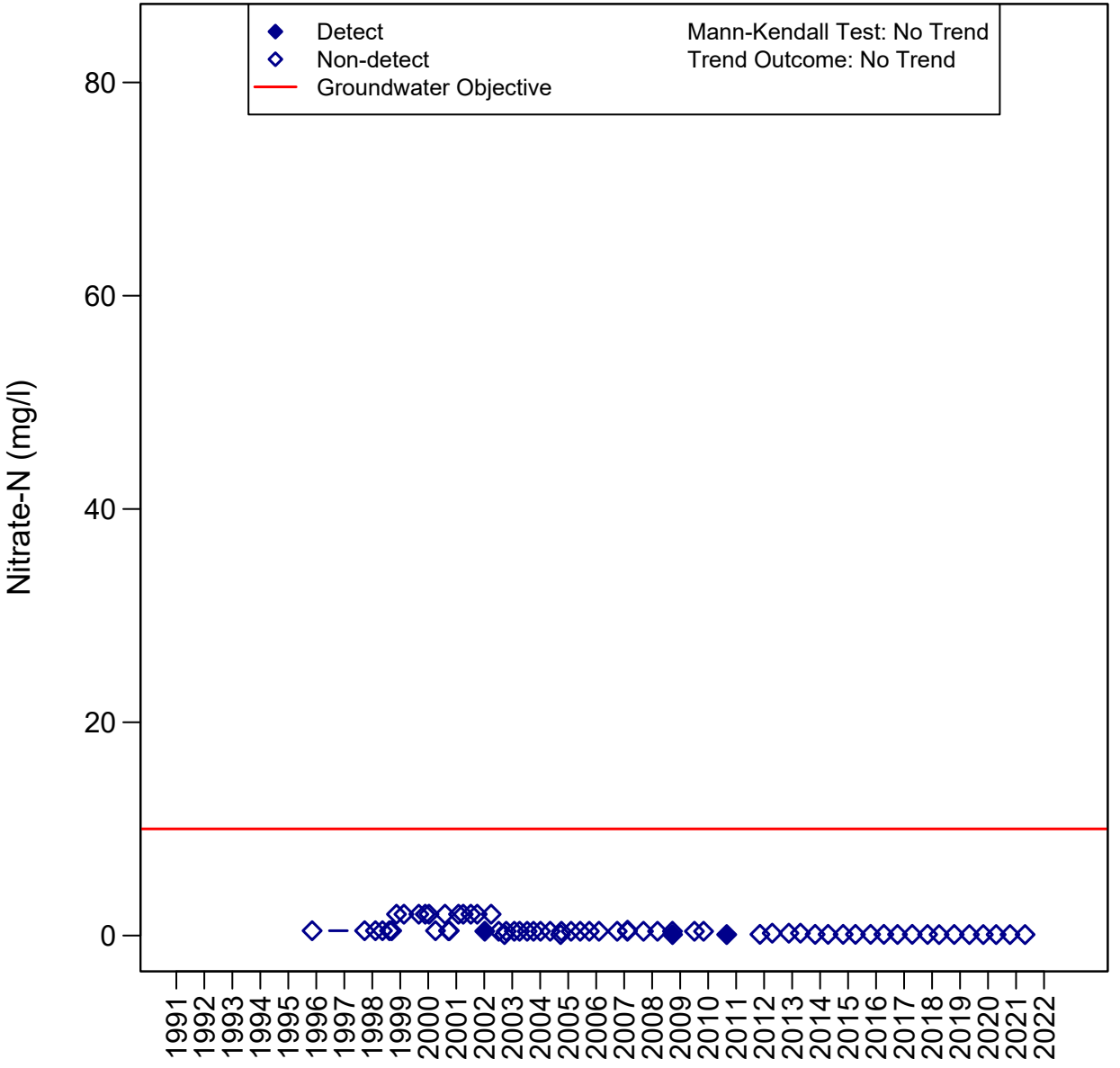
Mound Basin
02N22W08F01S - F01S



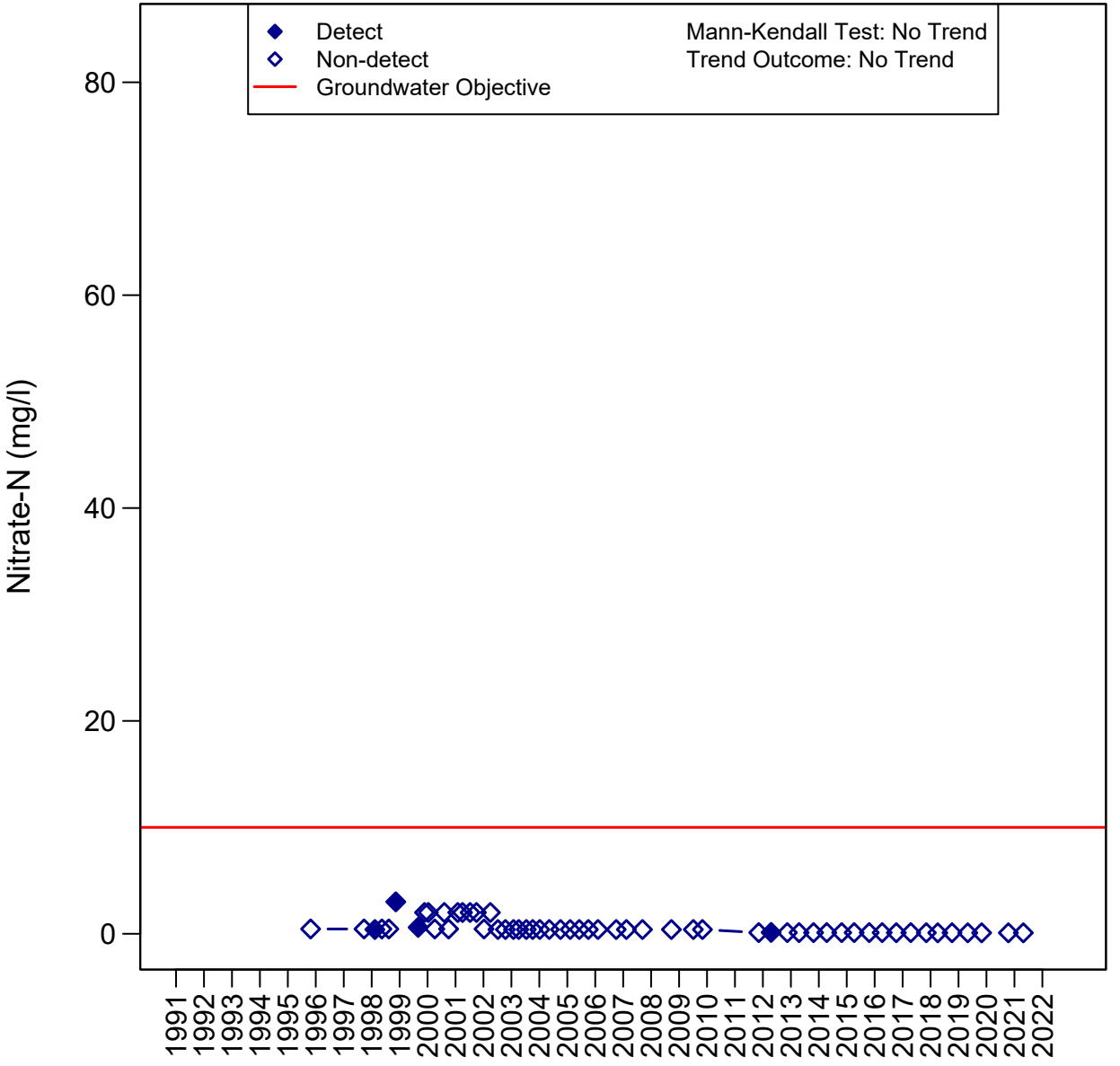
Mound Basin
02N22W07M02S - M02S

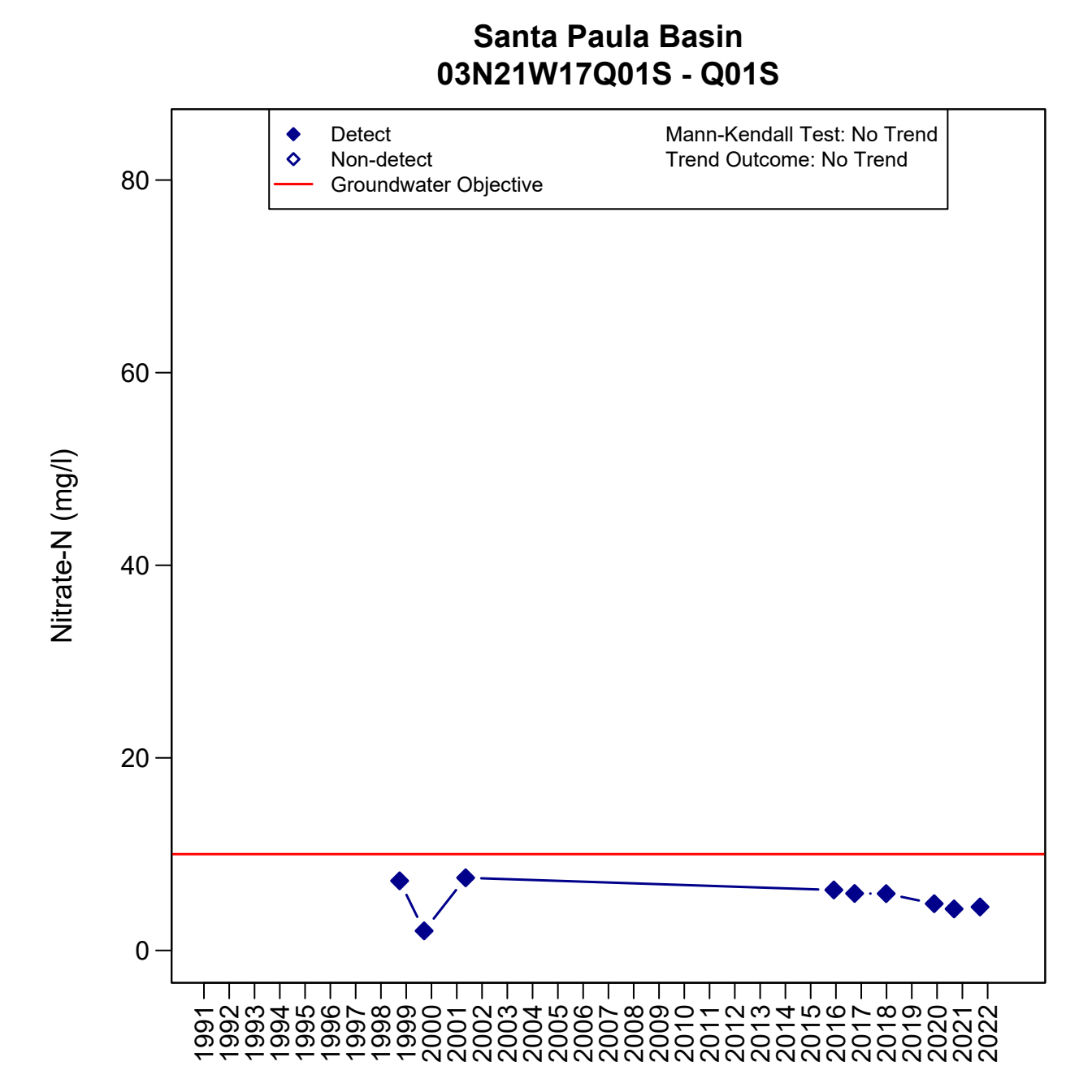


Mound Basin
02N23W15J01S - J01S



Mound Basin
02N22W07M01S - M01S




Santa Paula Basin
03N21W17Q01S - Q01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
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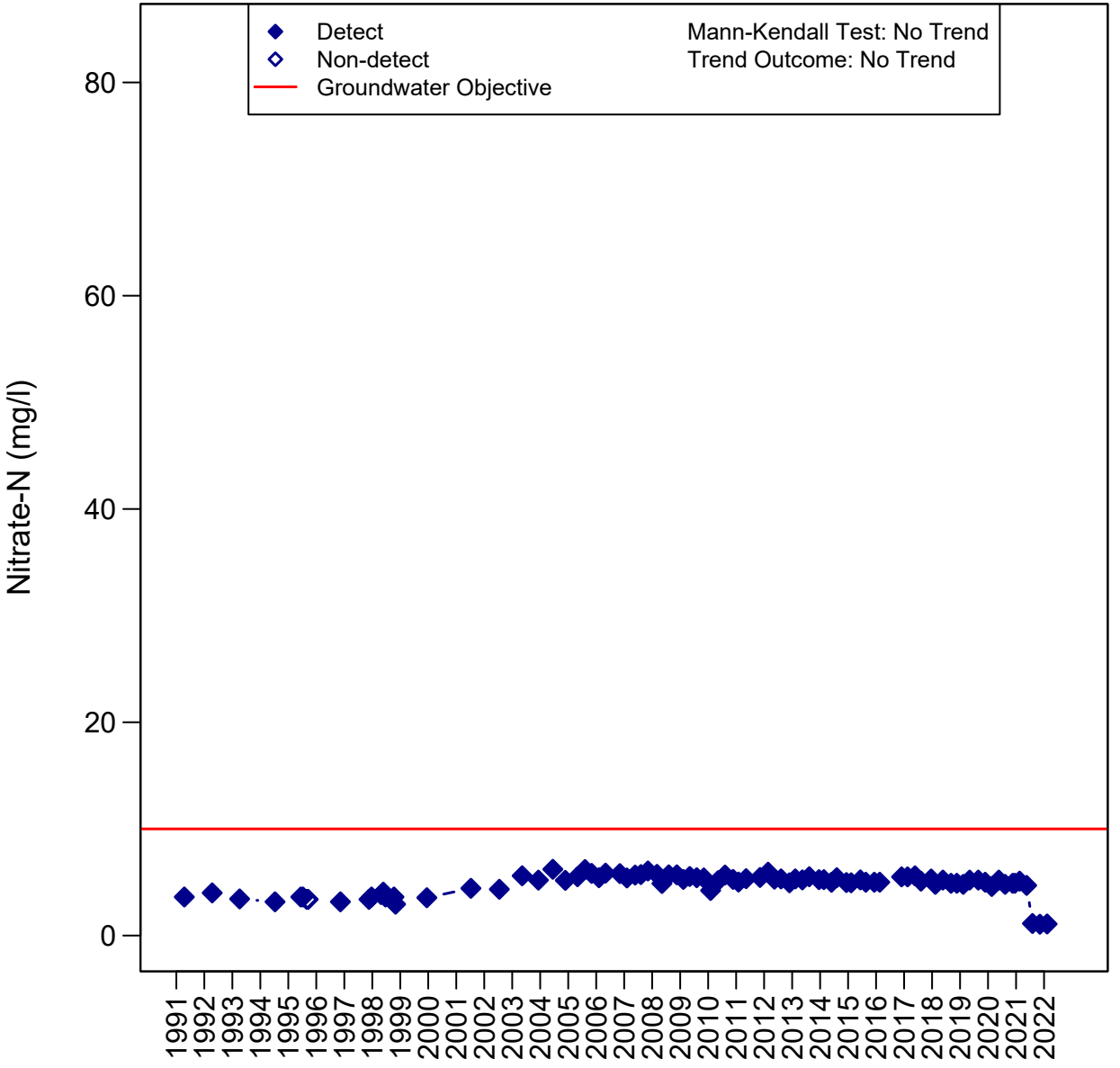
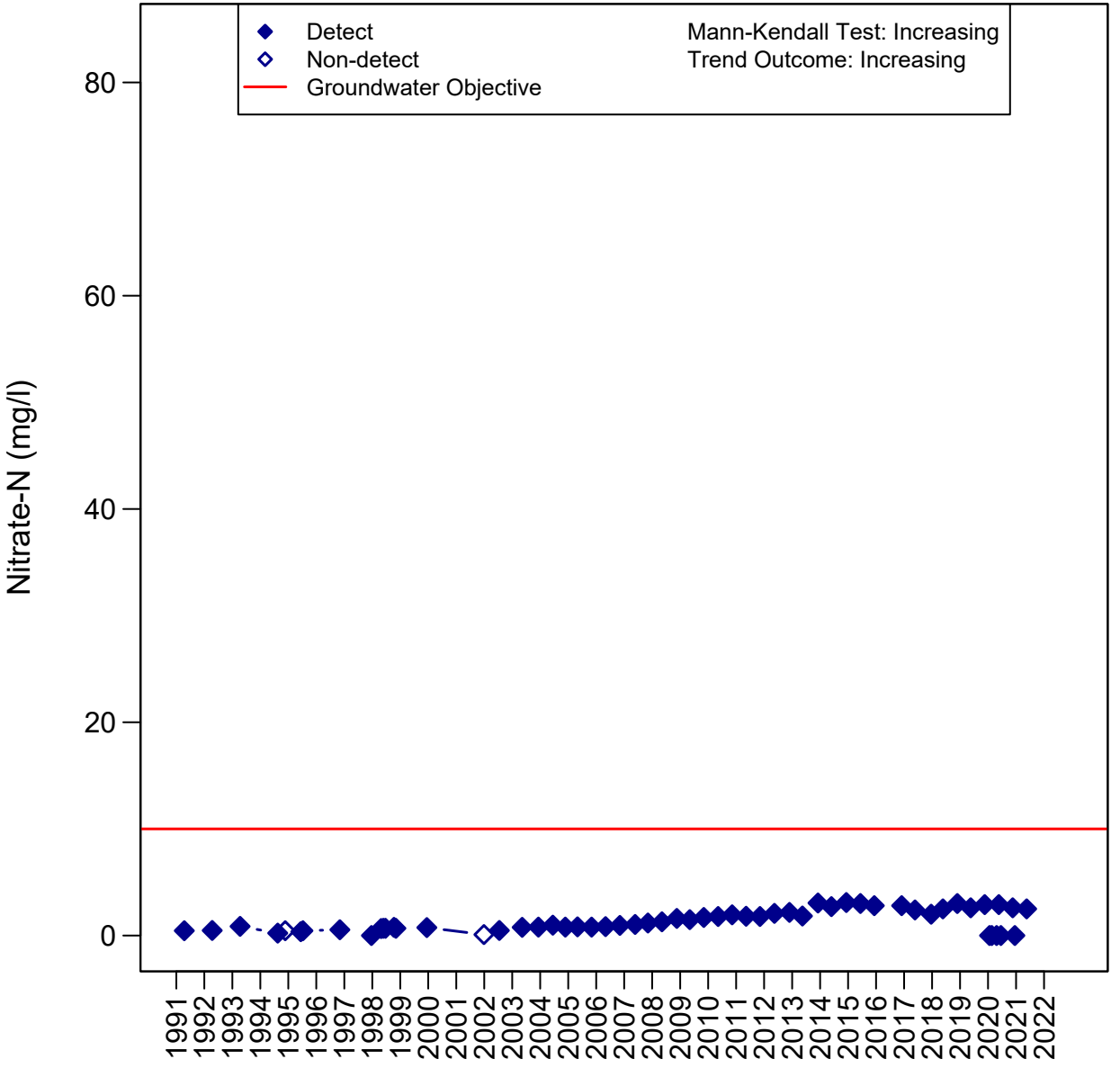
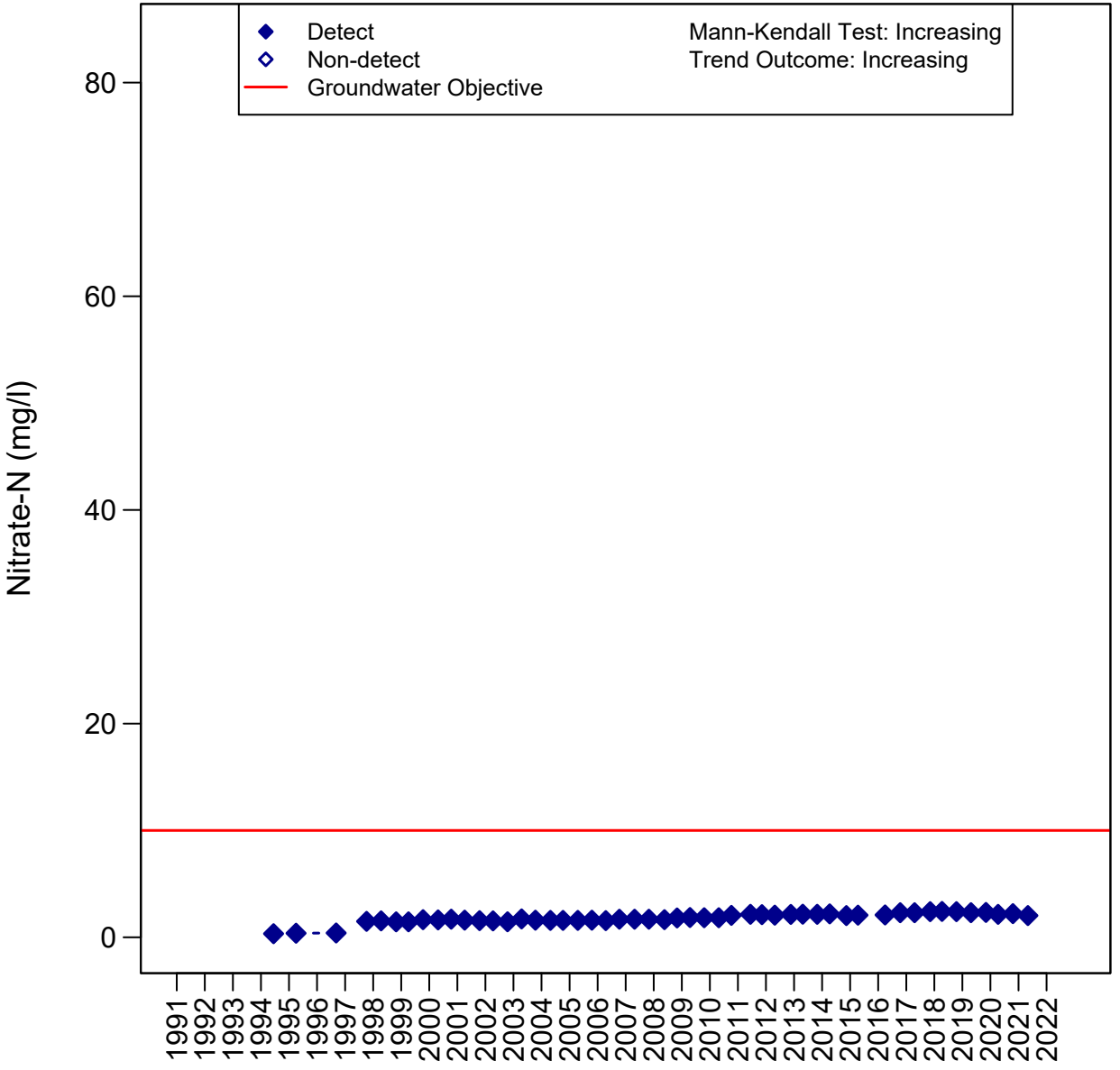
Santa Paula Basin
03N21W15C06S - C06S



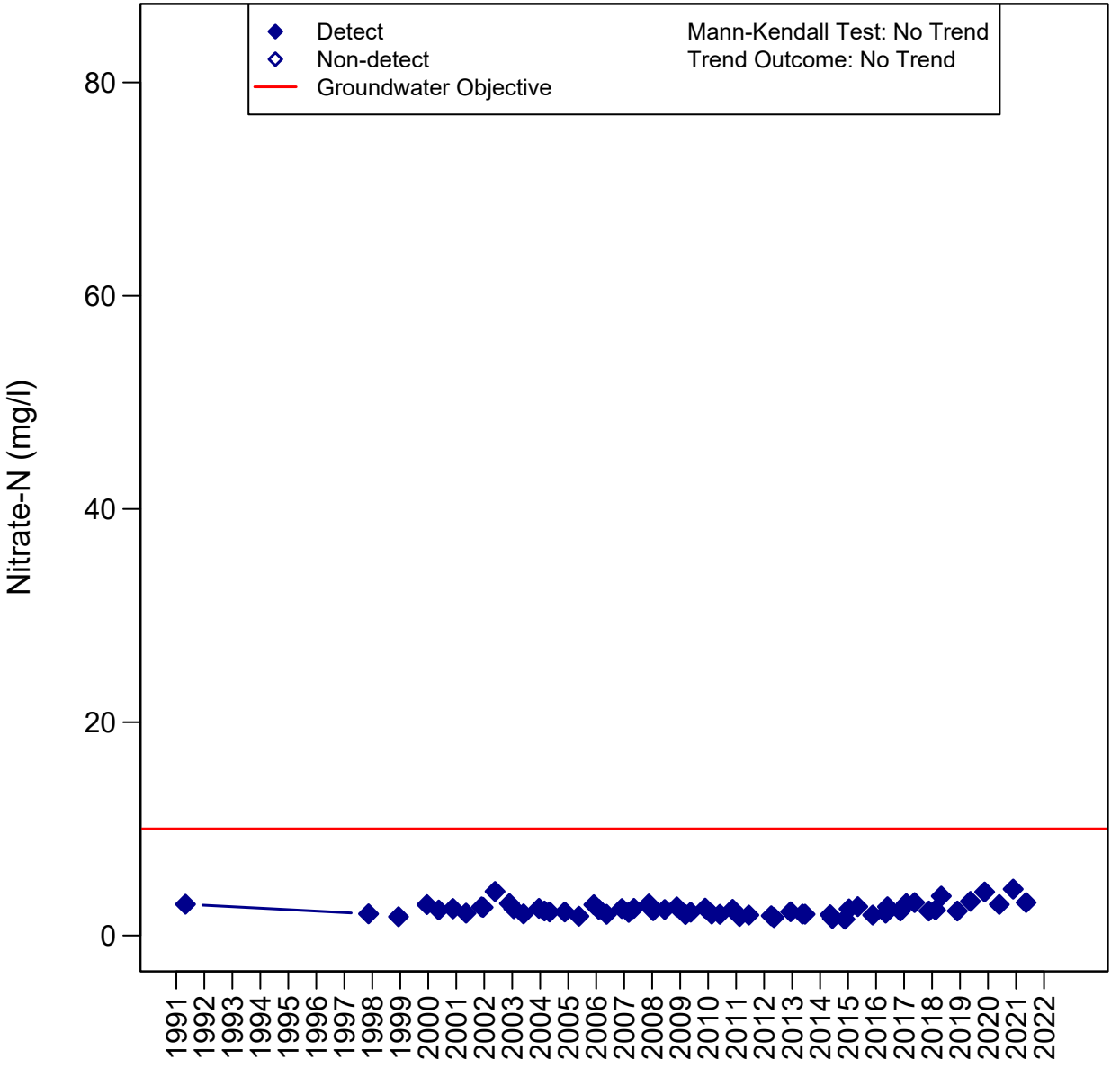
Santa Paula Basin
03N21W16A02S - A02S



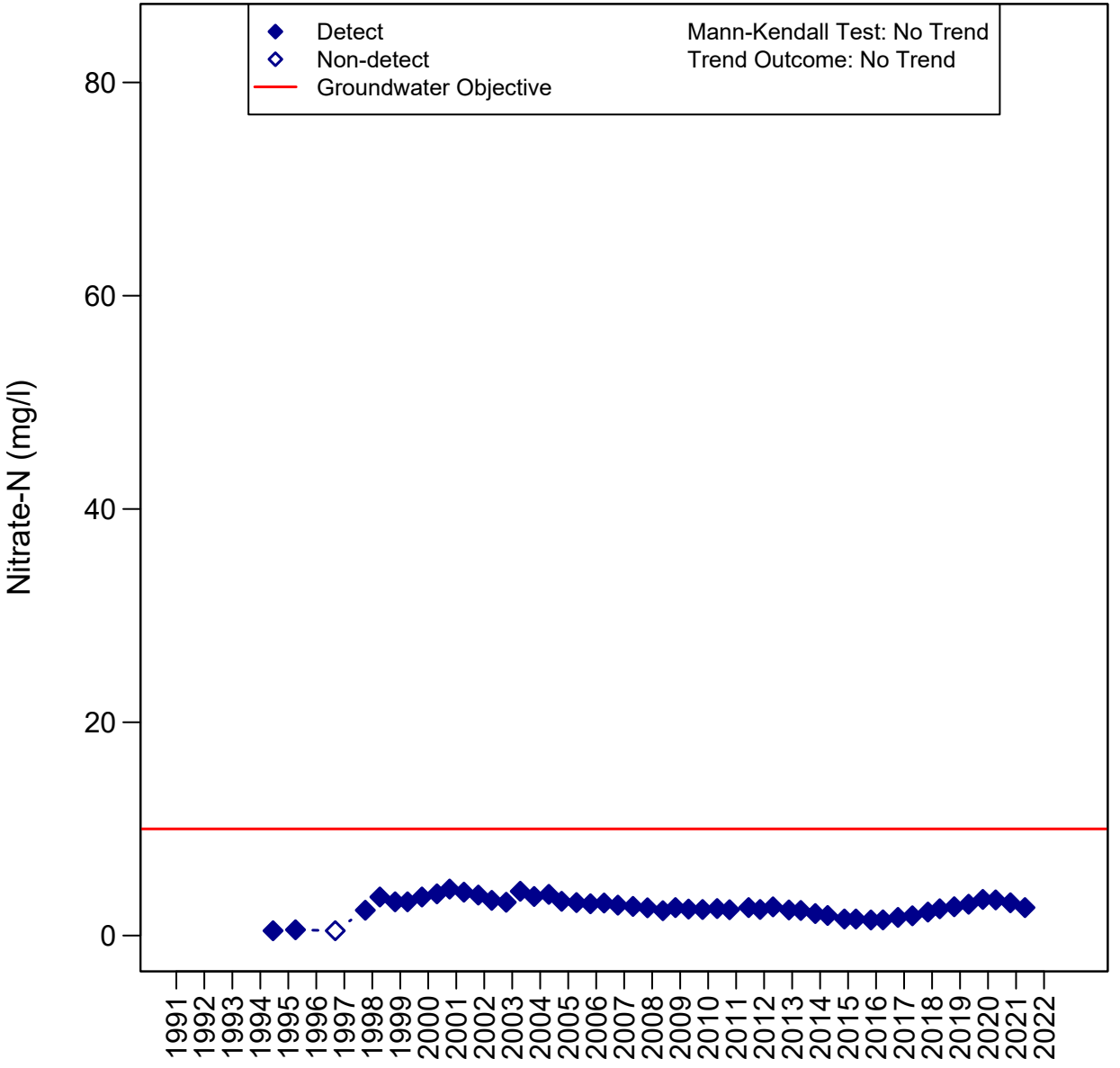
Santa Paula Basin
03N21W15G02S - G02S



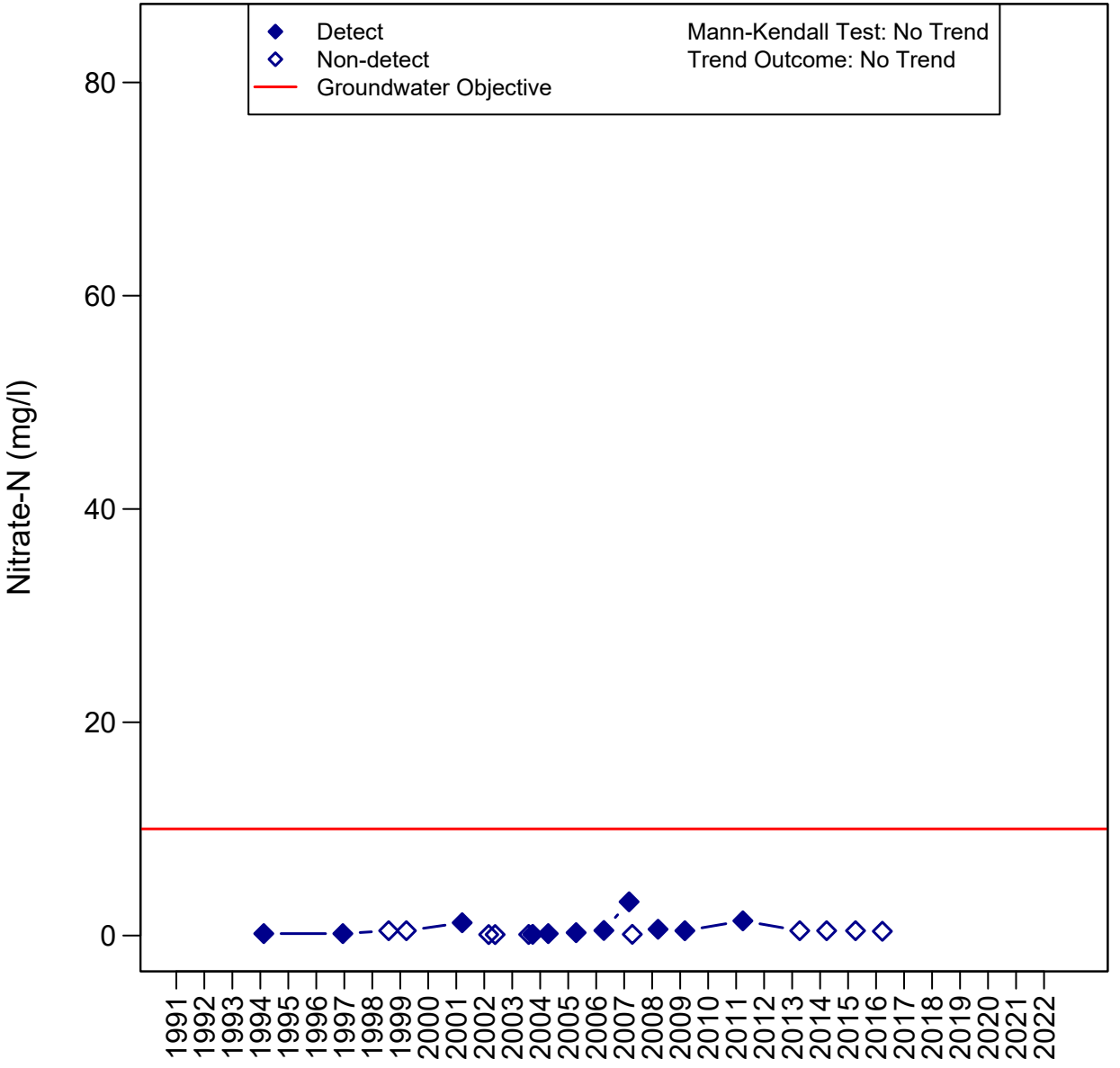
Santa Paula Basin
03N21W12E08S - E08S



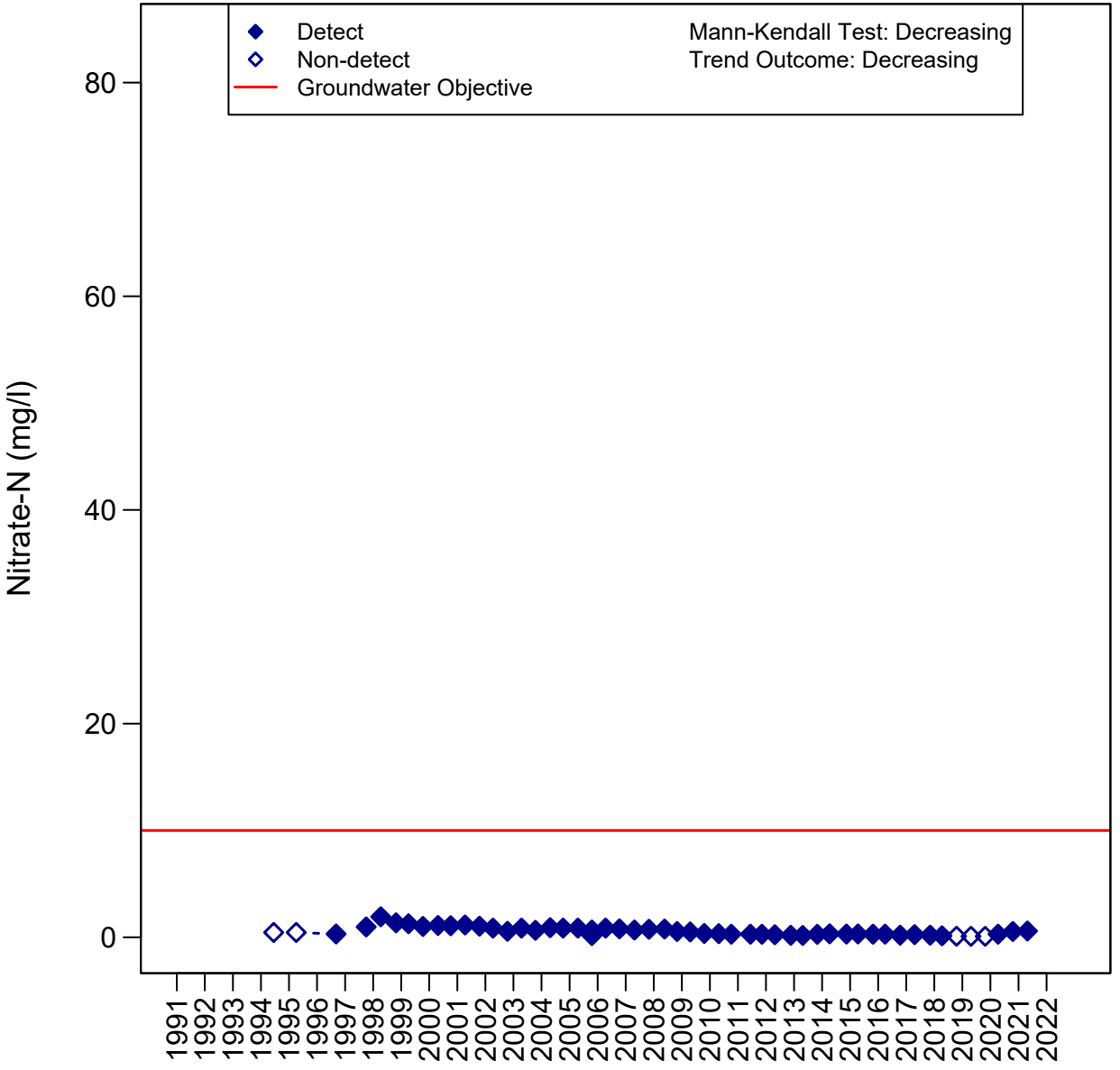
Santa Paula Basin
03N21W16H06S - H06S



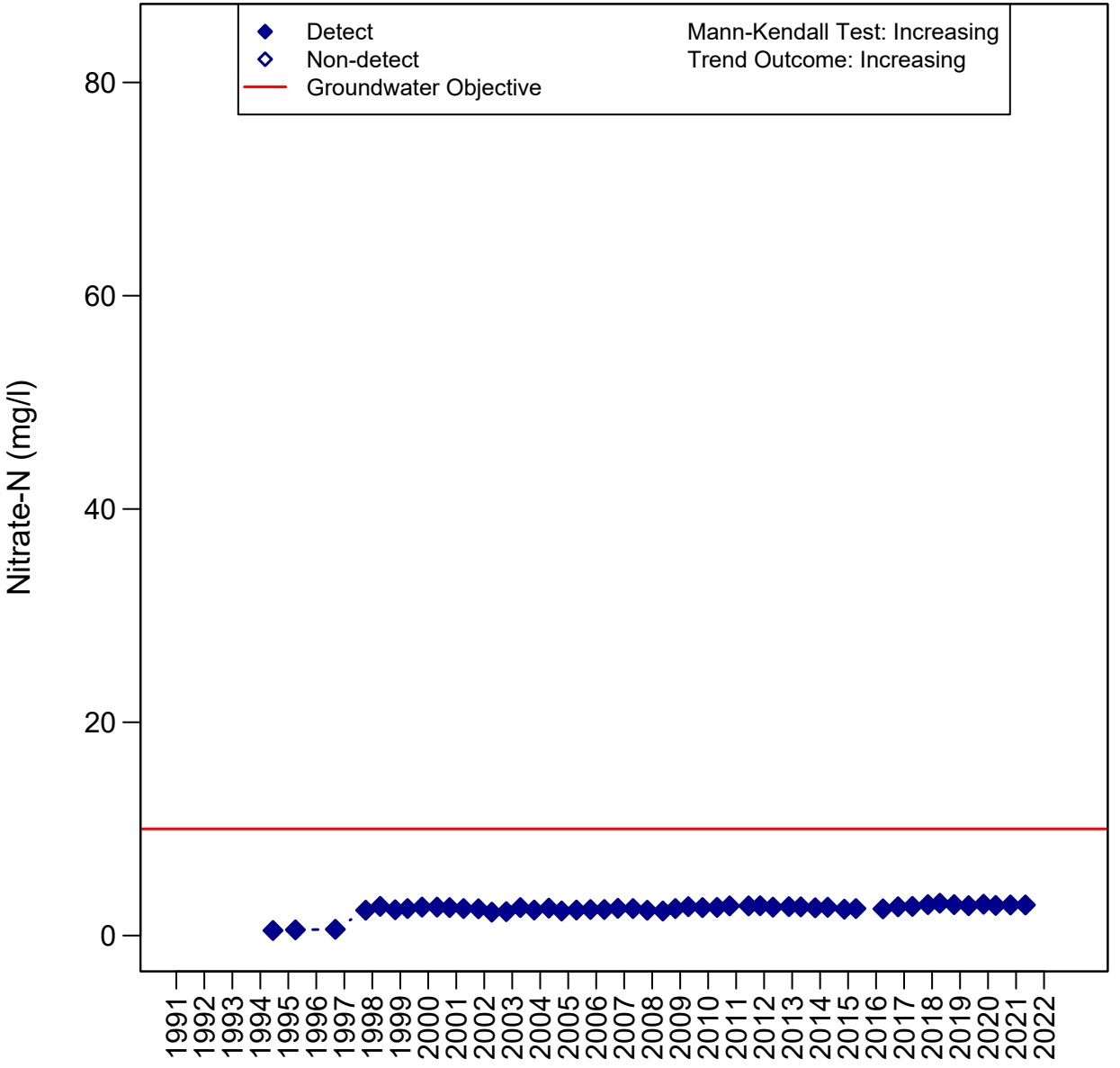
Santa Paula Basin
04N21W16F01S - F01S



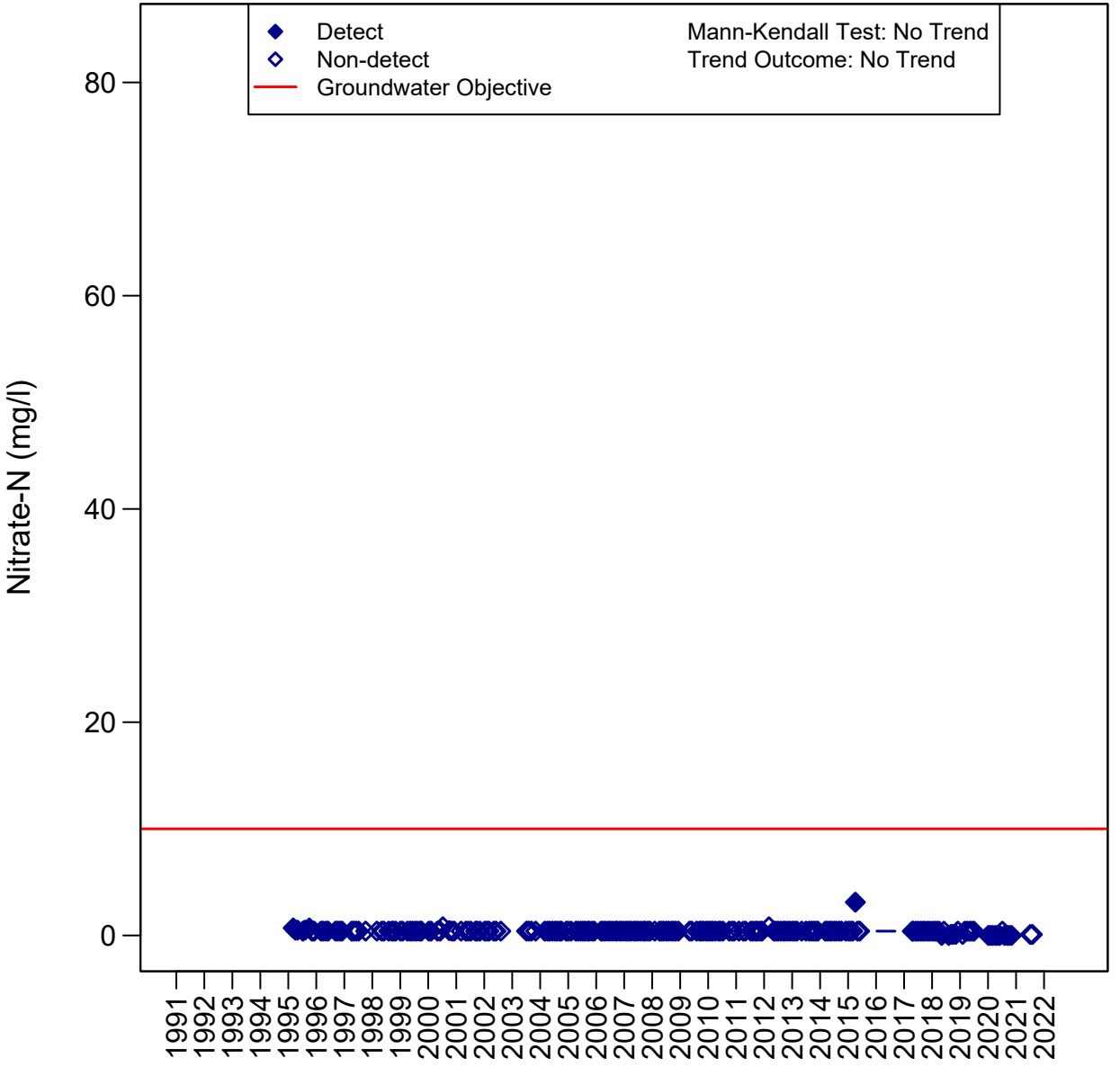
Santa Paula Basin
03N21W16H07S - H07S



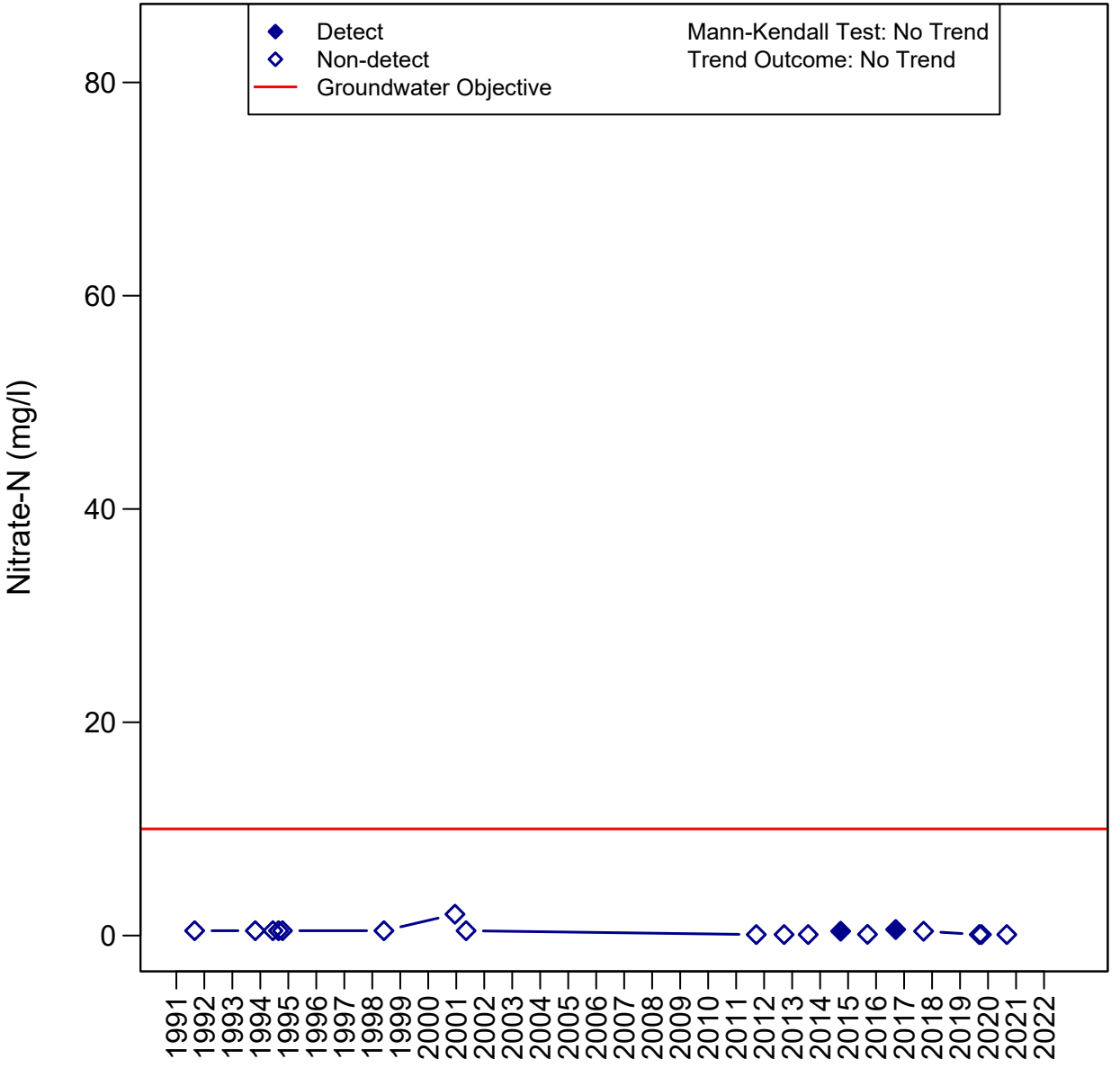
Santa Paula Basin
03N21W15G03S - G03S



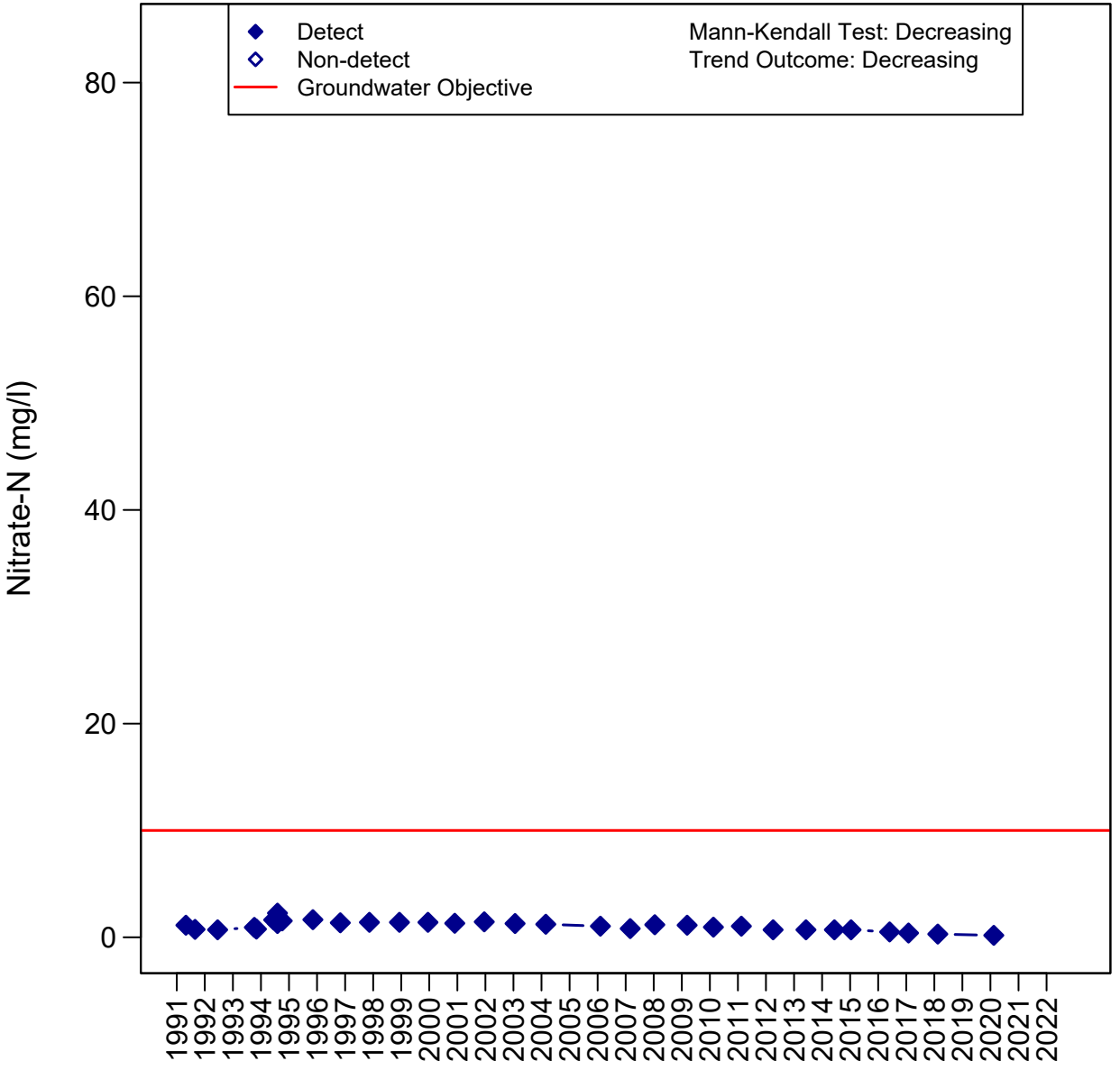
Santa Paula Basin
02N22W02K09S - K09S



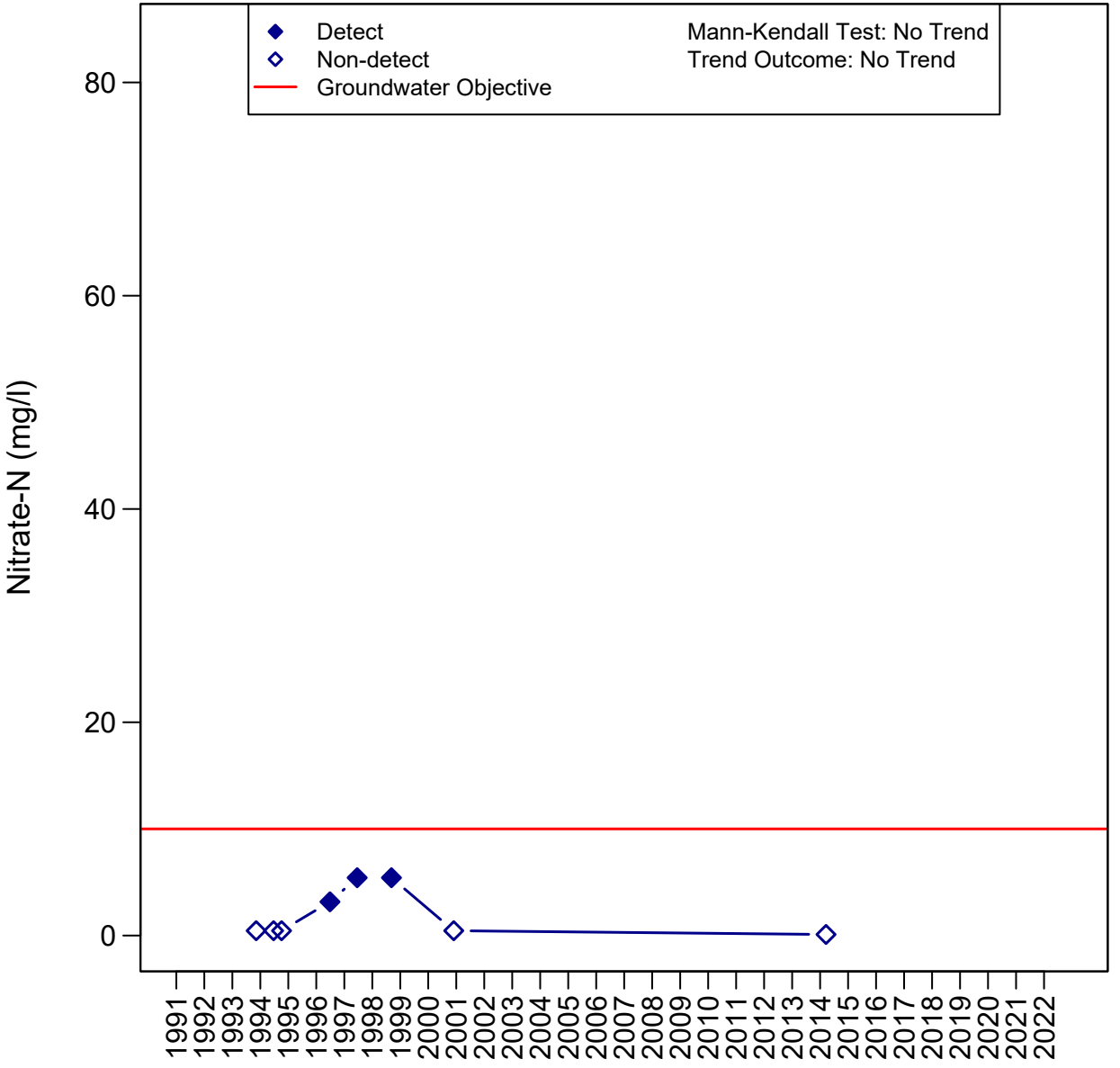
Santa Paula Basin
03N21W30H04S - H04S



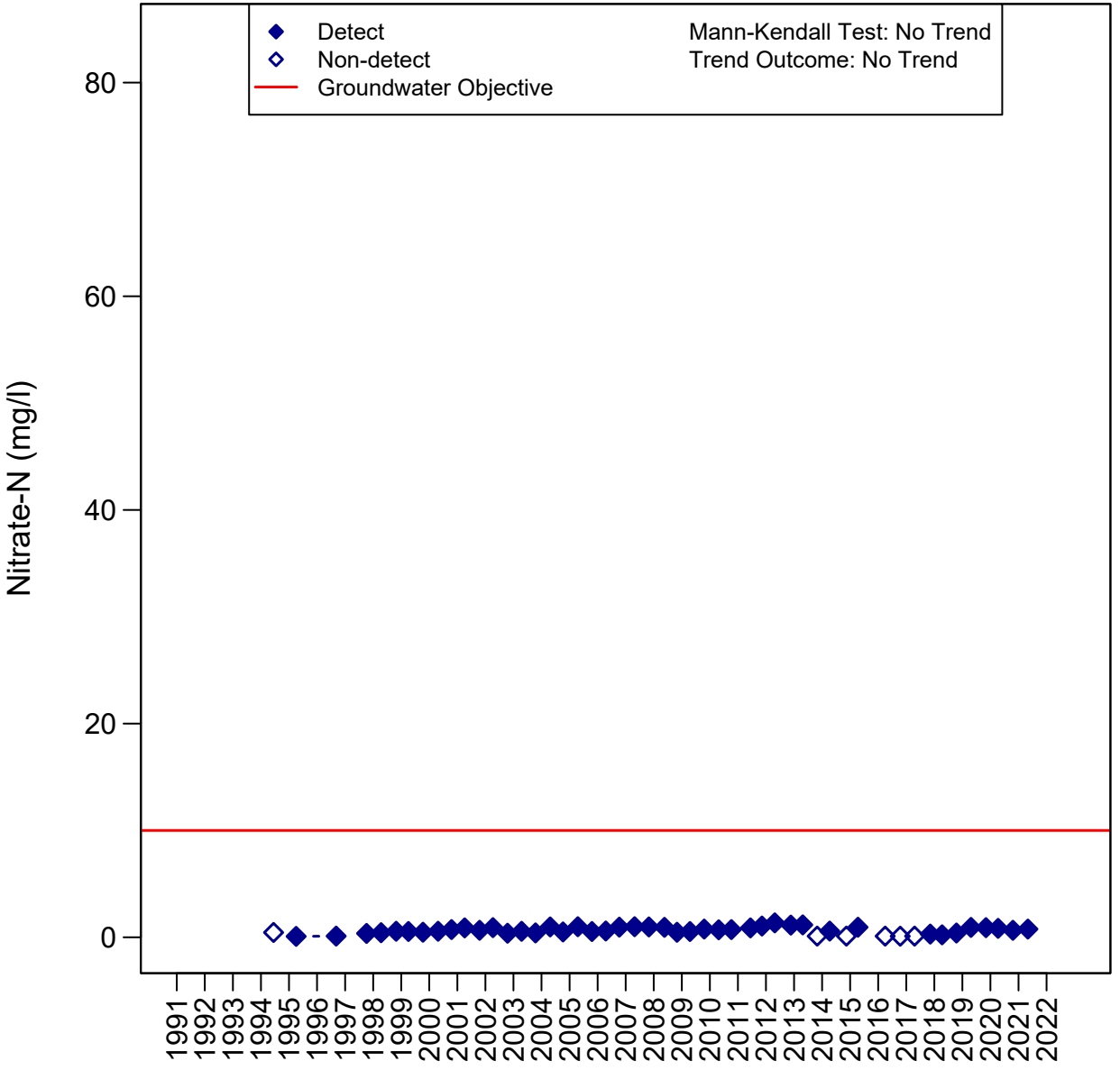
Santa Paula Basin
03N21W16K01S - K01S



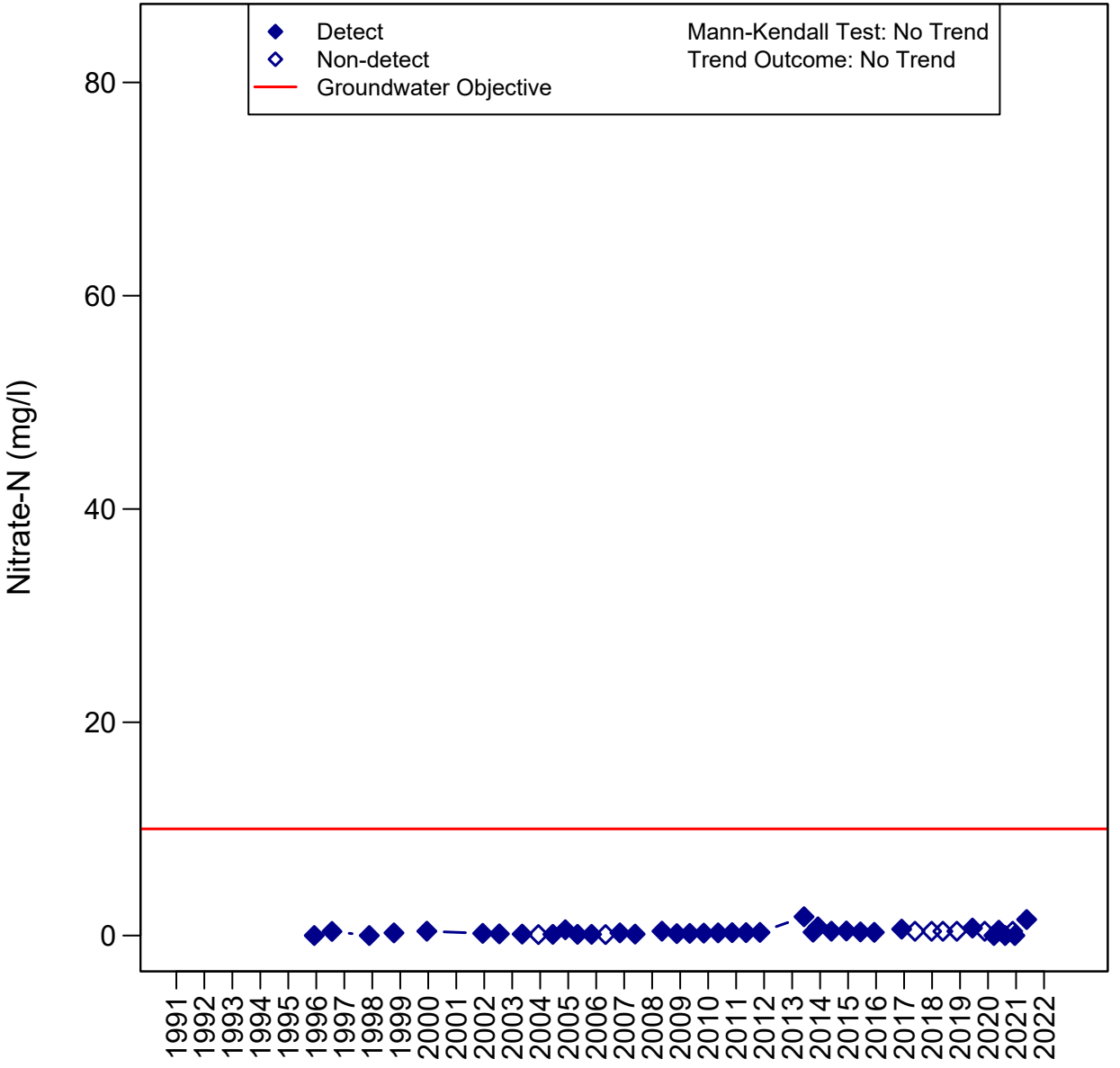
Santa Paula Basin
03N21W19G02S - G02S



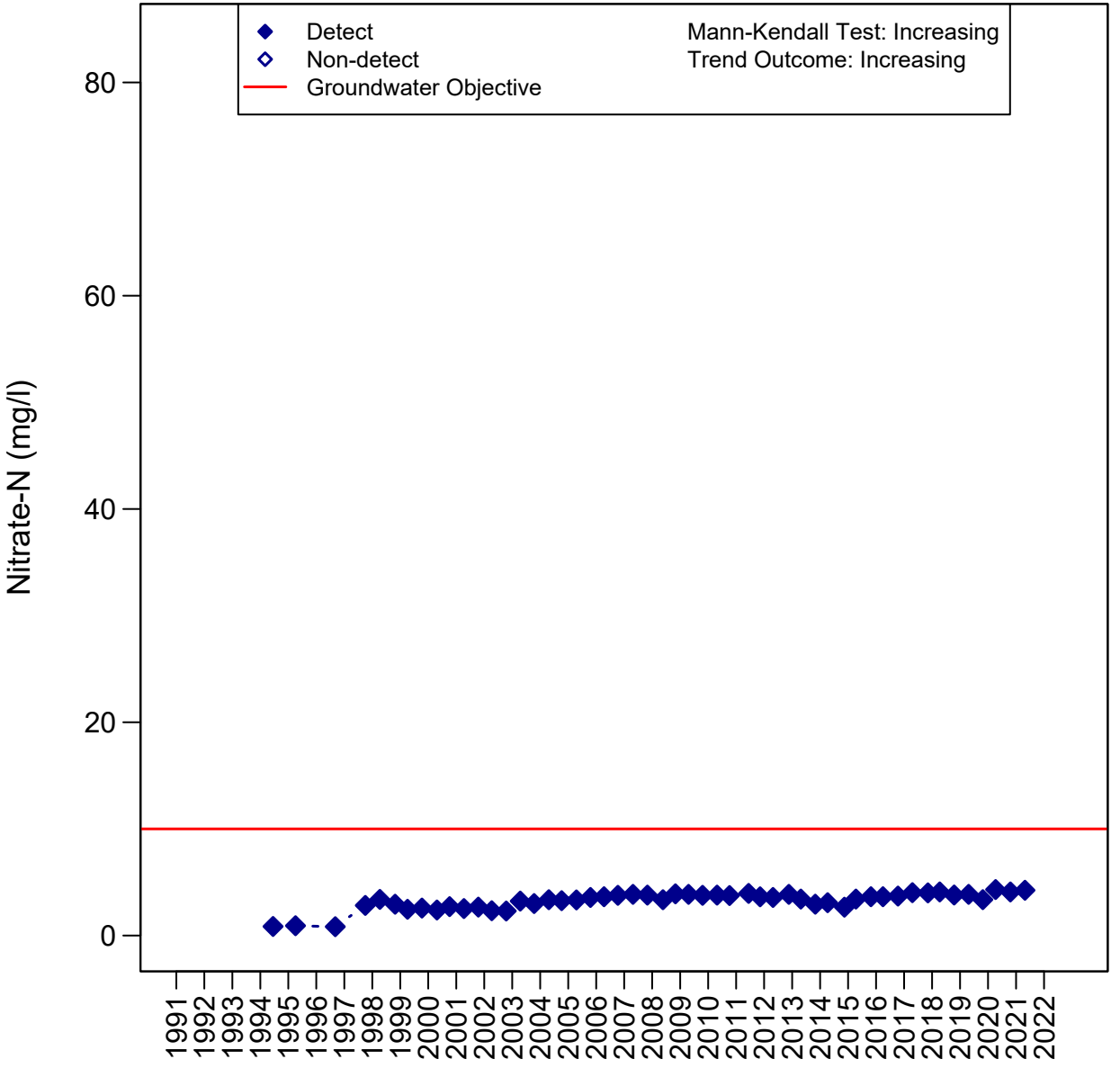
Santa Paula Basin
03N21W15G05S - G05S



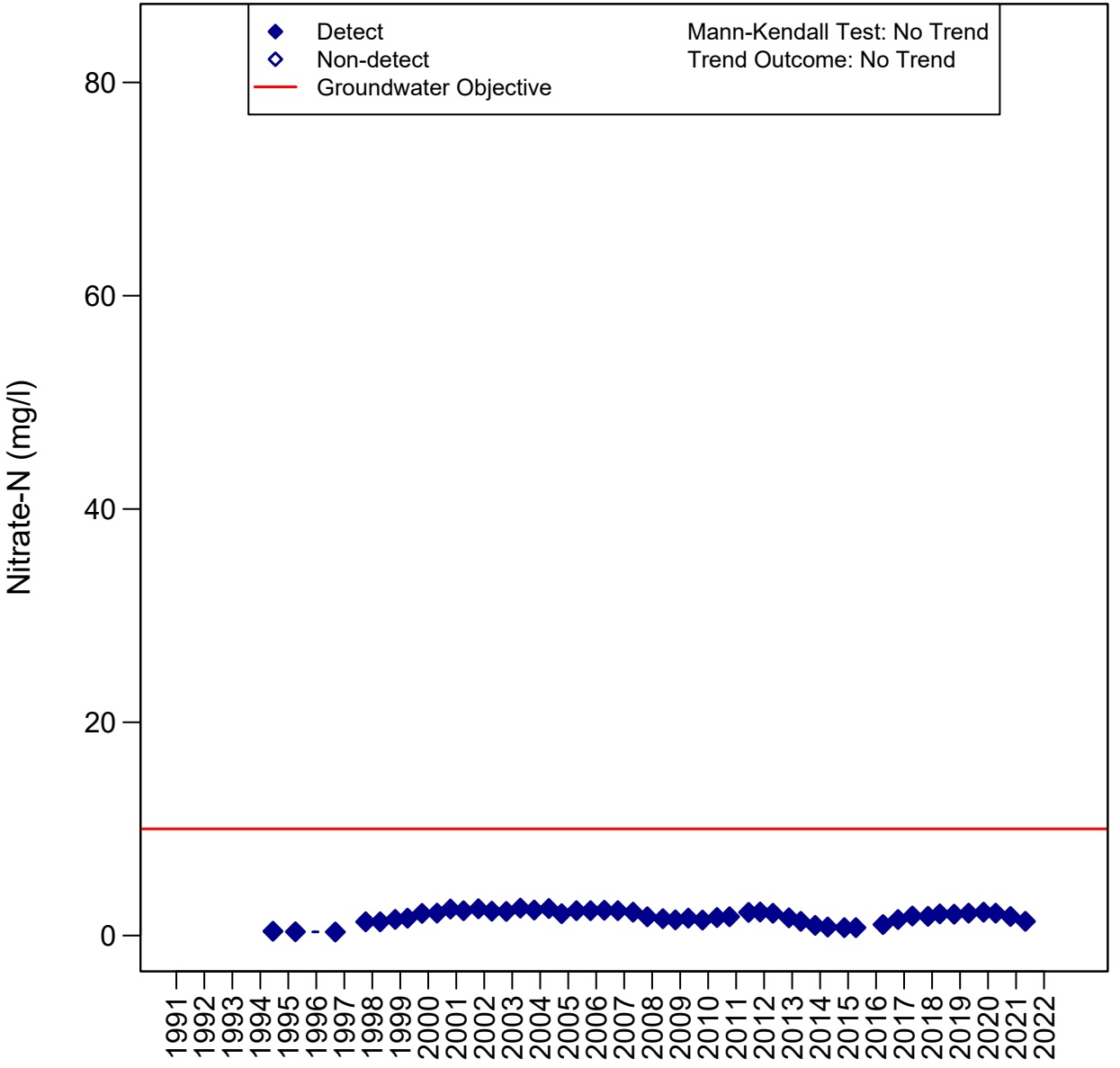
Santa Paula Basin
03N21W09R05S - R05S



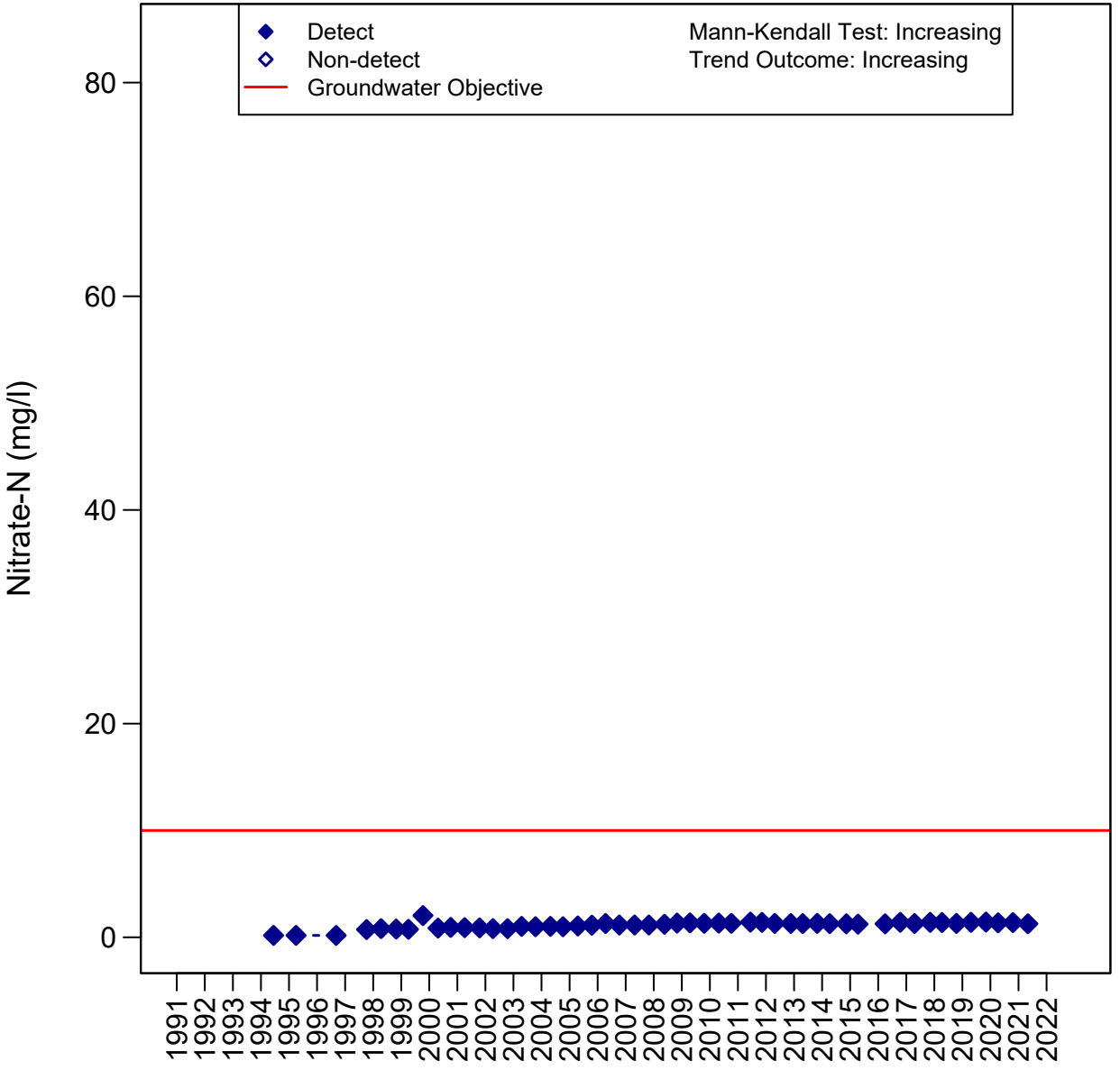
Santa Paula Basin
03N21W16H05S - H05S



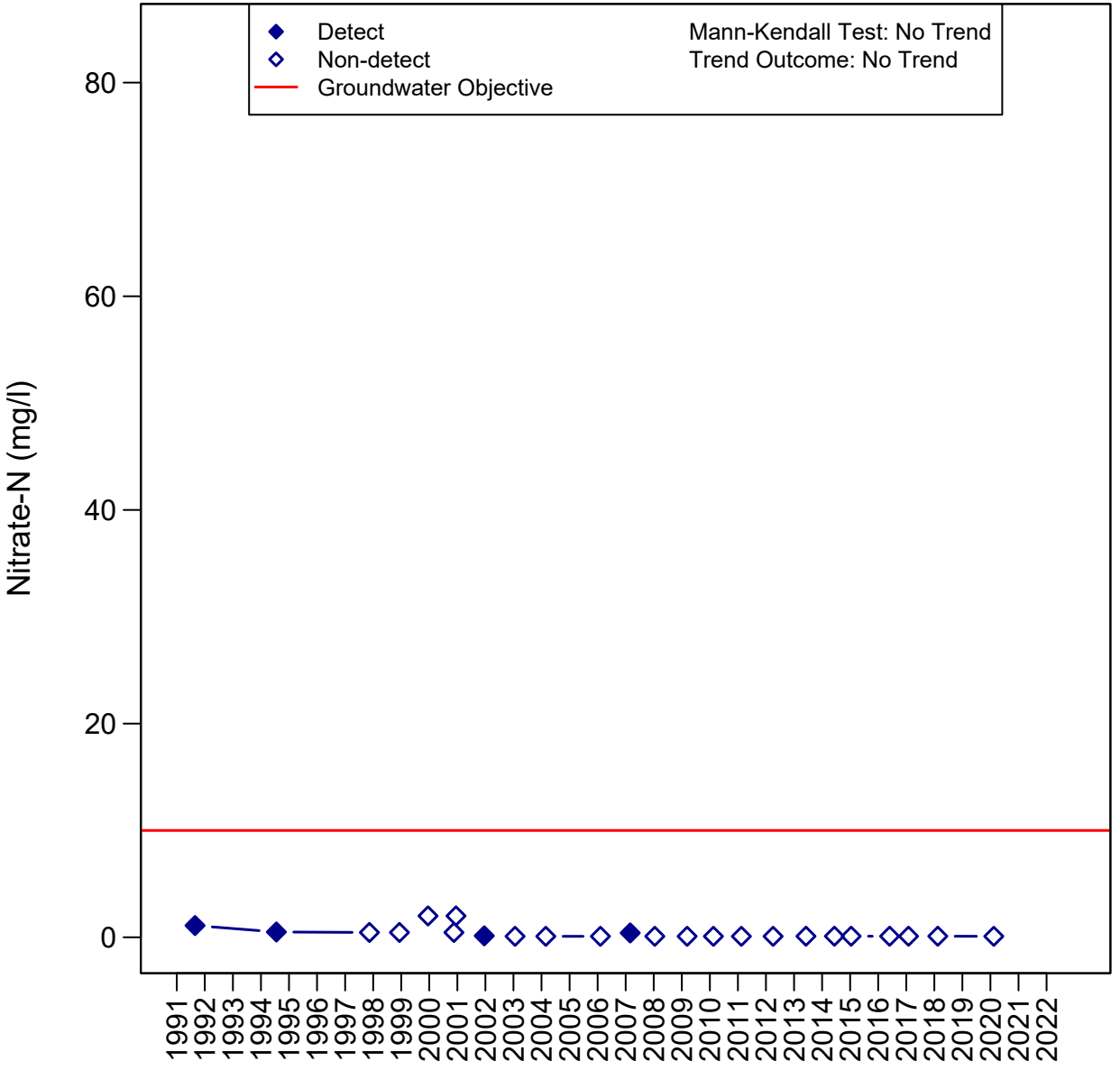
Santa Paula Basin
03N21W15G04S - G04S



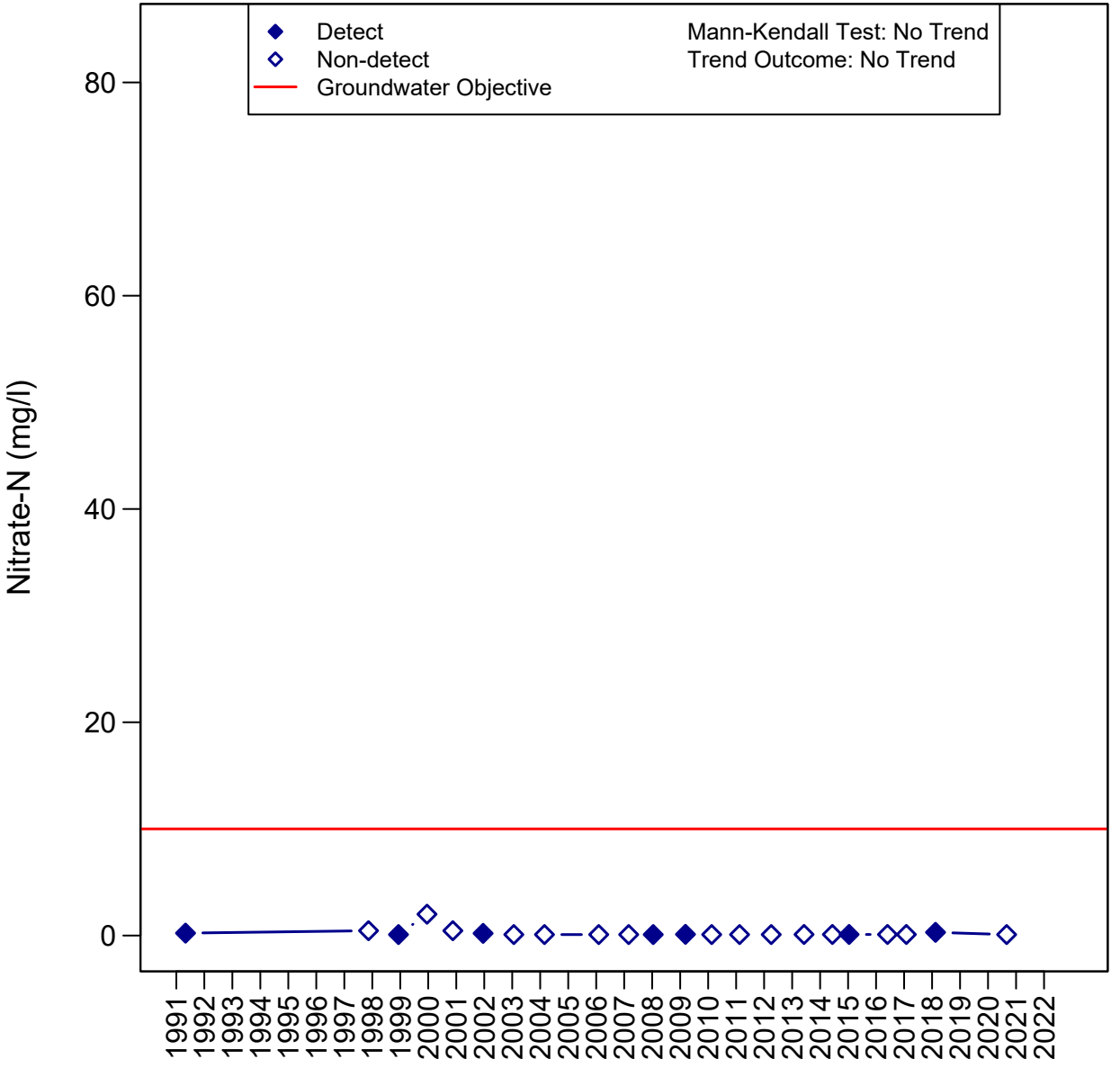
Santa Paula Basin
03N21W15G01S - G01S



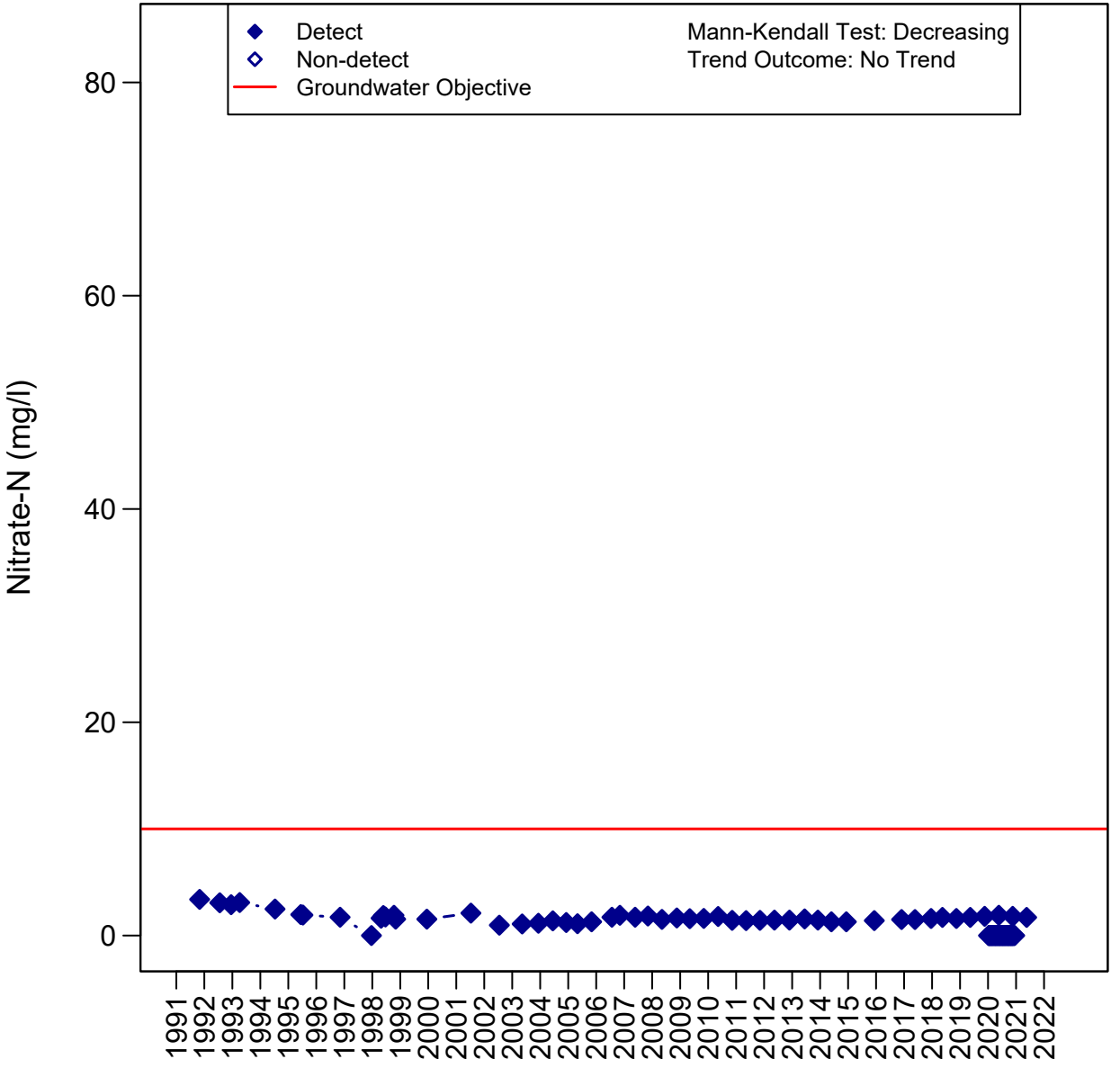
Santa Paula Basin
03N21W19G04S - G04S



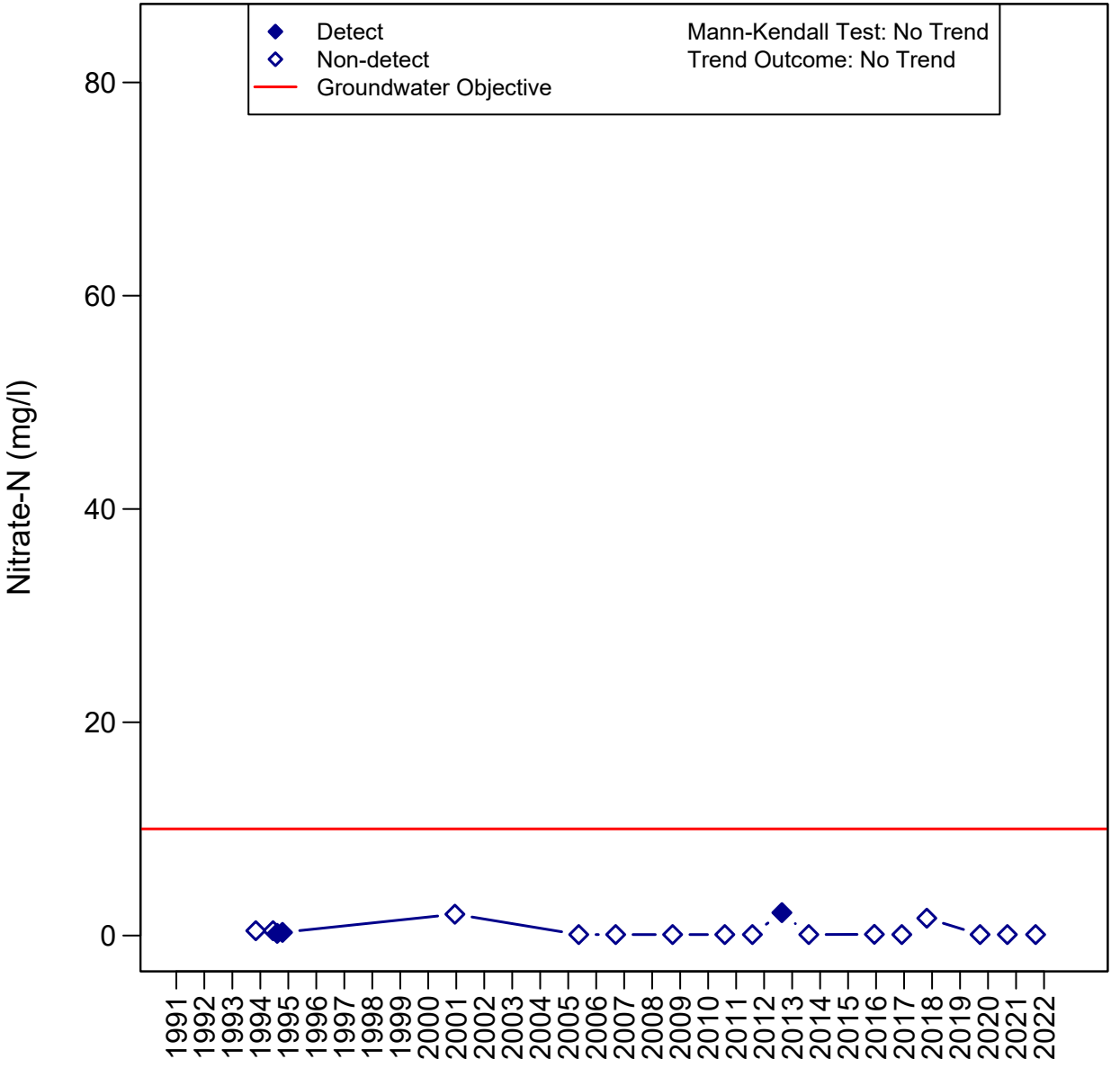
Santa Paula Basin
03N21W09R04S - R04S



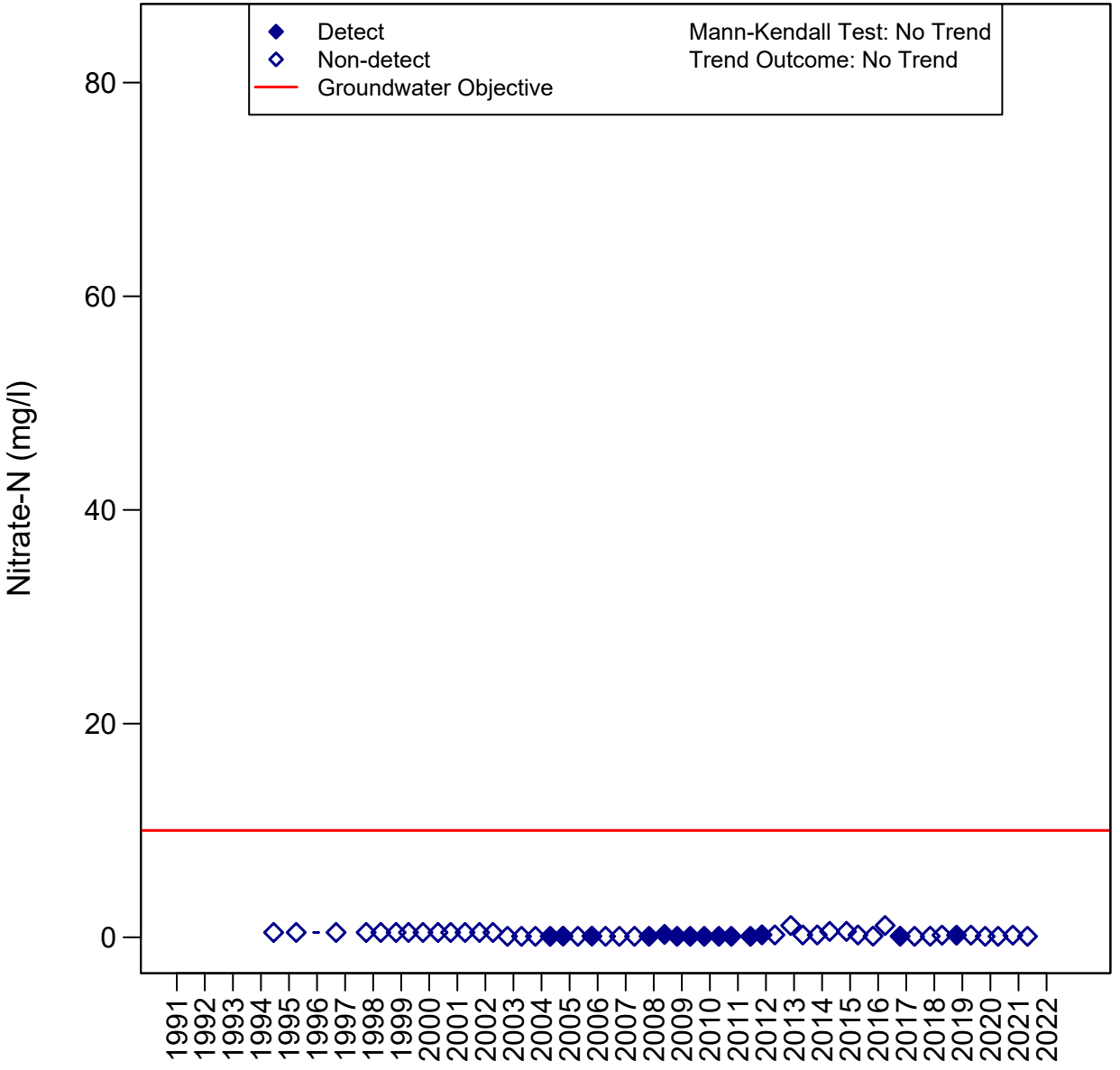
Santa Paula Basin
03N21W11J02S - J02S



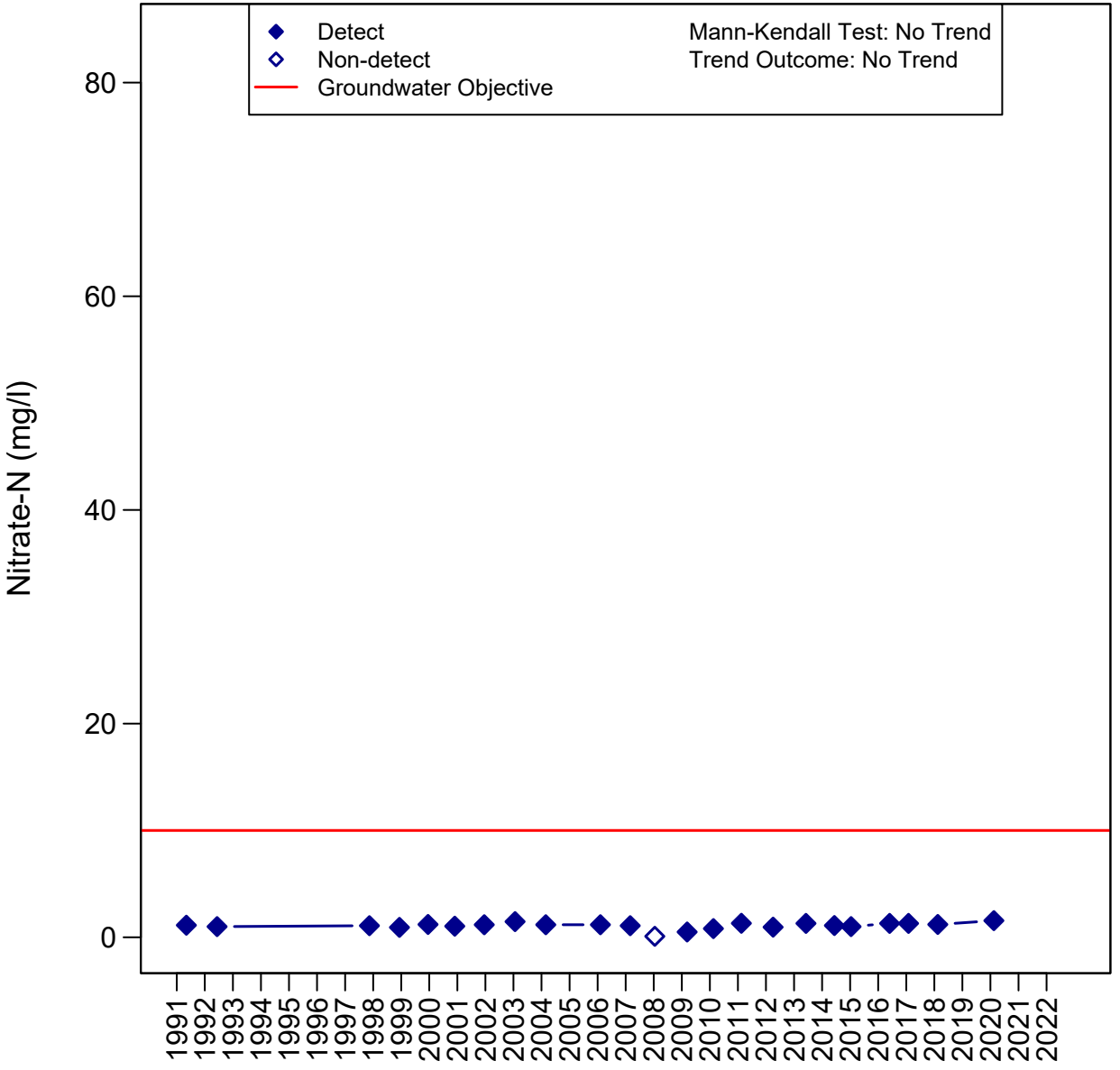
Santa Paula Basin
03N21W09K04S - K04S



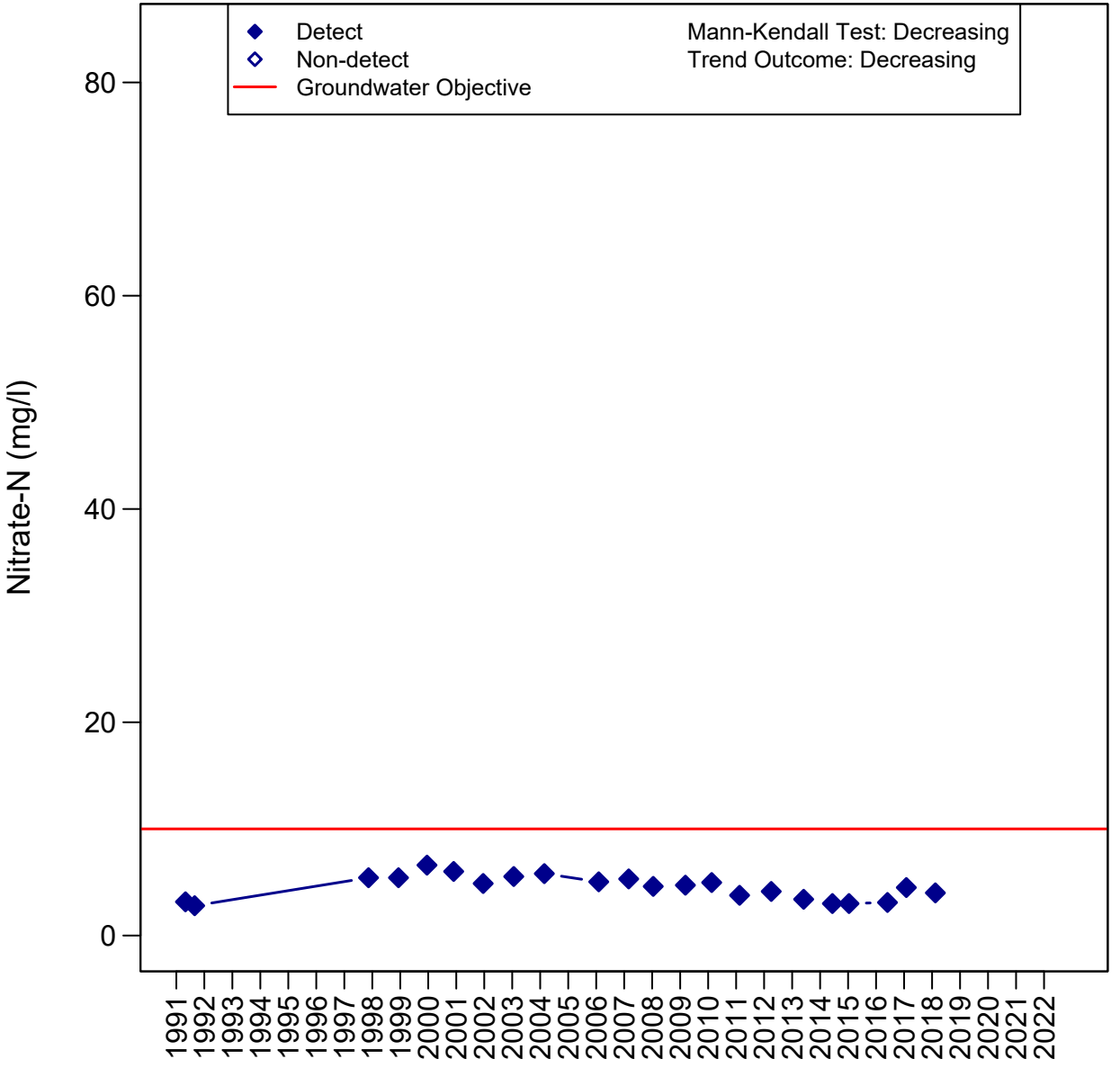
Santa Paula Basin
03N21W16H08S - H08S



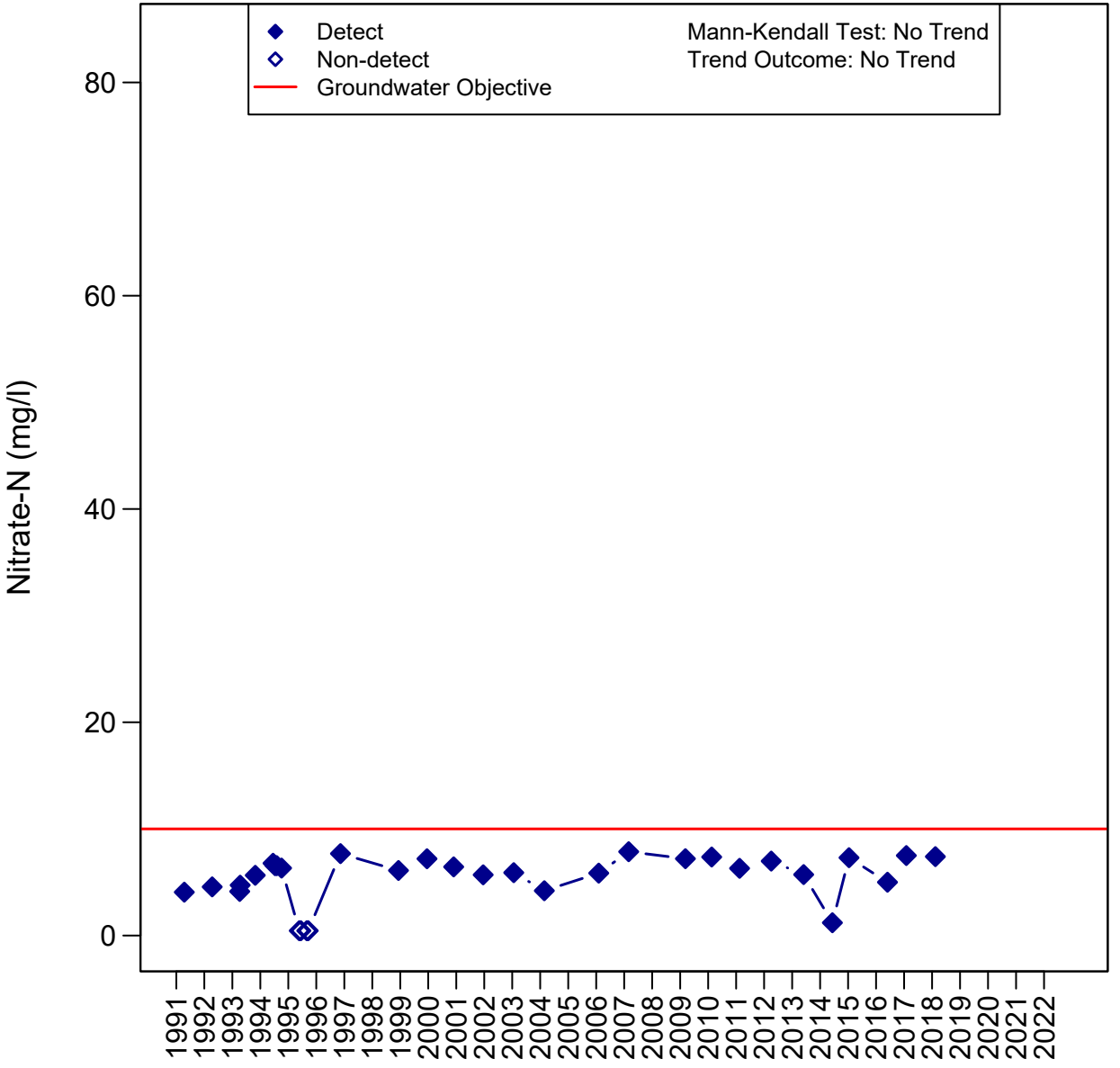
Santa Paula Basin
03N21W16K03S - K03S

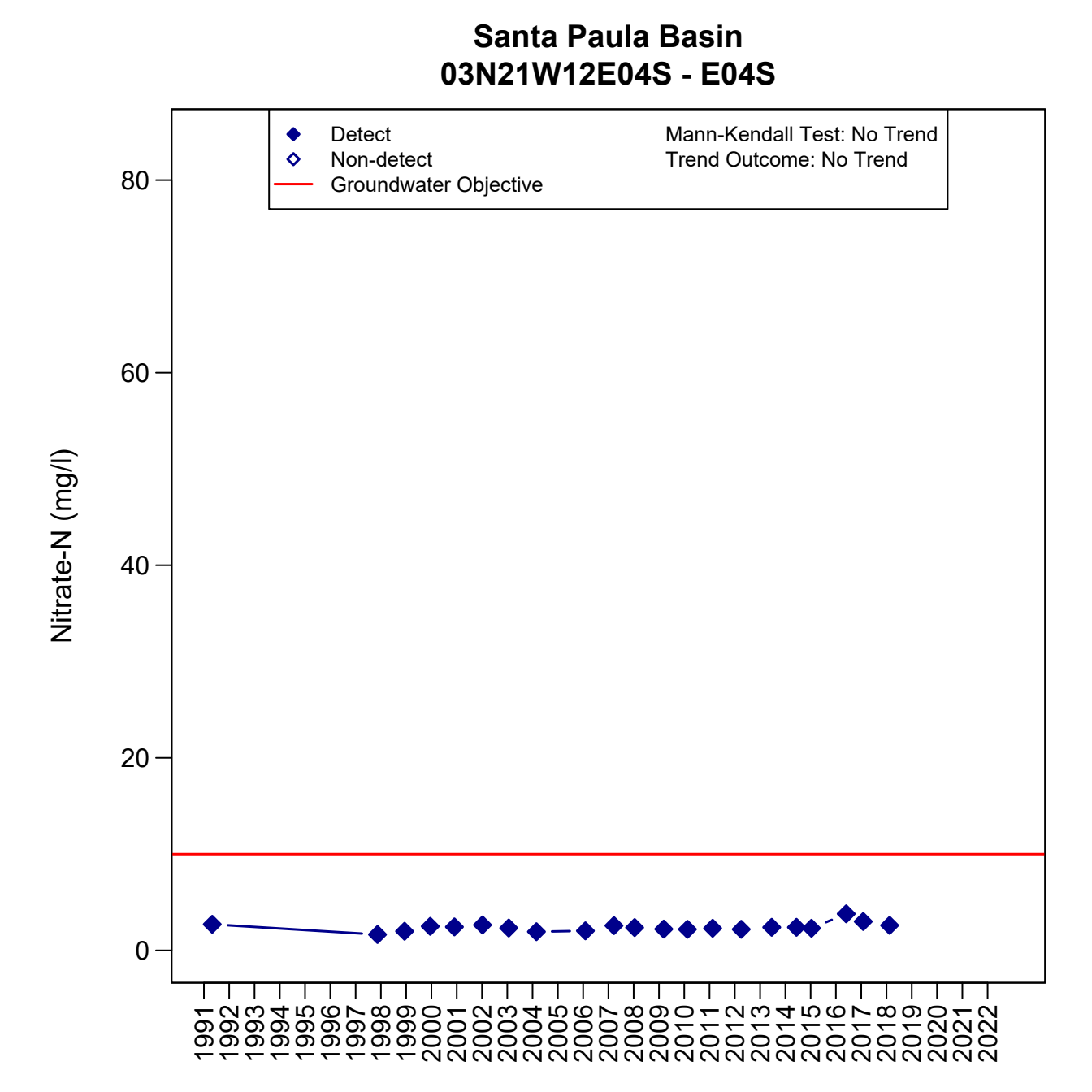


Santa Paula Basin
03N21W15C04S - C04S



Santa Paula Basin
03N21W15C02S - C02S




Santa Paula Basin
03N21W12E04S - E04S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
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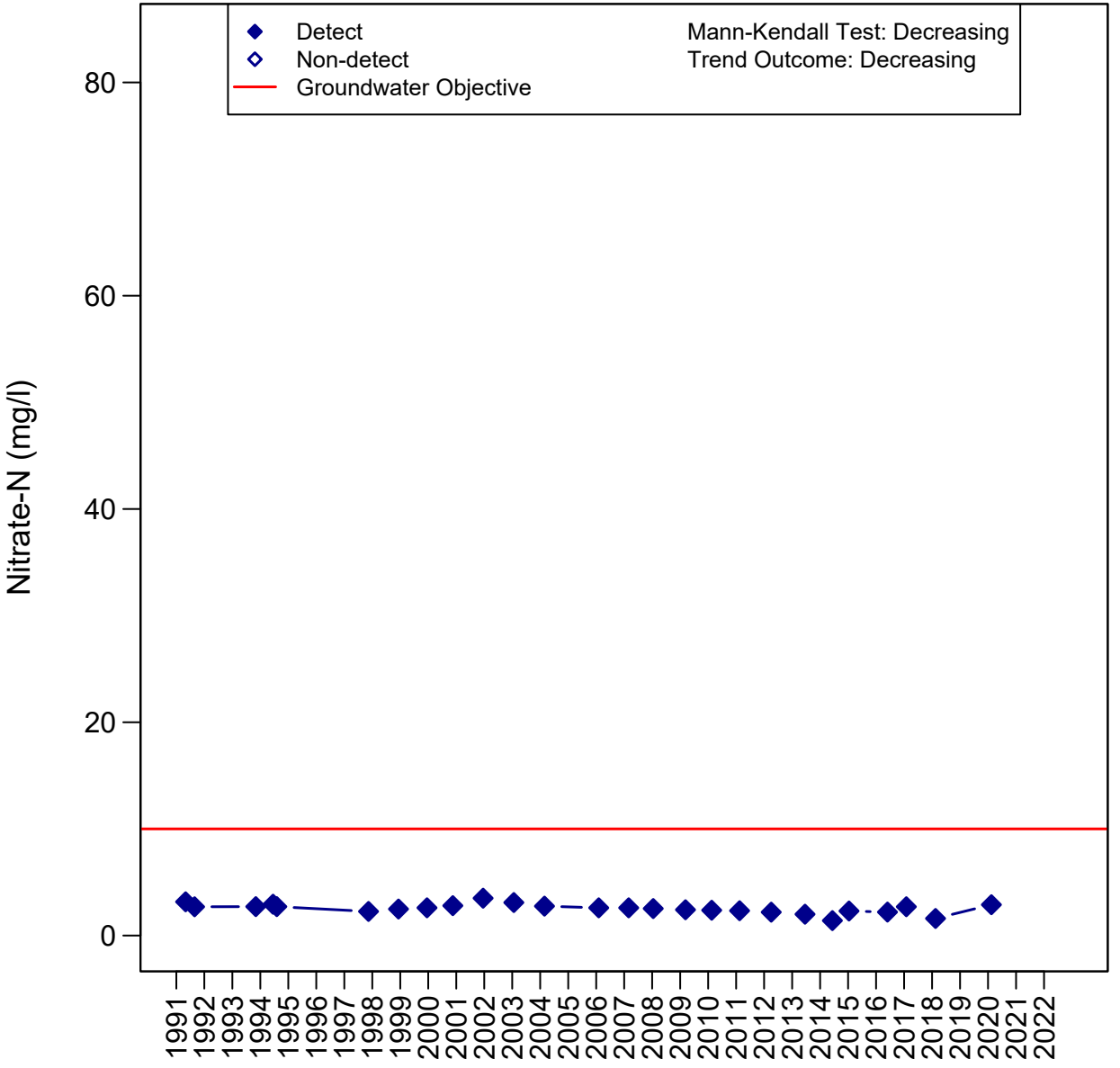
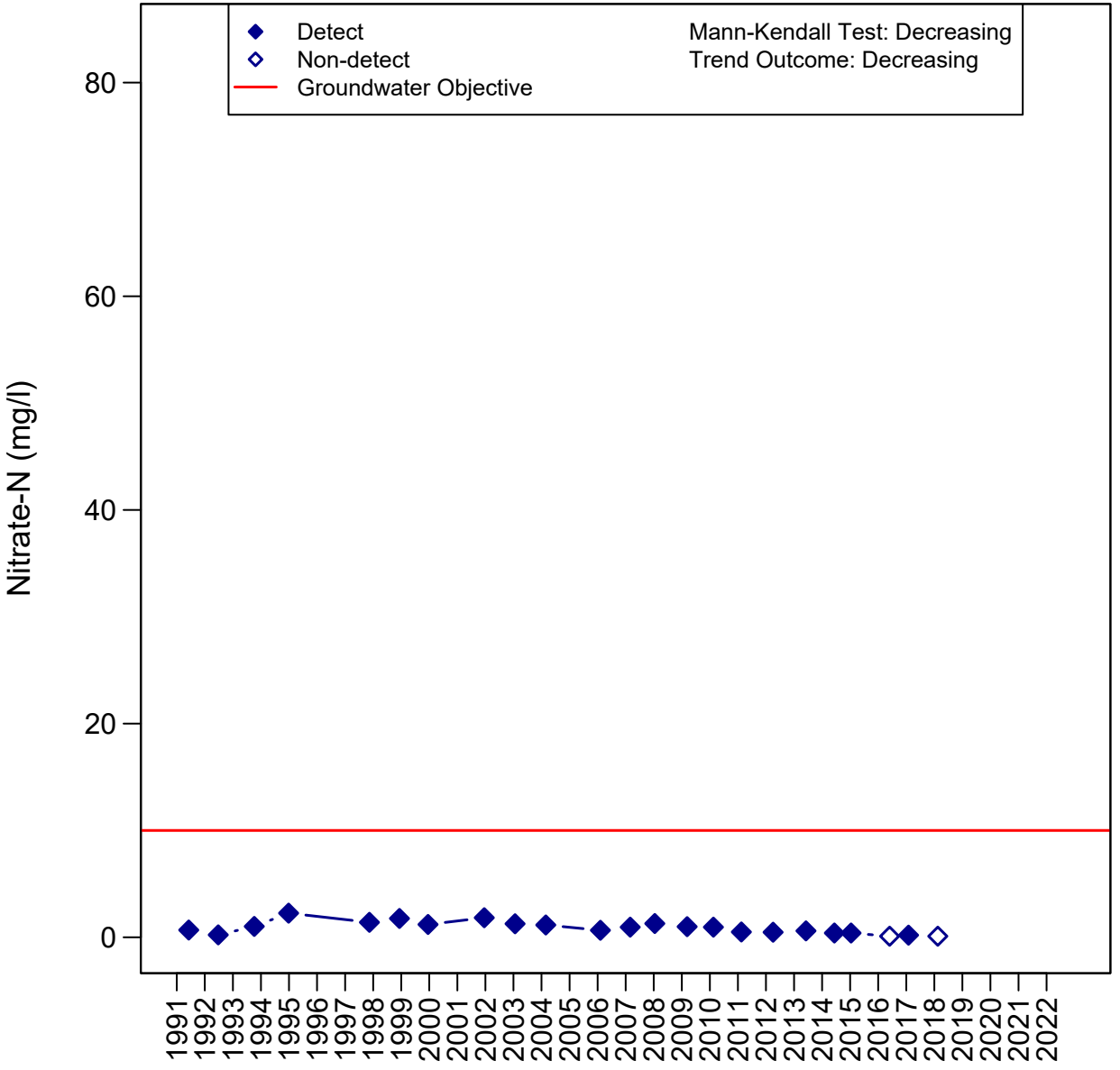
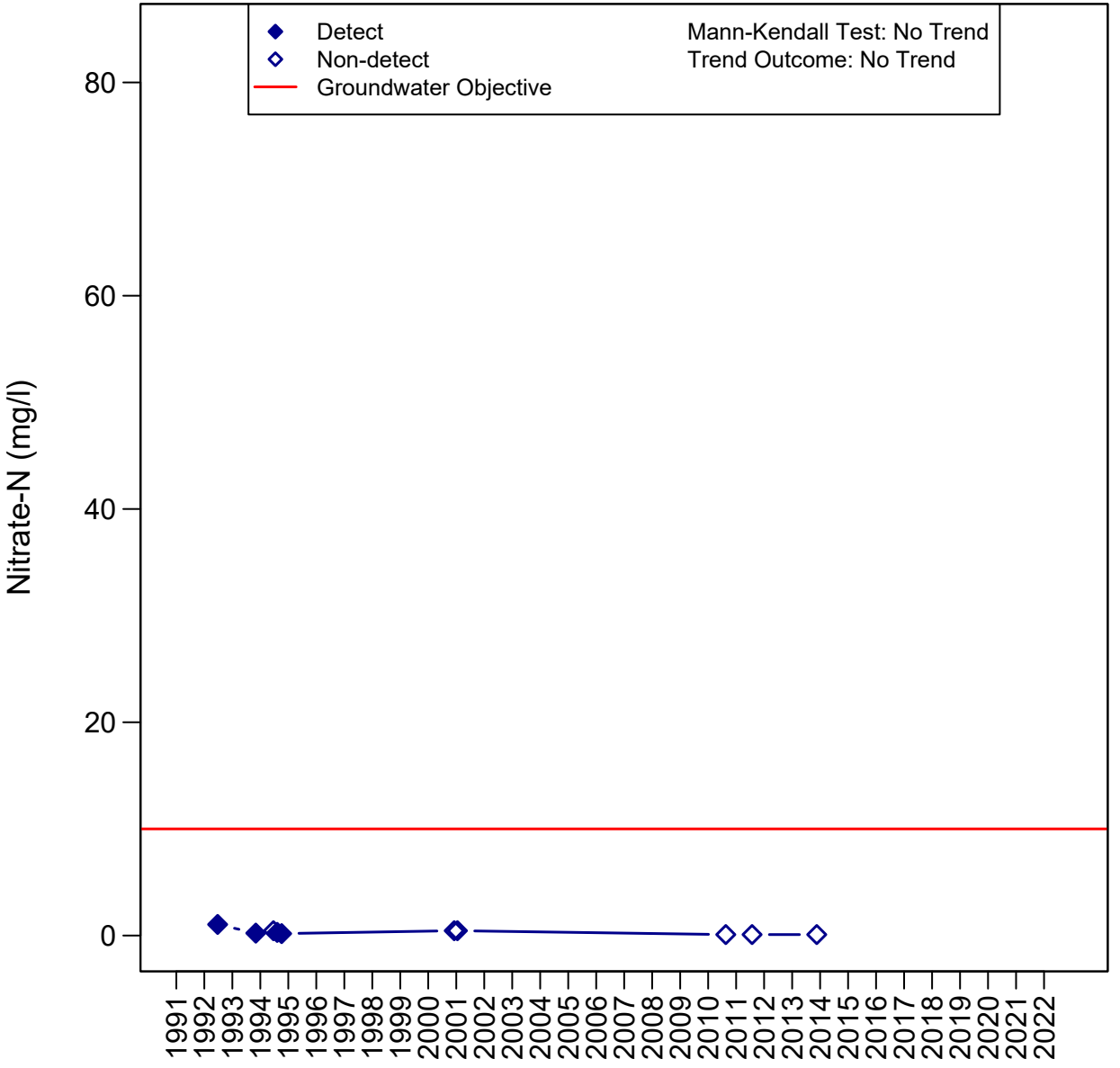
Santa Paula Basin
03N21W12F03S - F03S



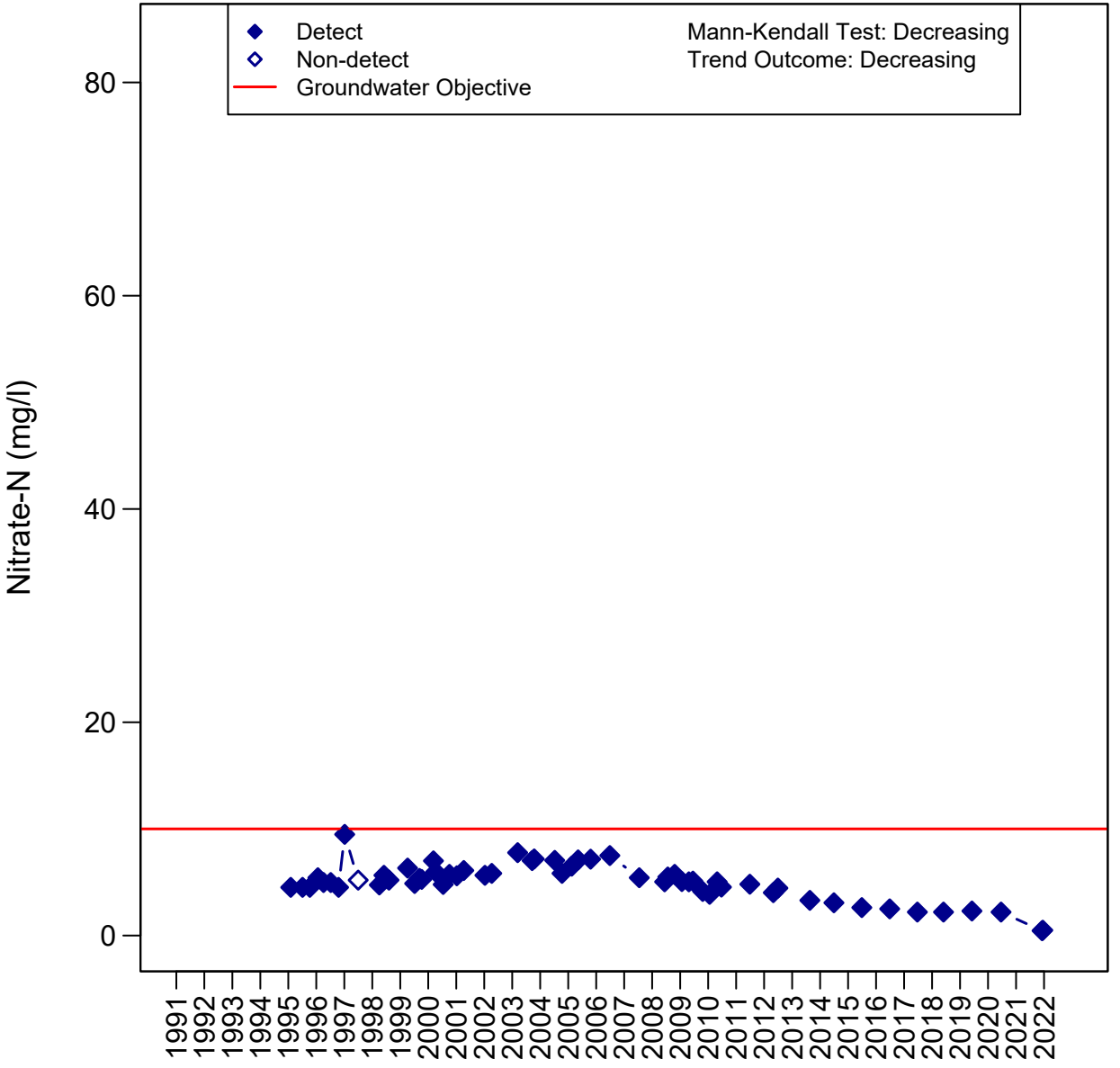
Santa Paula Basin
03N21W16K02S - K02S



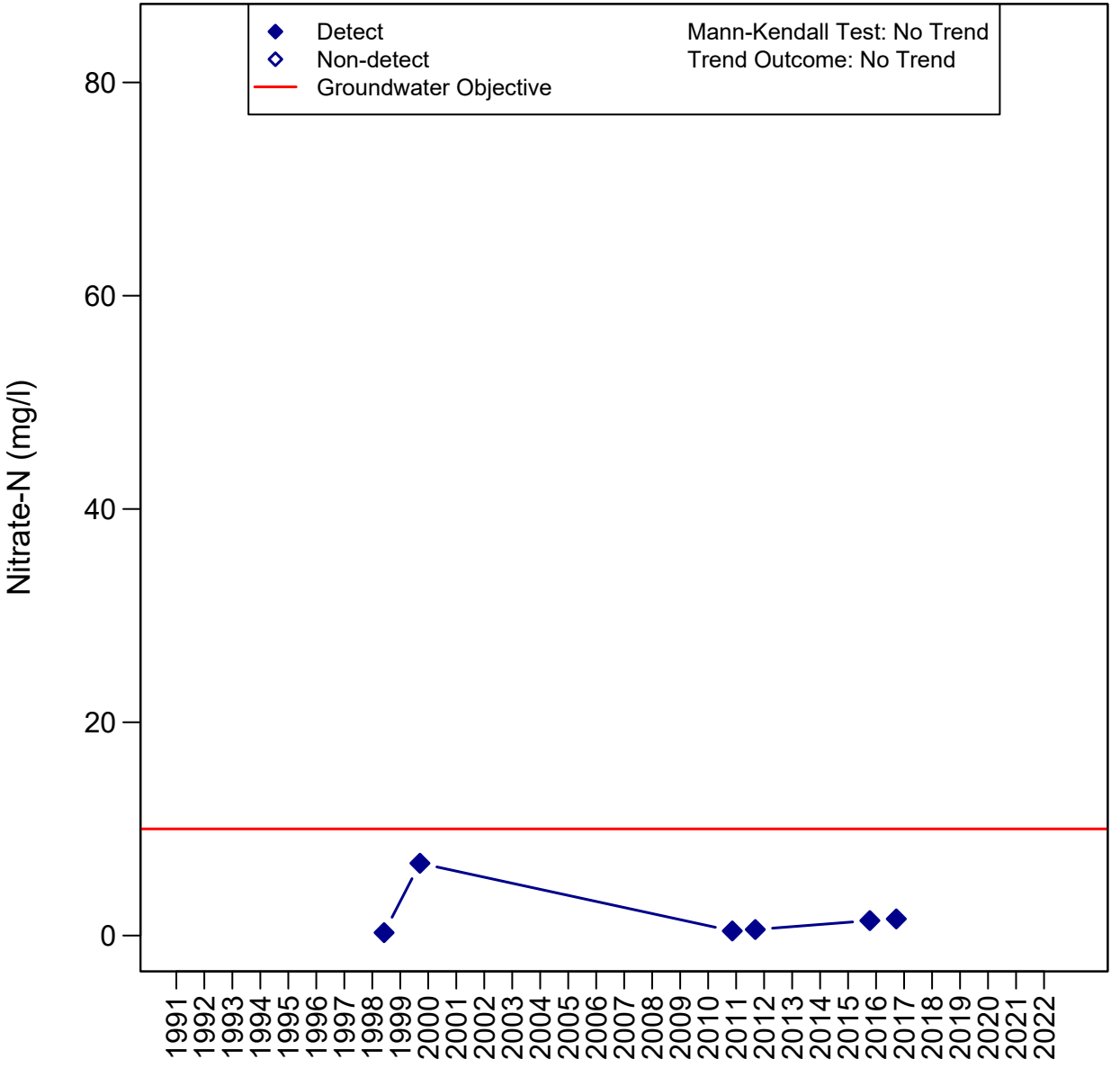
Santa Paula Basin
02N22W03L01S - L01S



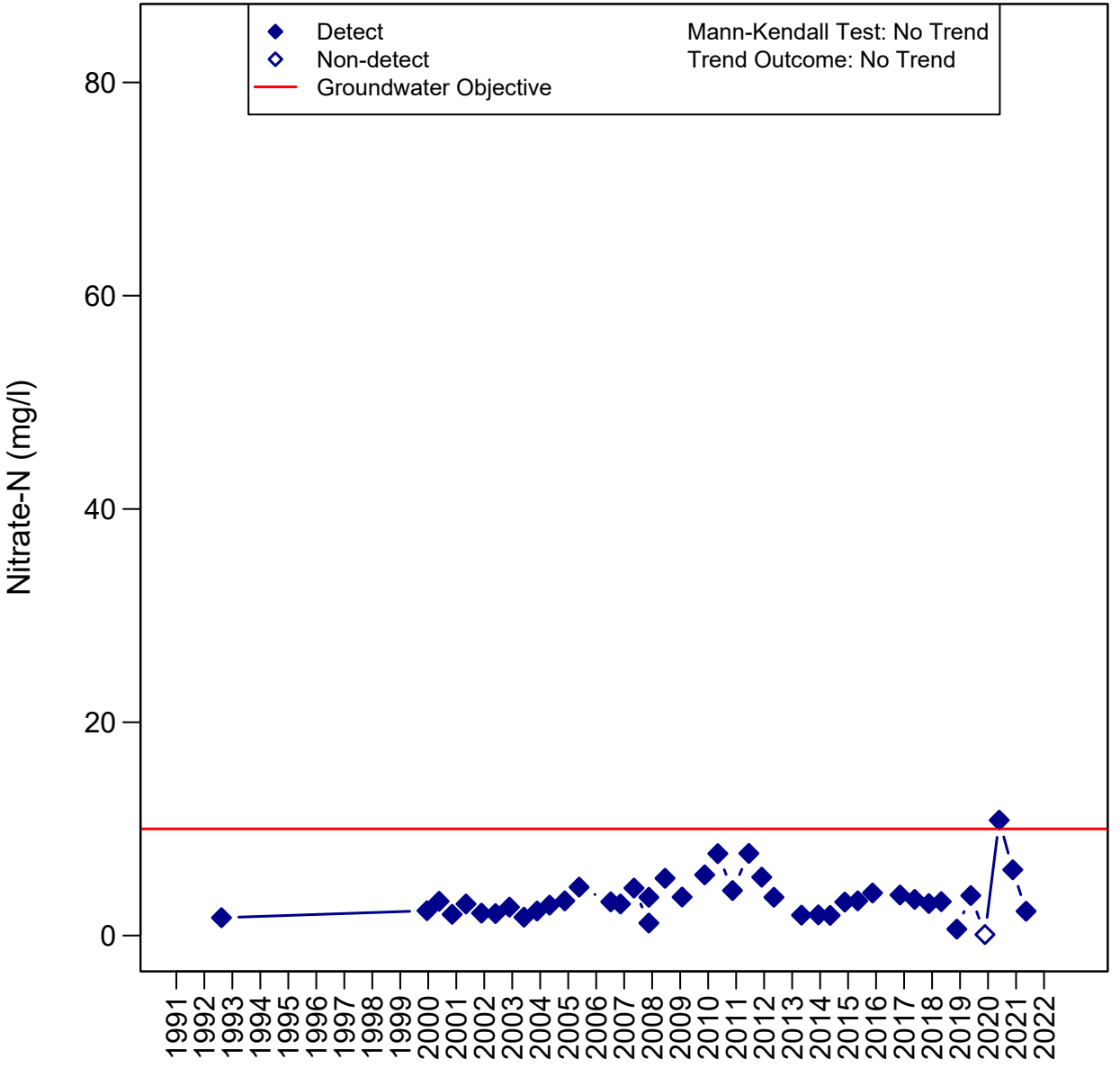
Fillmore Basin
04N20W26G03S - G03S



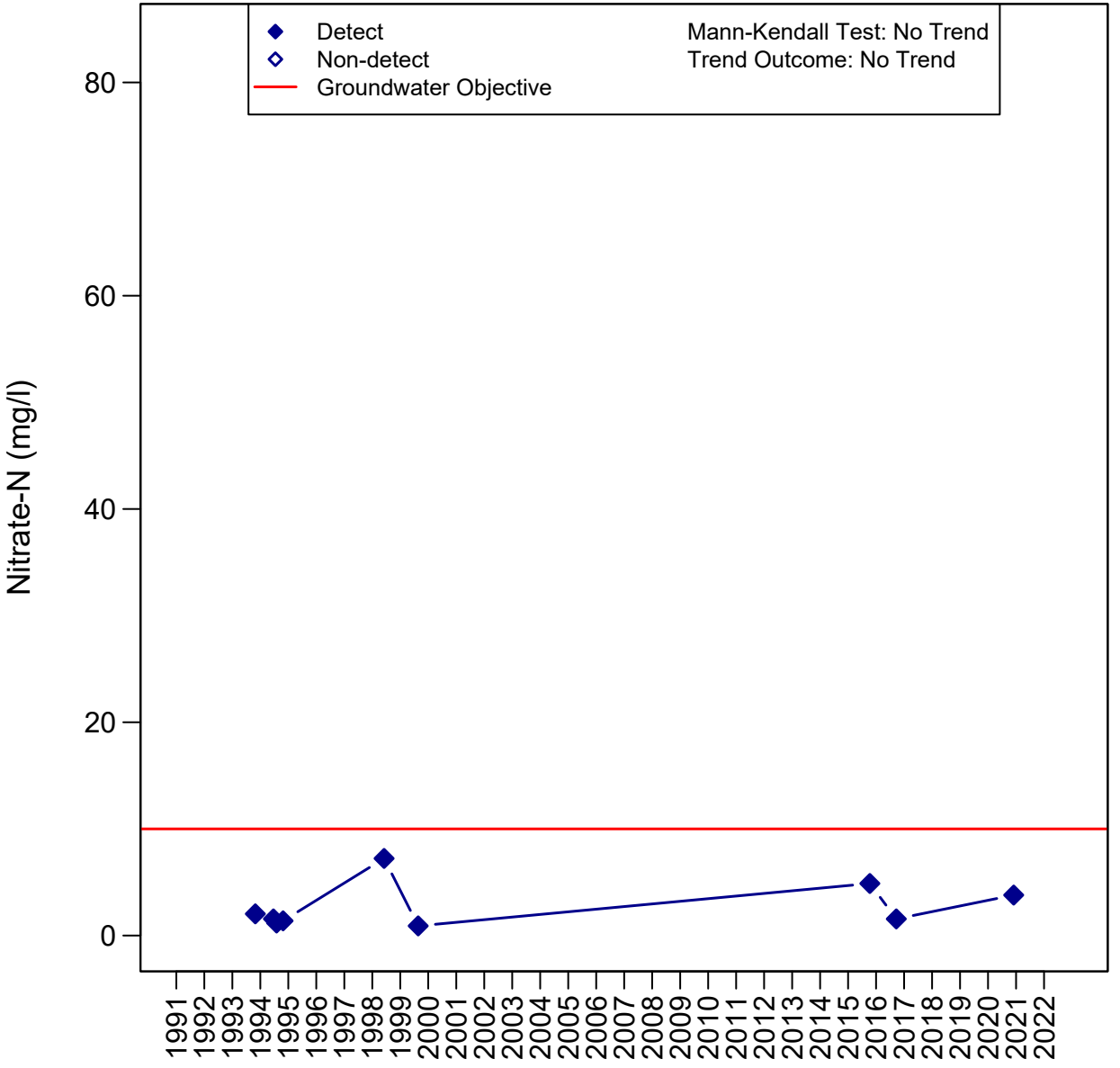
Fillmore Basin
04N19W32M02S - M02S



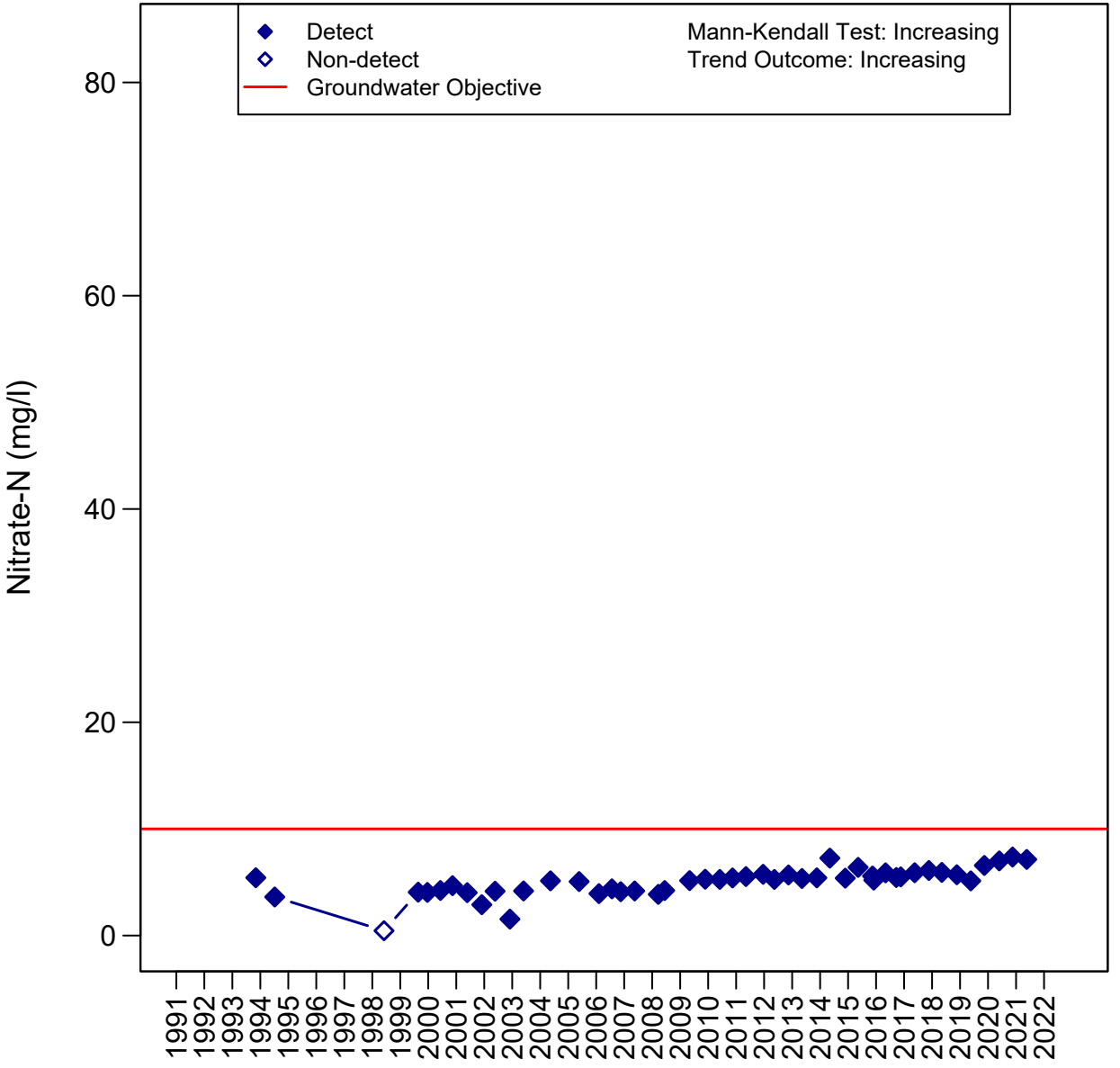
Fillmore Basin
04N19W33M05S - M05S



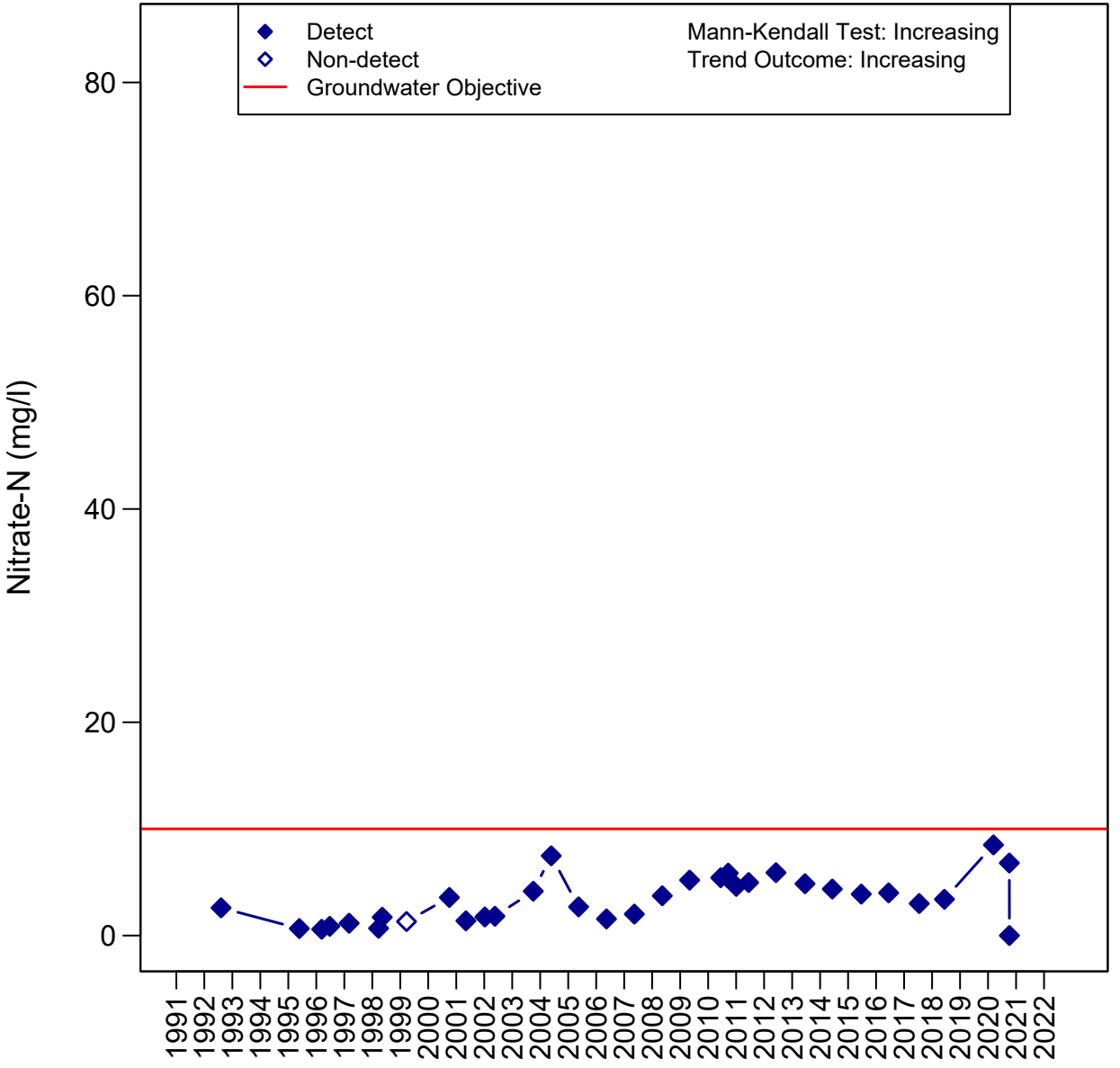
Fillmore Basin
04N19W31R01S - R01S



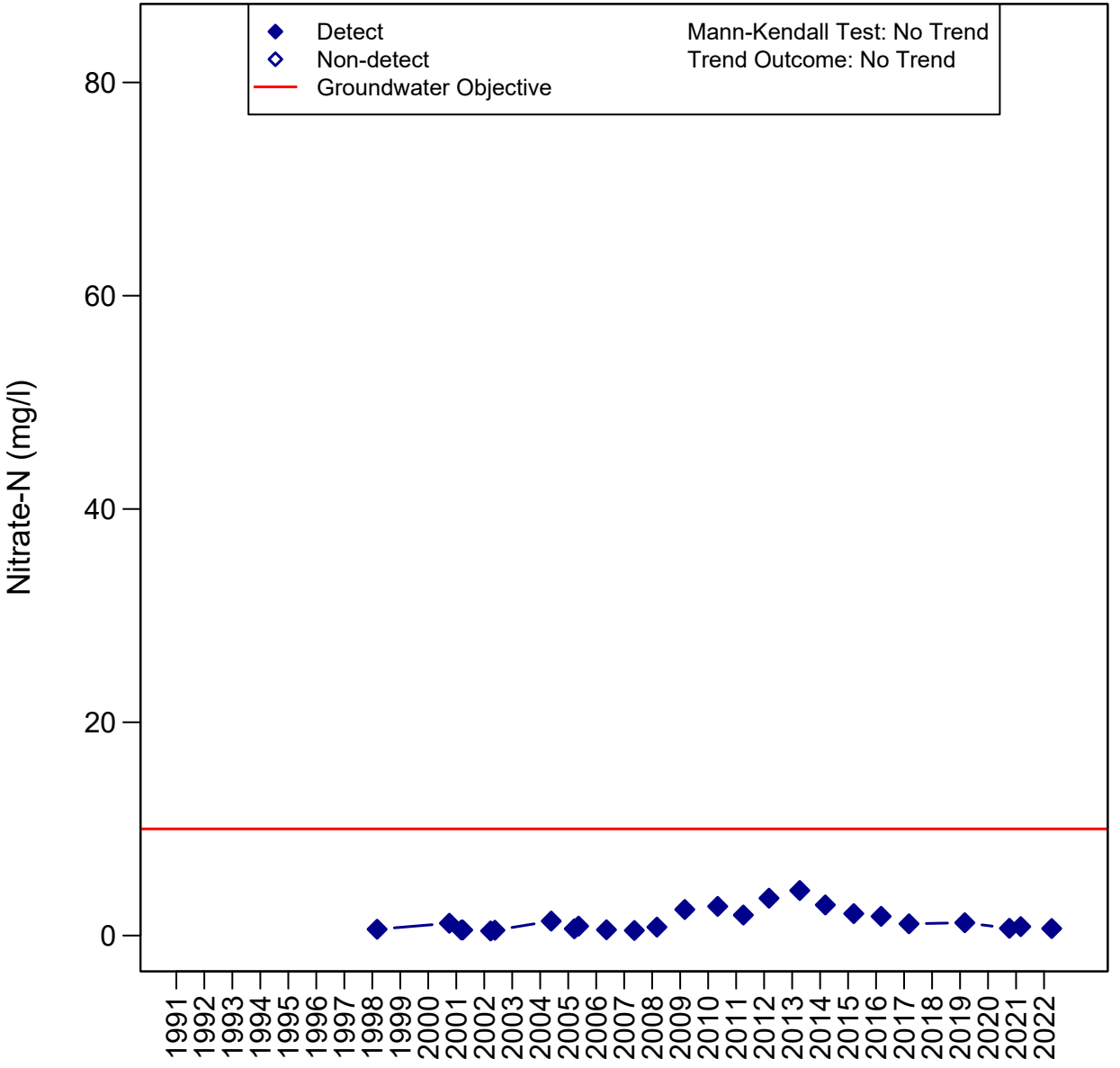
Fillmore Basin
04N19W30D01S - D01S



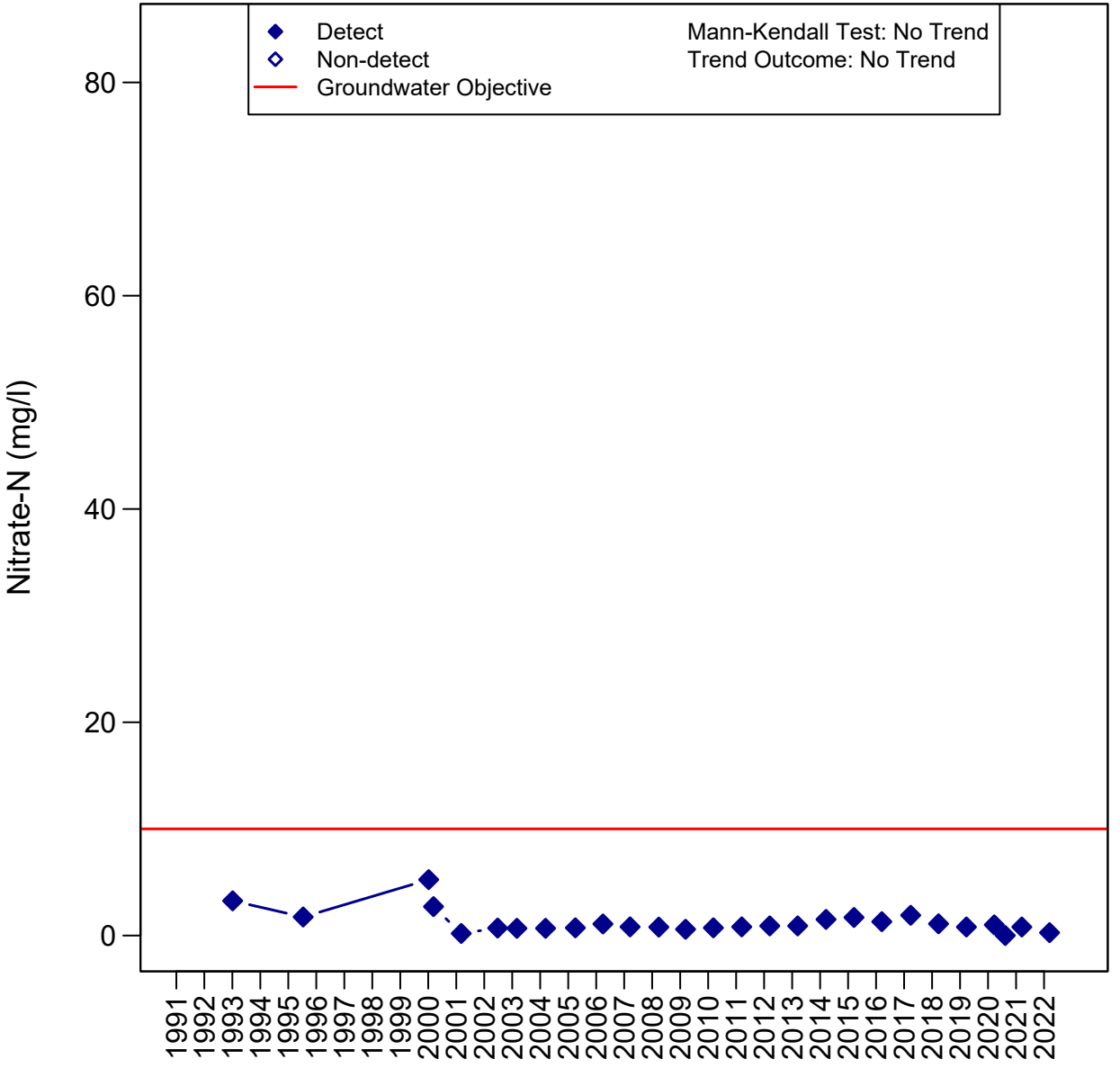
Fillmore Basin
04N20W25B01S - B01S



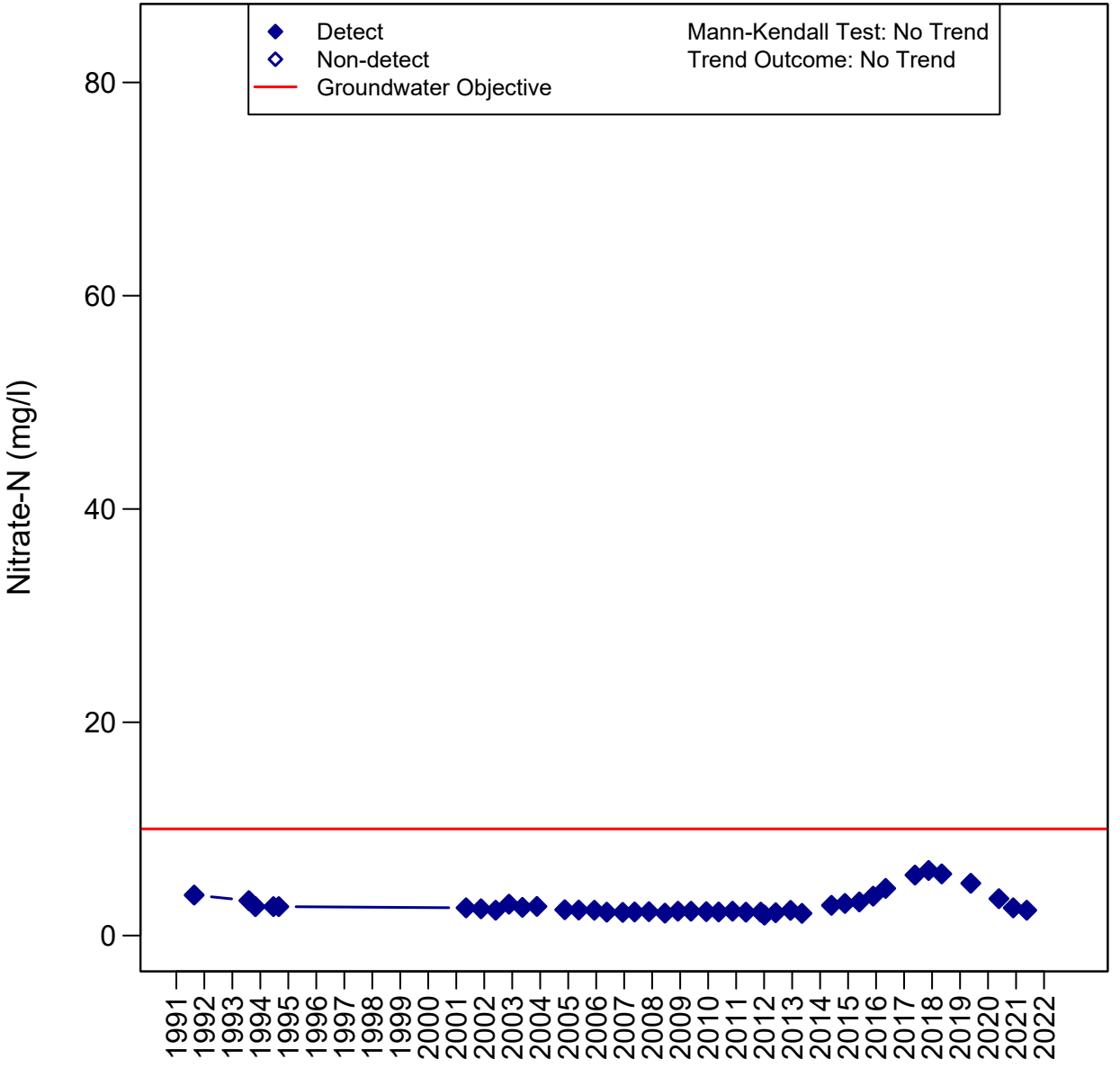
Fillmore Basin
04N20W24Q03S - Q03S



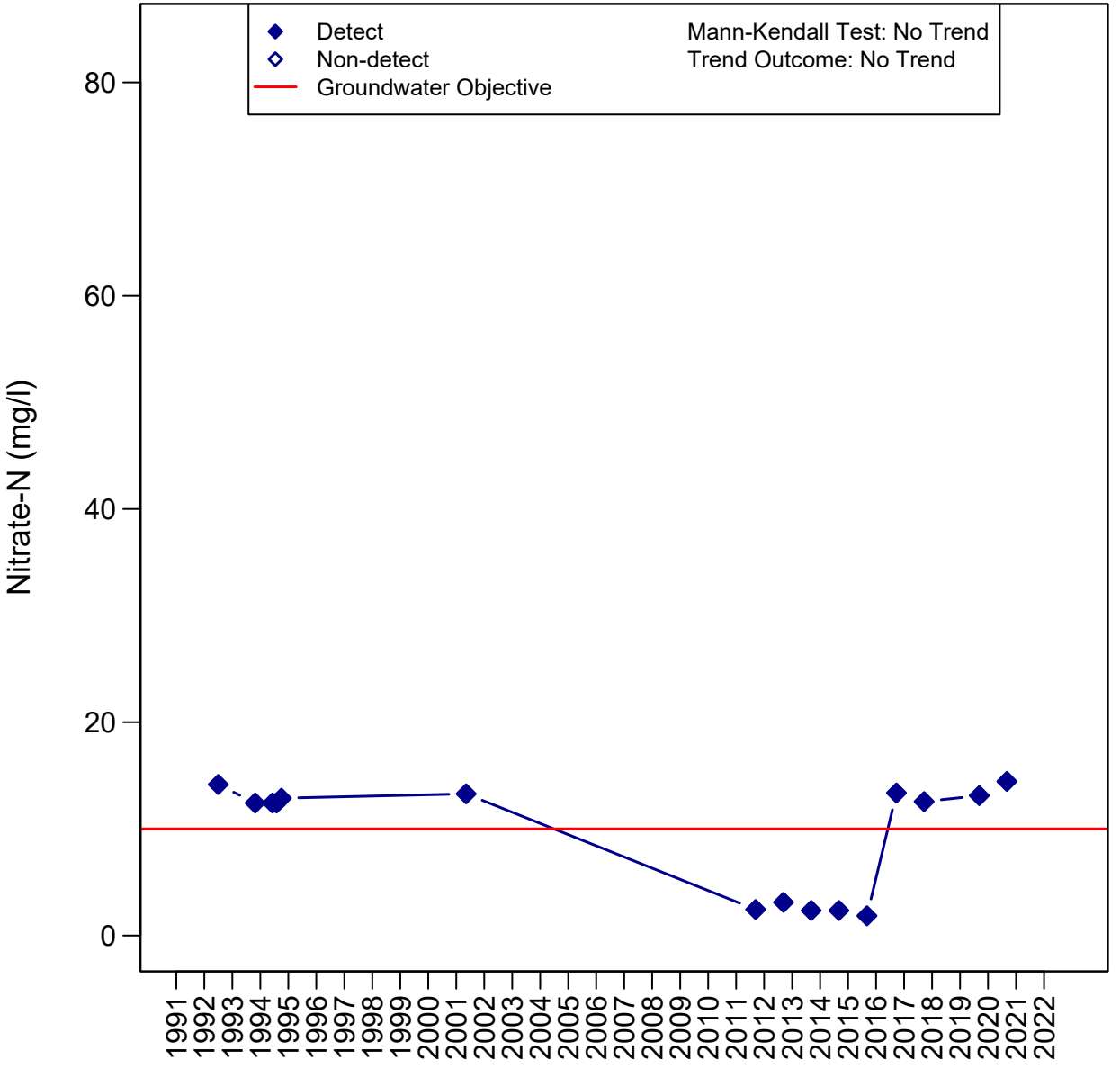
Fillmore Basin
04N20W25D01S - D01S



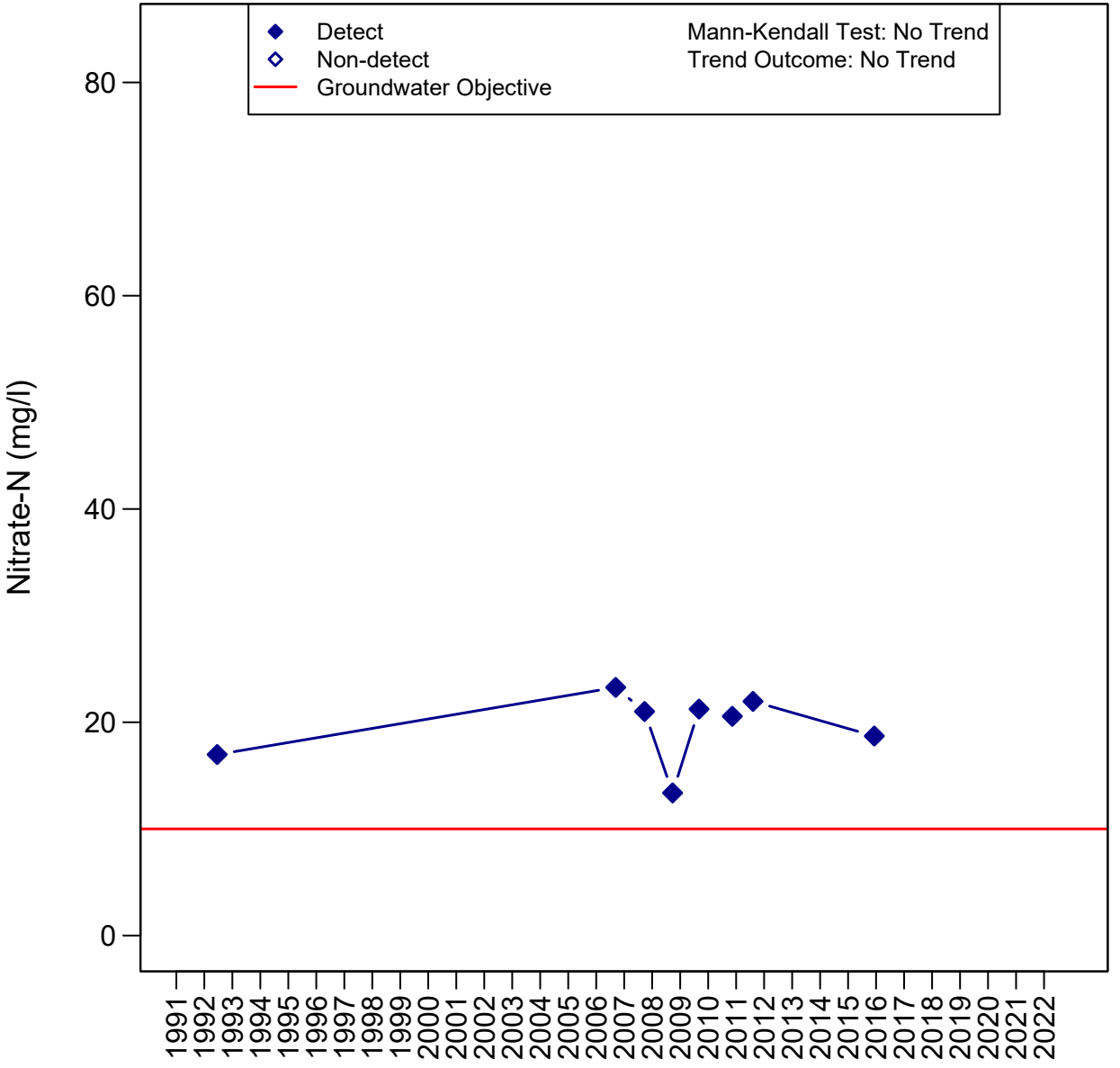
Fillmore Basin
03N21W12H01S - H01S



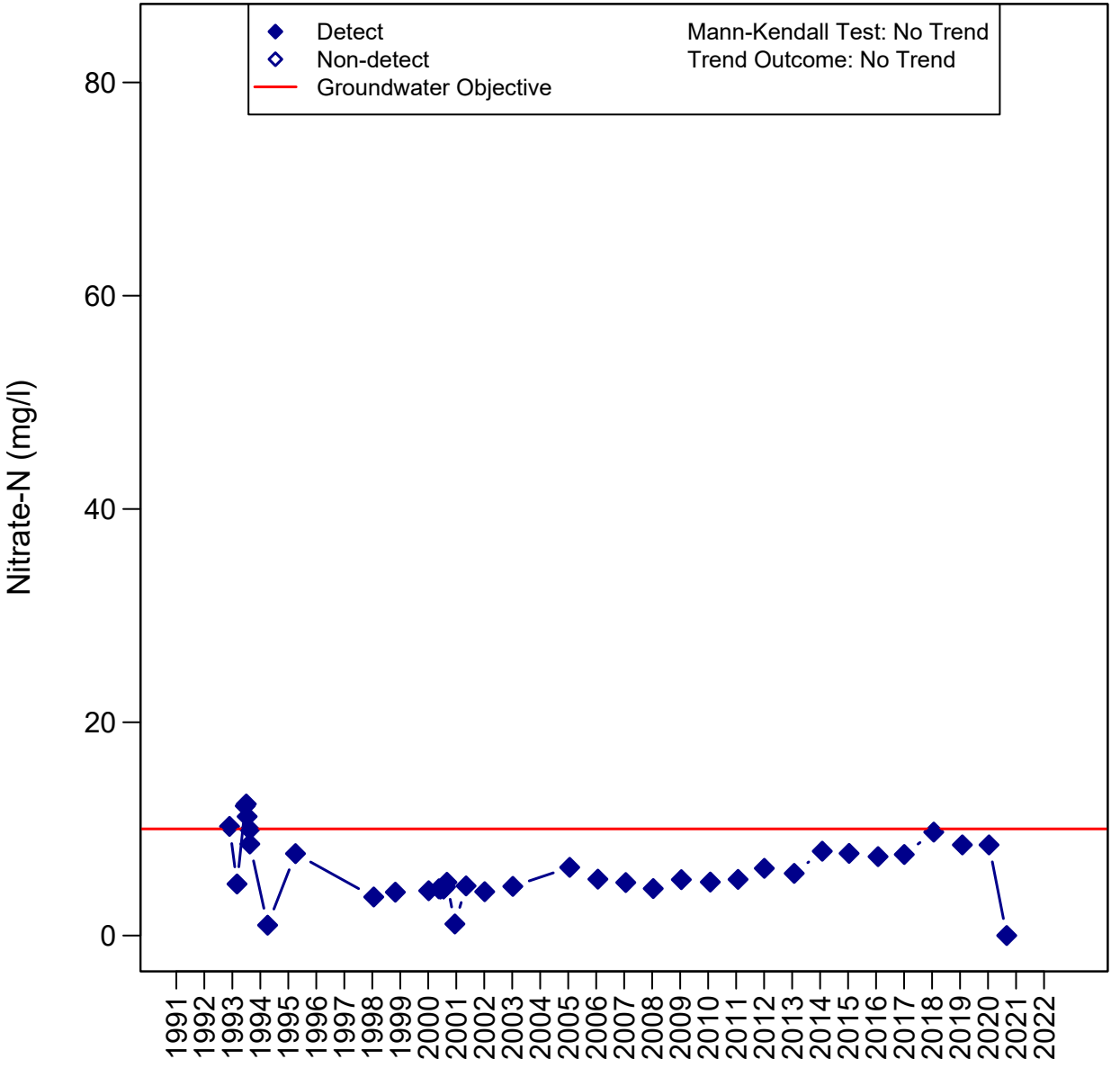
Fillmore Basin
04N20W23N02S - N02S



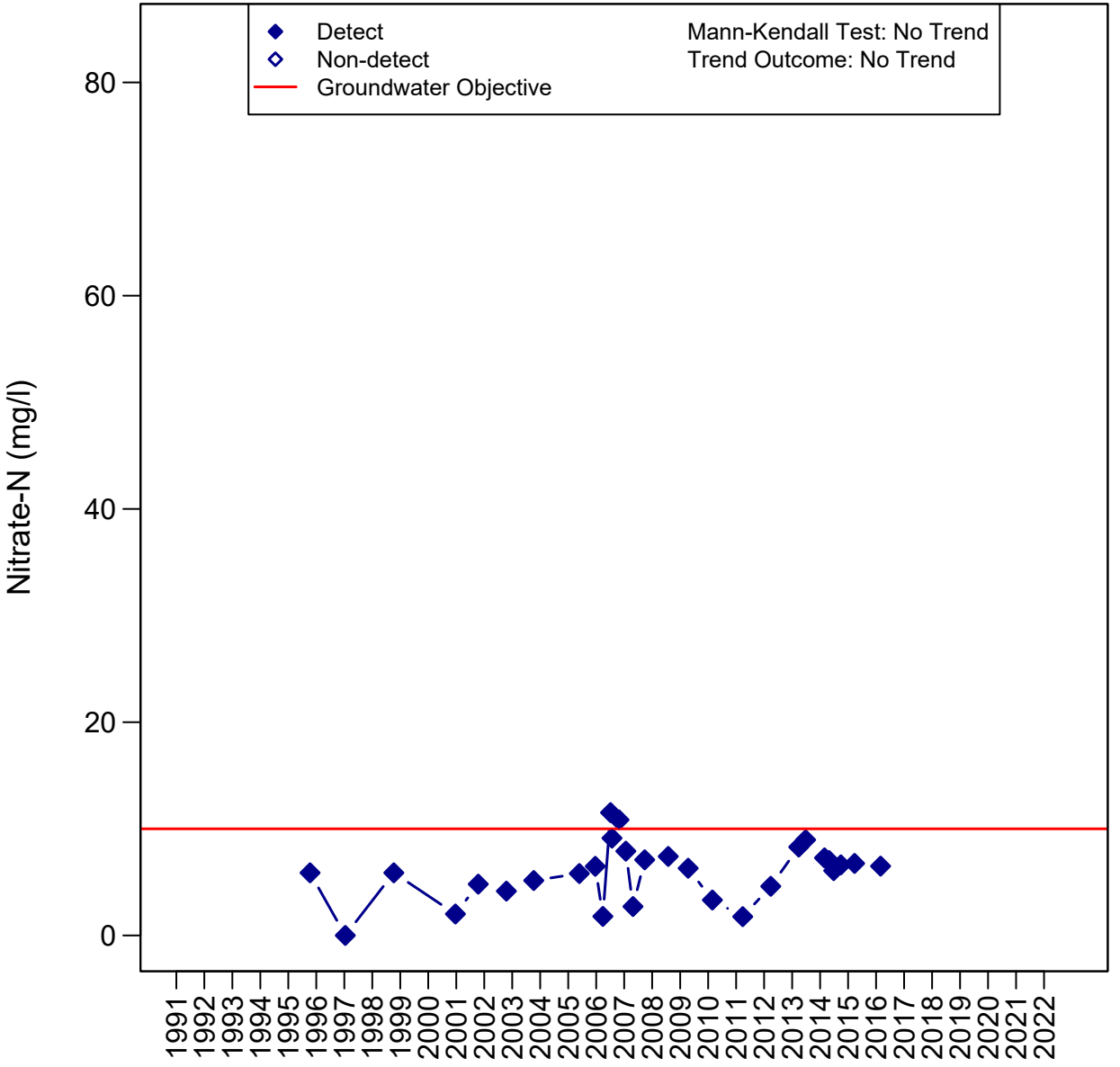
Fillmore Basin
04N20W32R01S - R01S



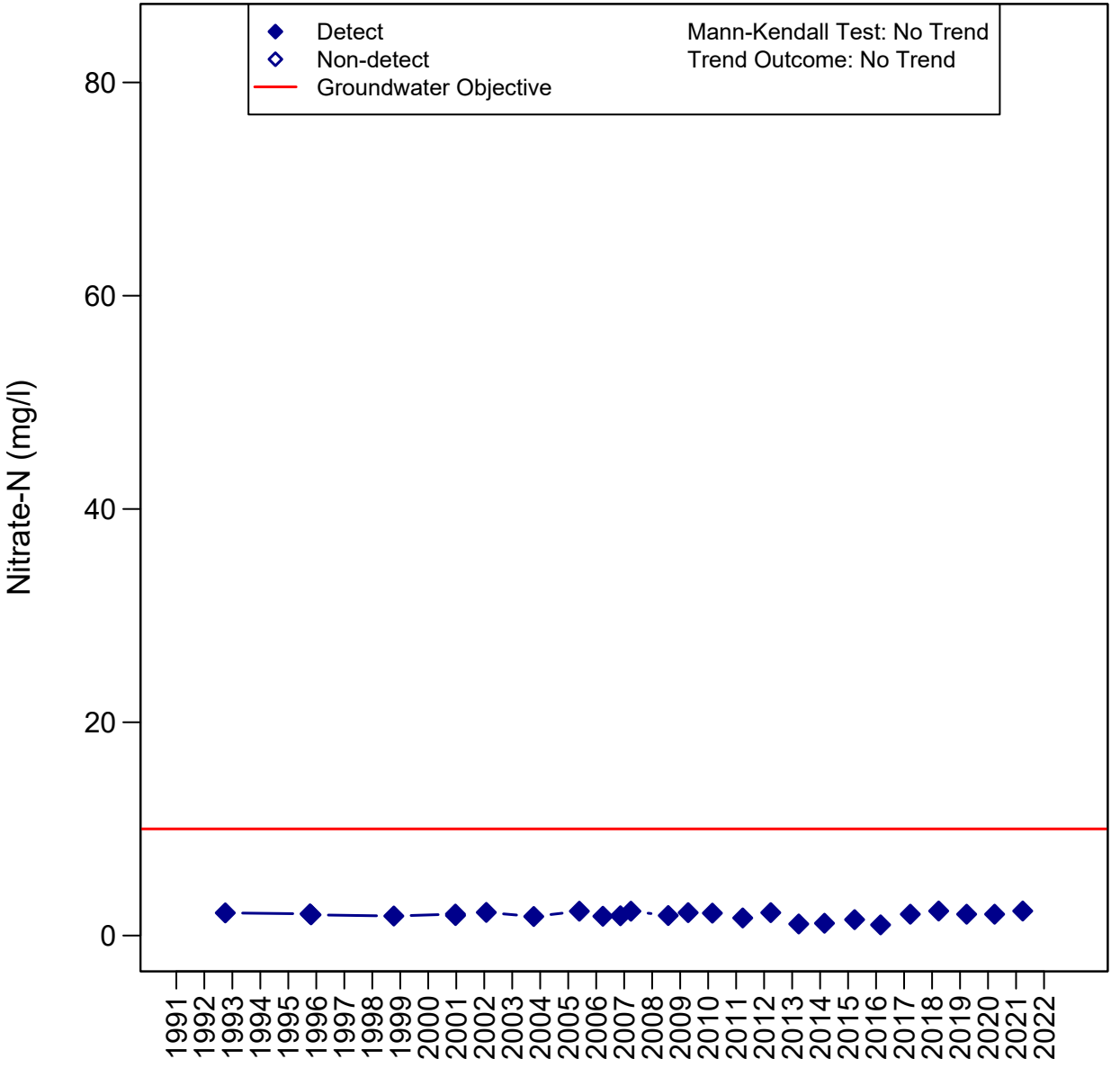
Fillmore Basin
03N20W05C04S - C04S

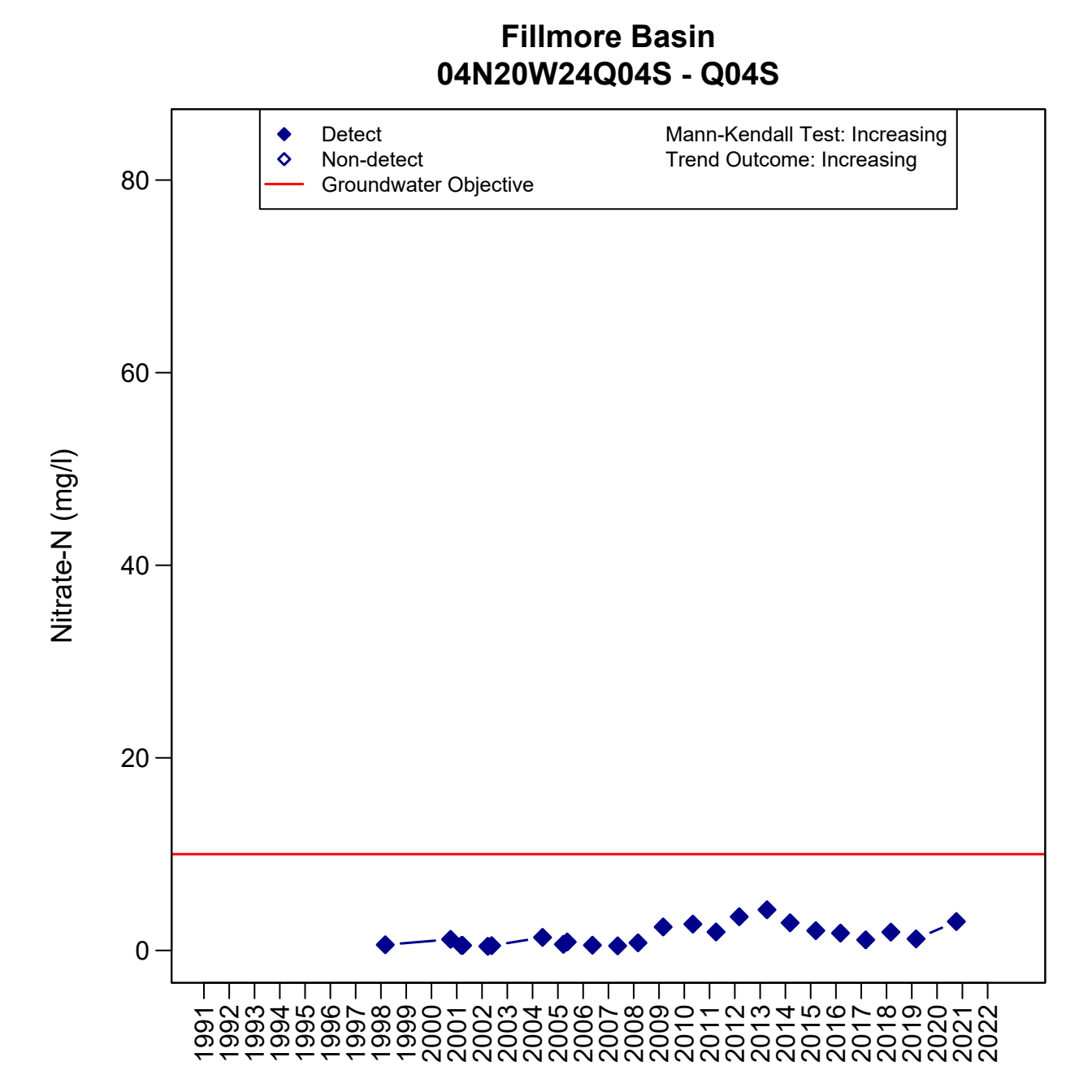


Fillmore Basin
03N20W03D03S - D03S



Fillmore Basin
03N20W03D07S - D07S




Fillmore Basin
04N20W24Q04S - Q04S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: Increasing
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
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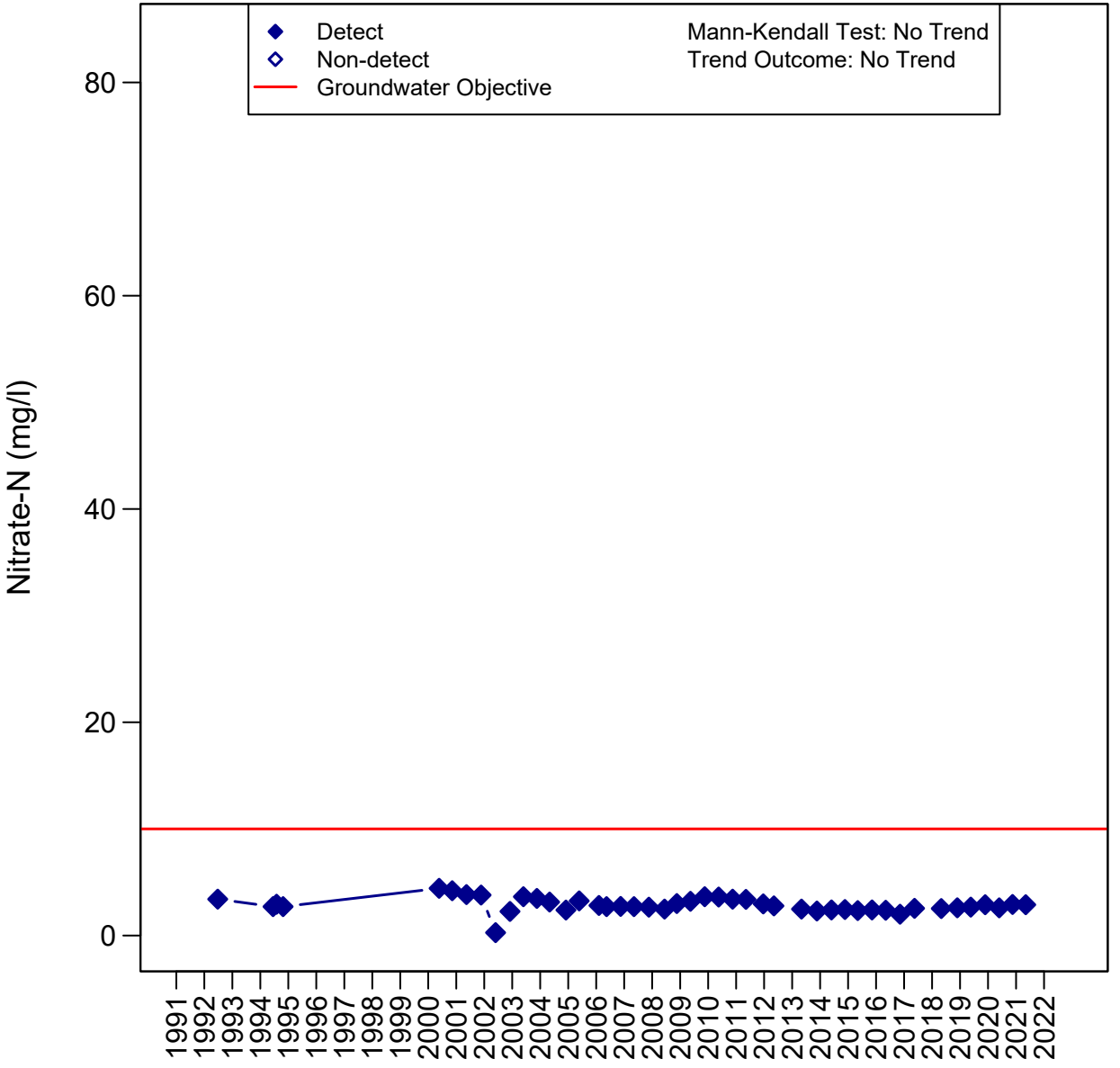
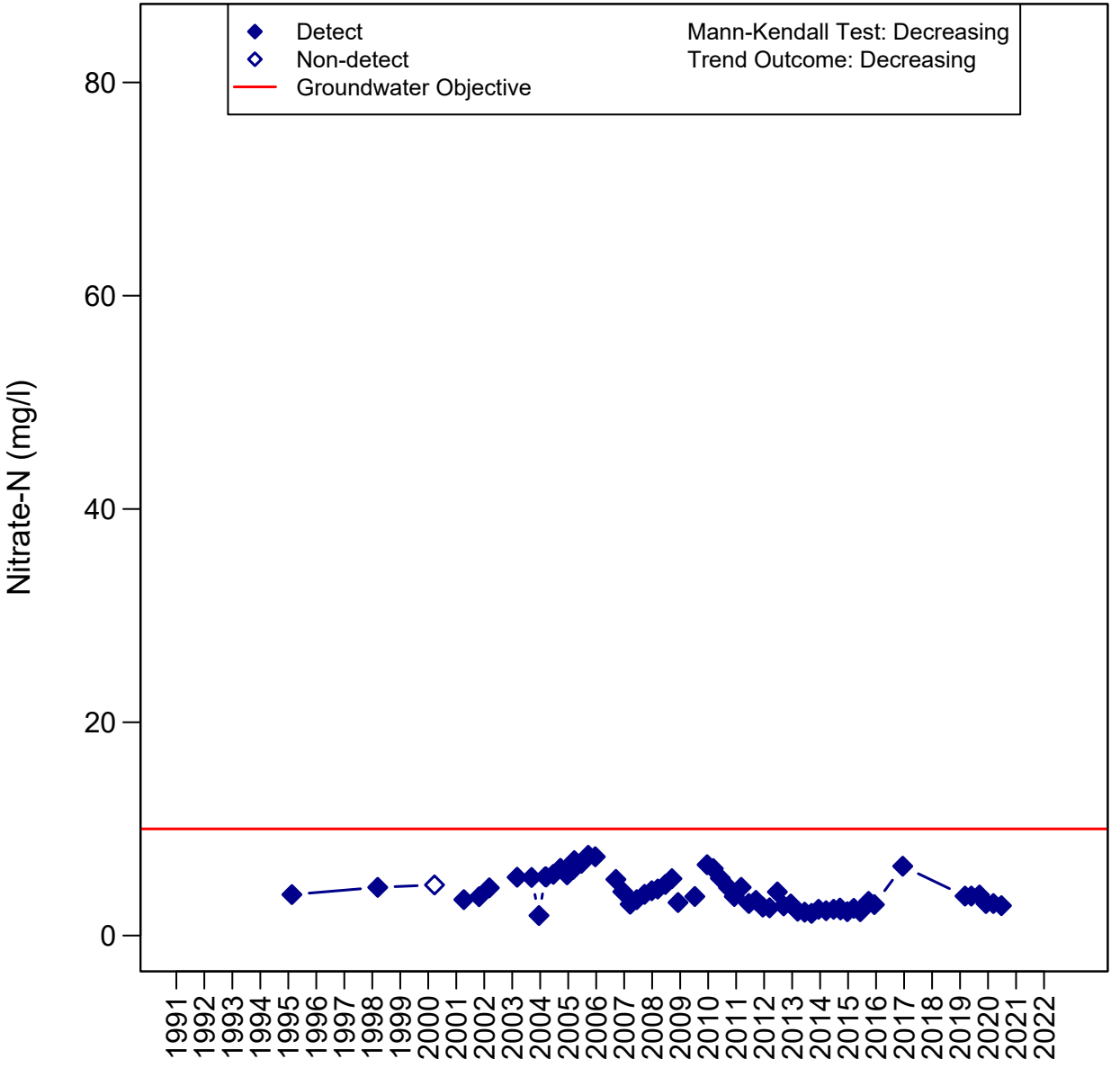
2022

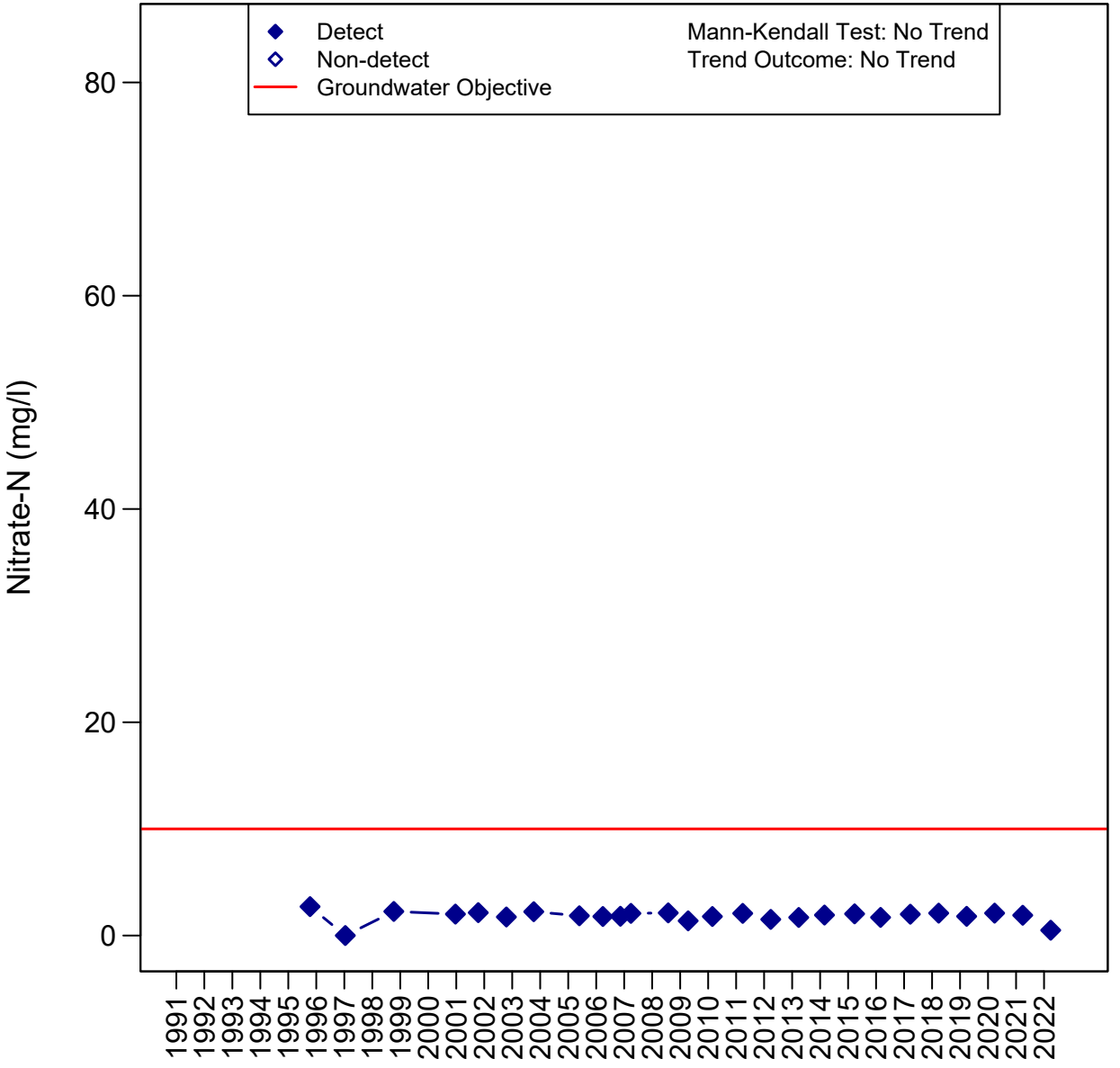
Fillmore Basin
03N20W06N02S - N02S



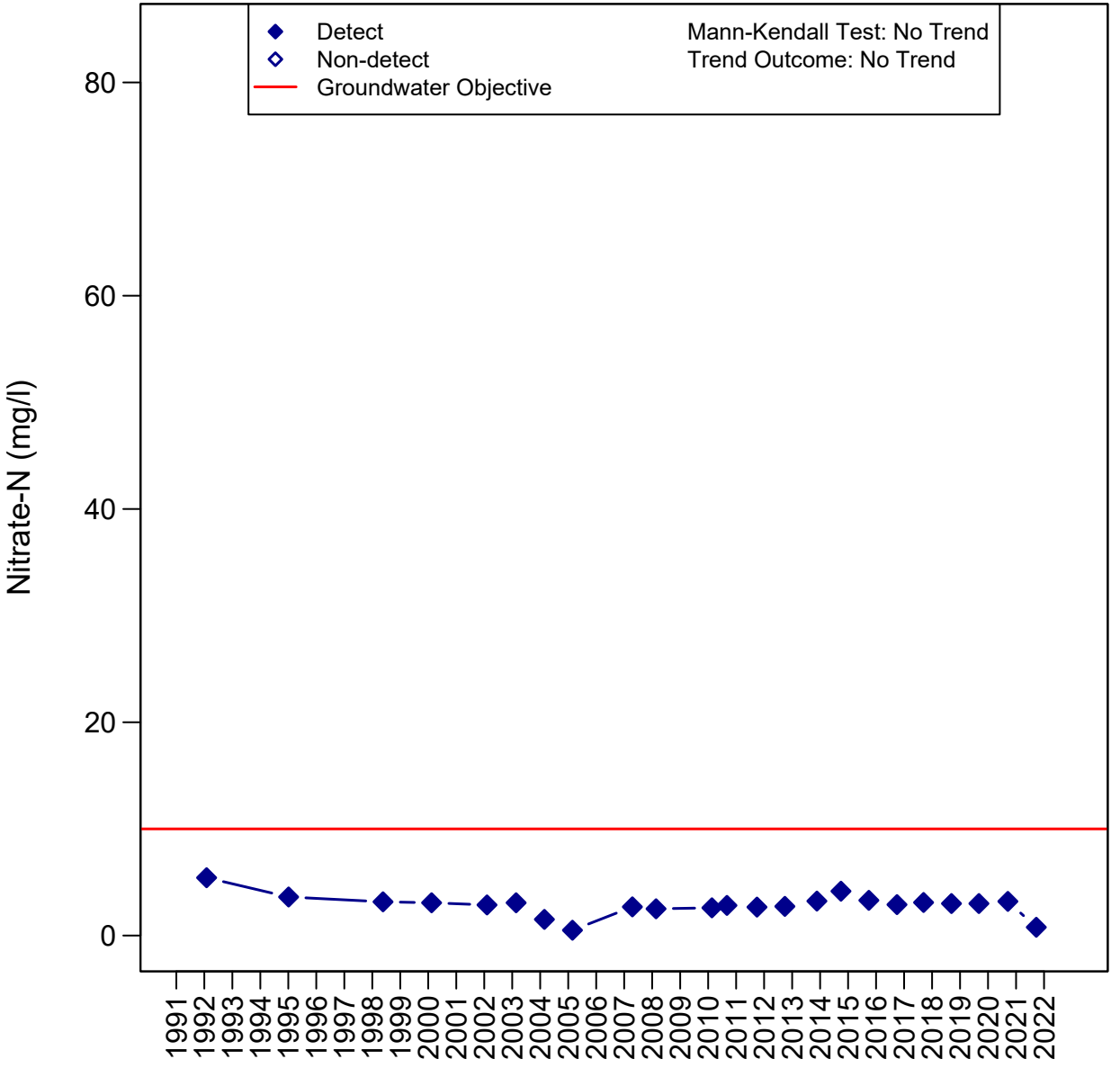
Fillmore Basin
04N19W33D04S - D04S



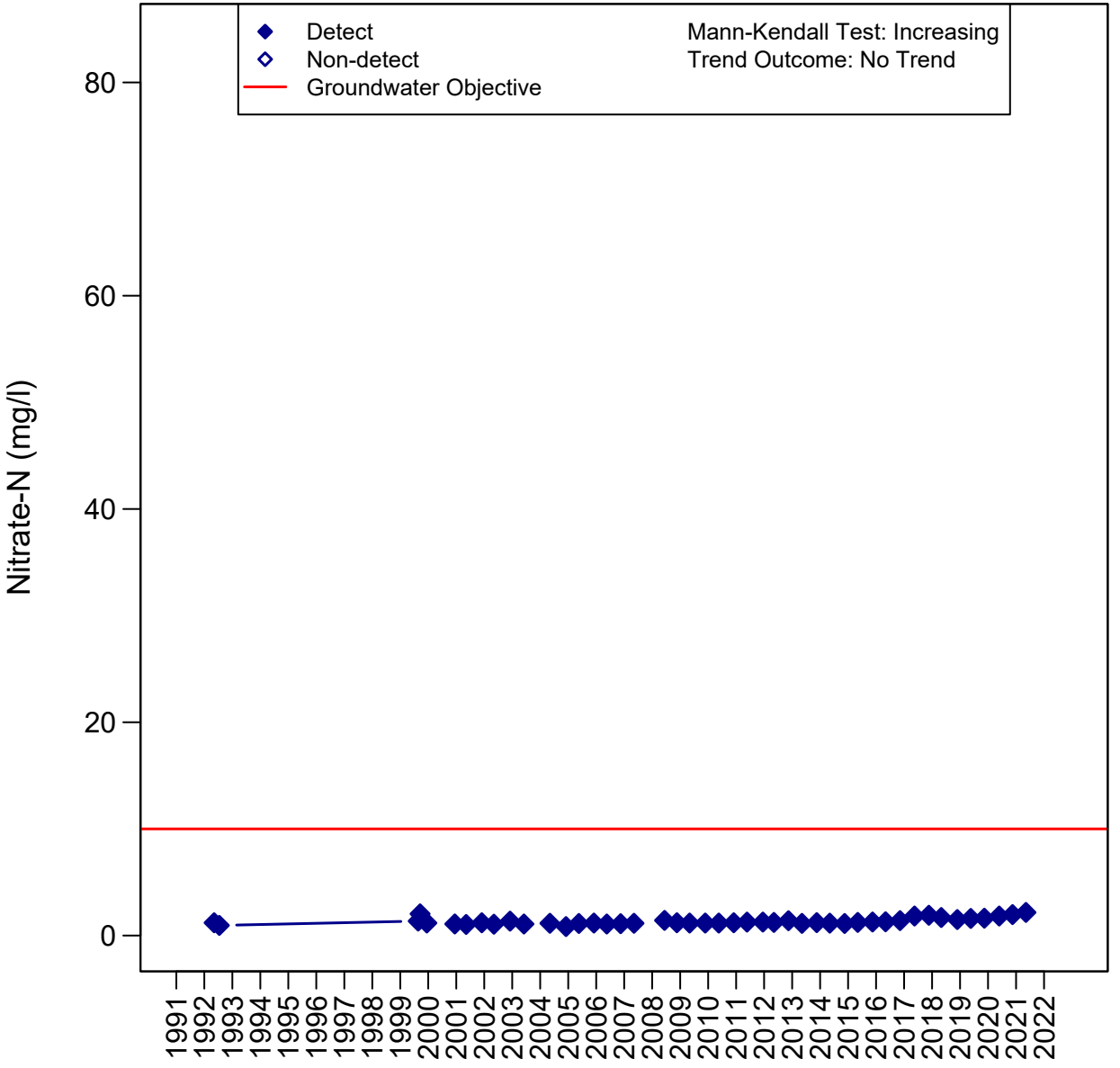
Fillmore Basin
03N20W03D05S - D05S

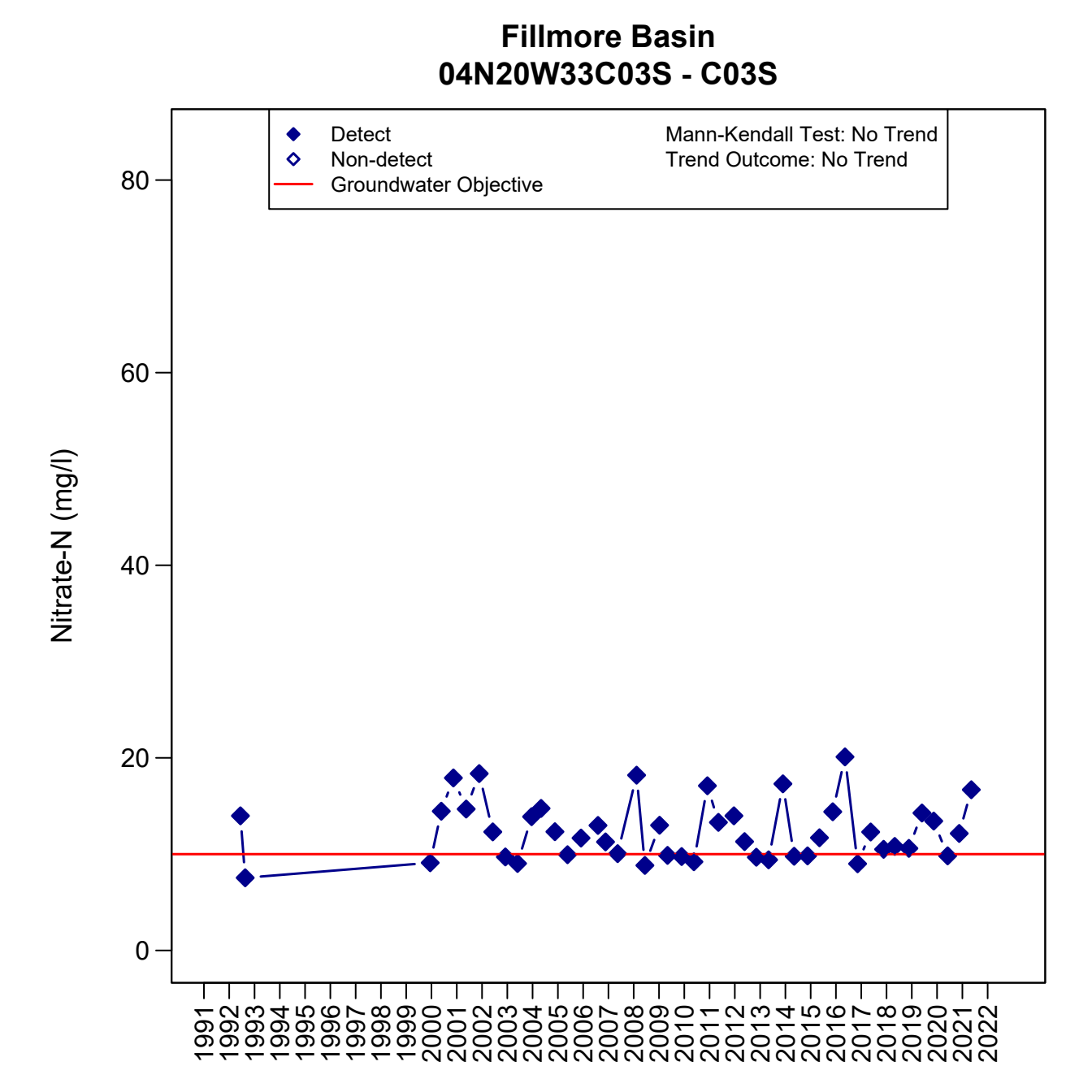


Fillmore Basin
03N20W08F01S - F01S



Fillmore Basin
03N19W06D03S - D03S




Fillmore Basin
04N20W33C03S - C03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
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2000
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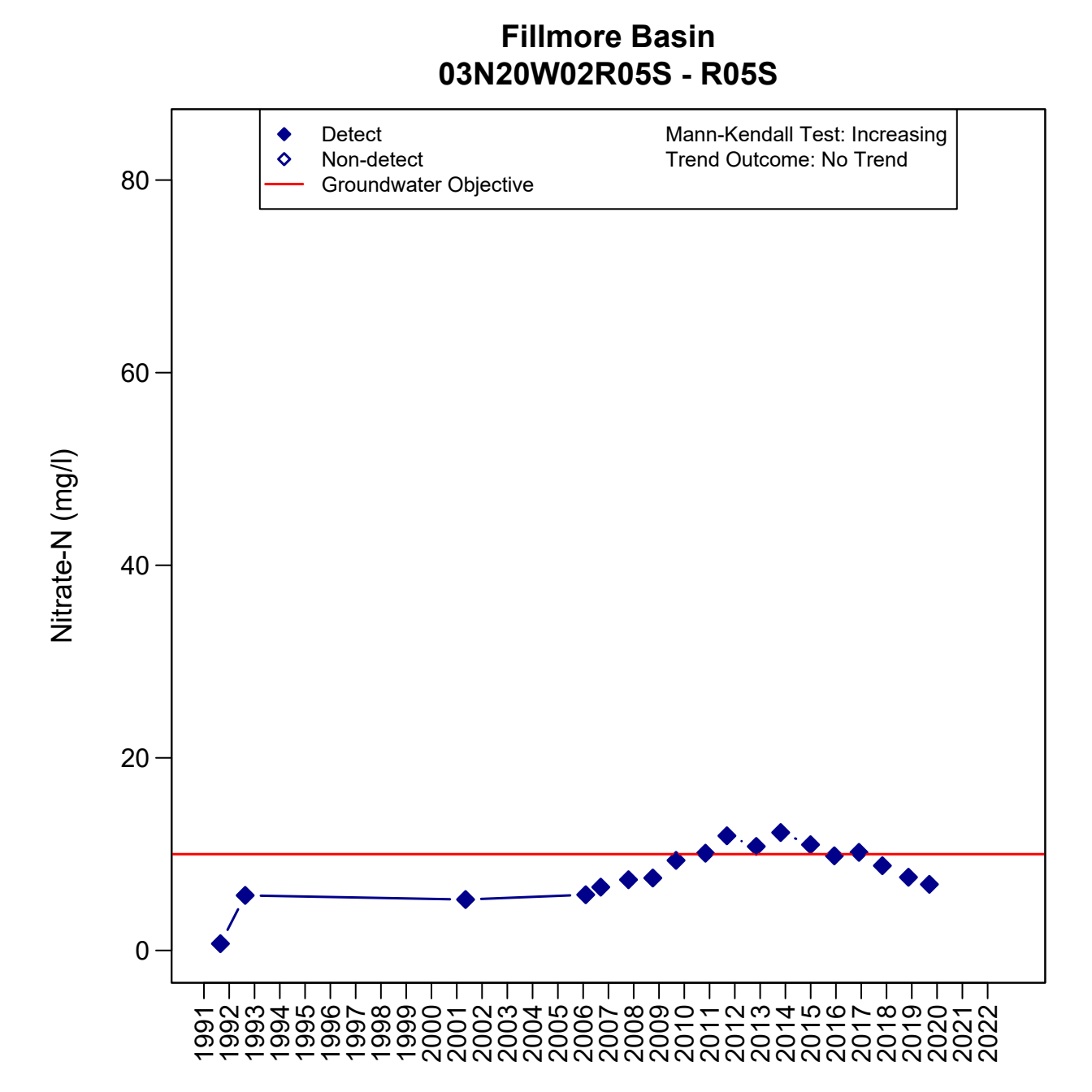
Fillmore Basin
03N20W02R05S - R05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
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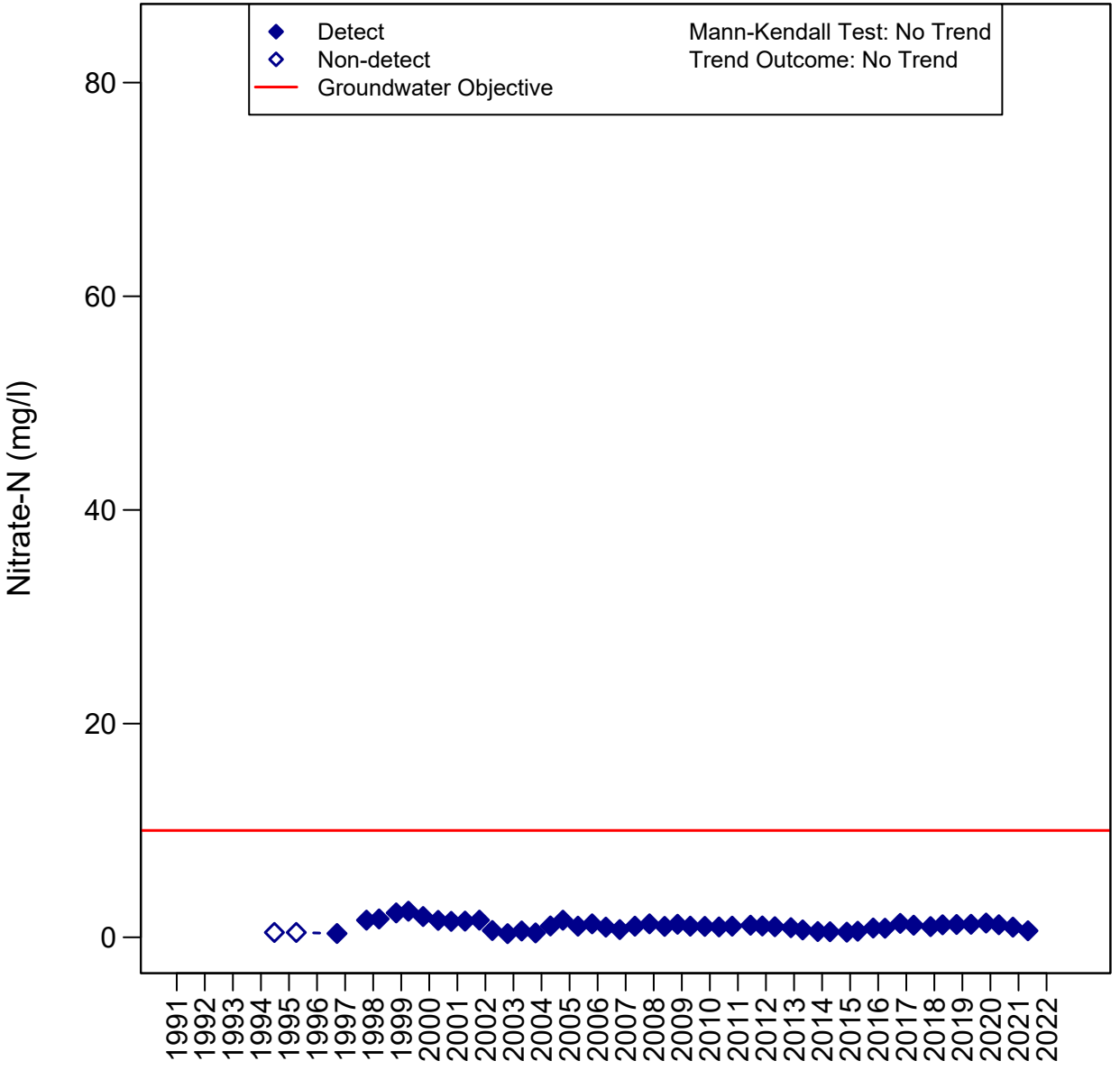
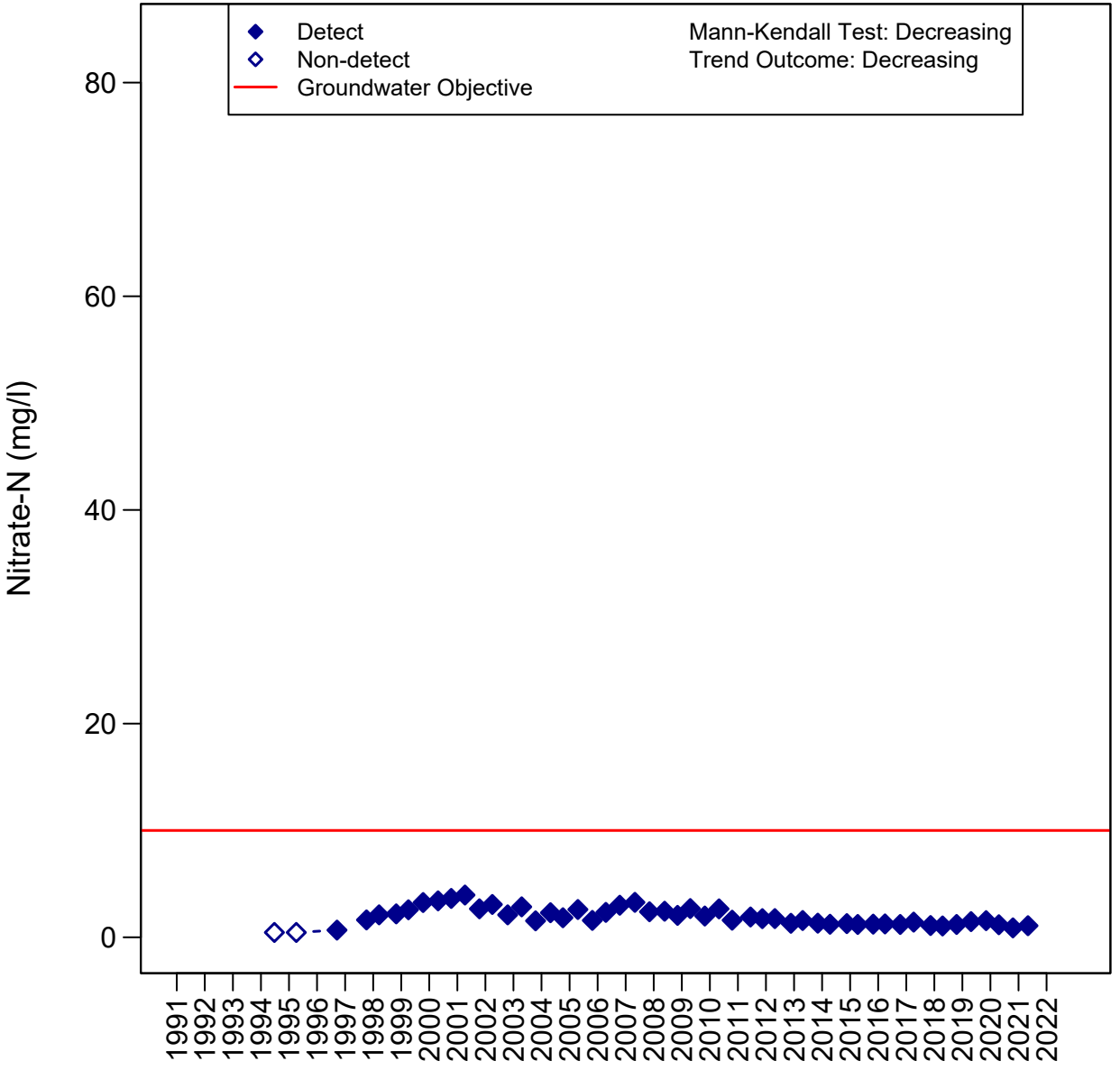
2019
2020
2021
2022

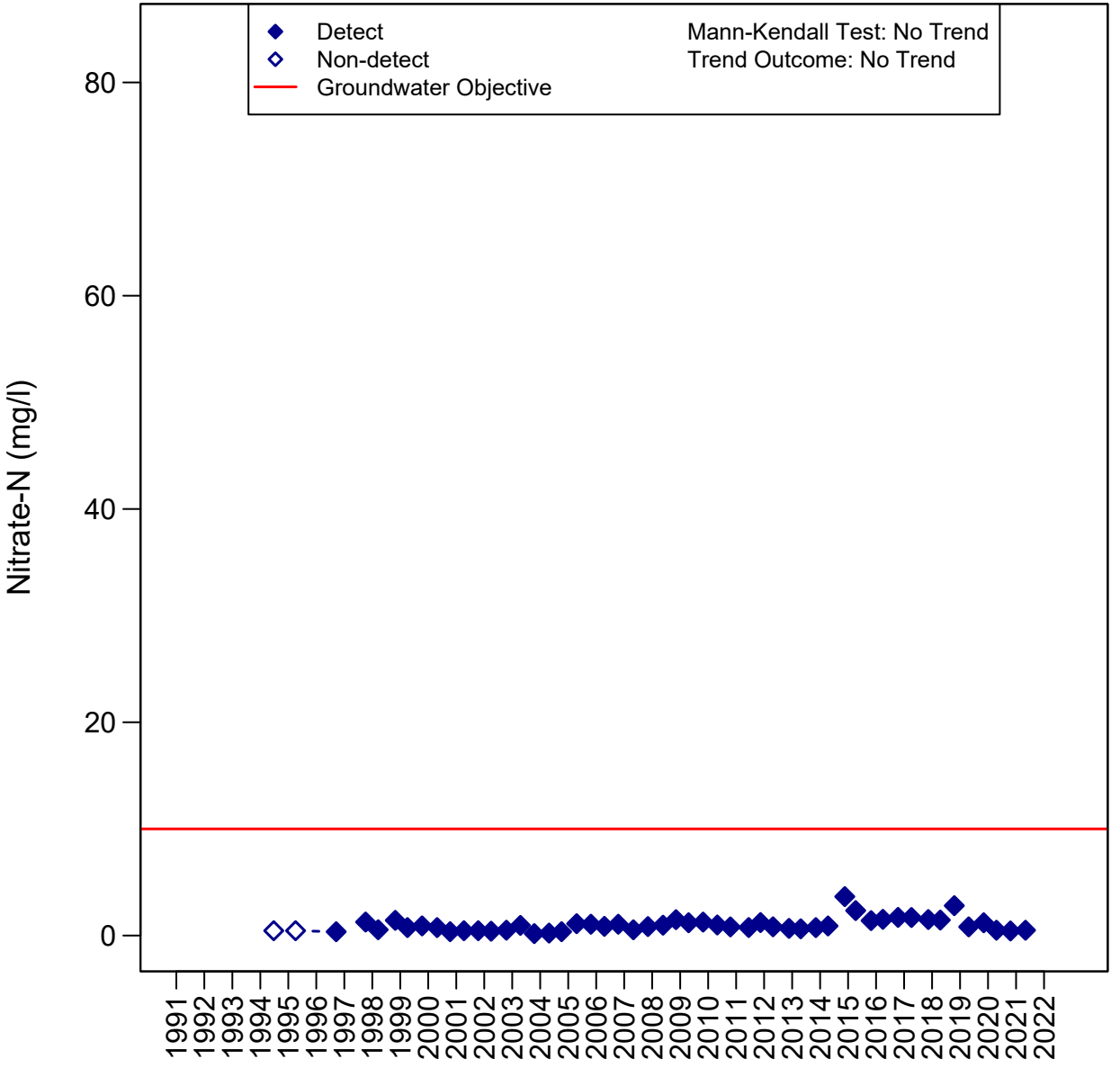
Piru Basin
04N18W31D05S - D05S



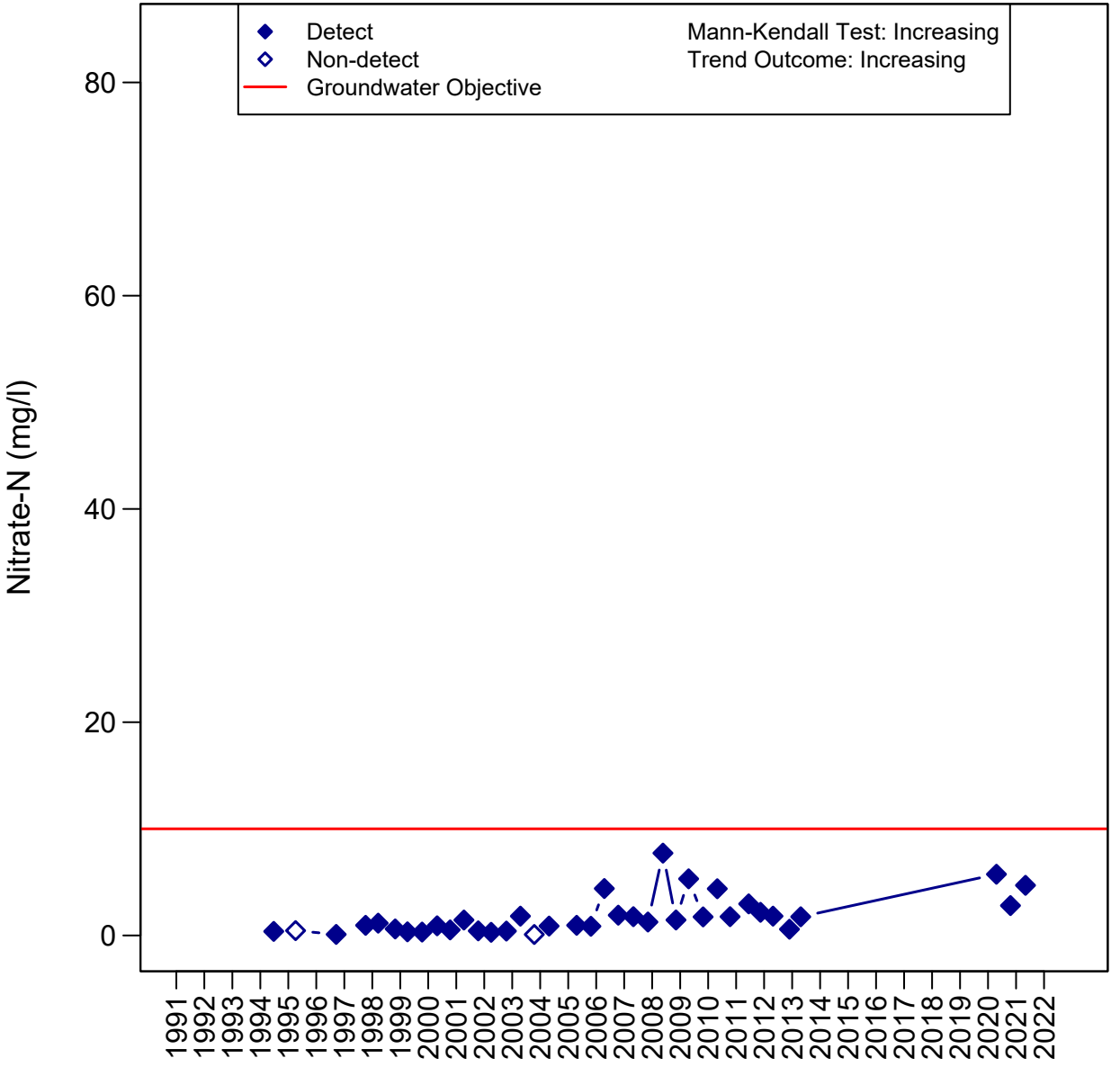
Piru Basin
04N18W31D04S - D04S



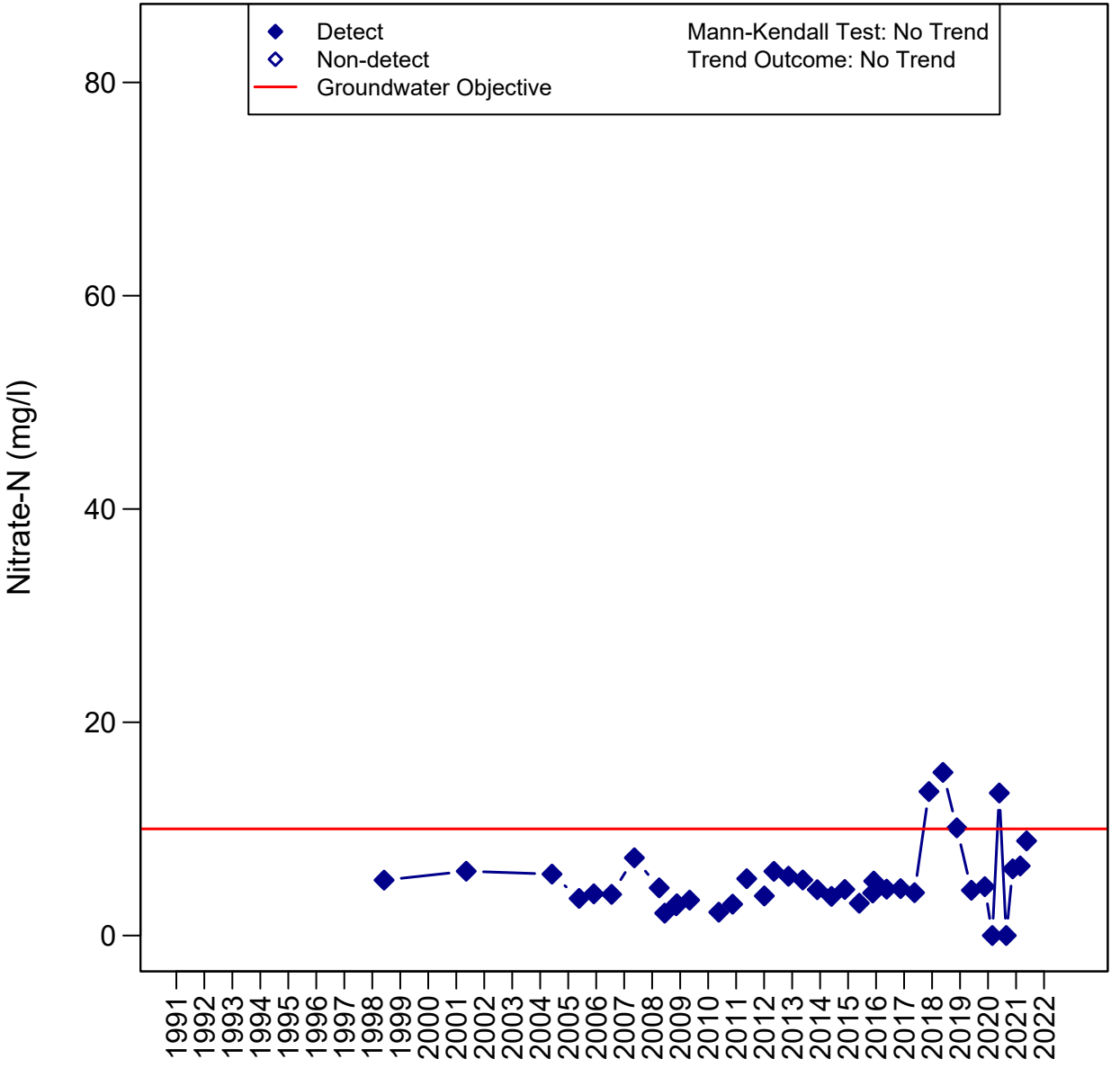
Piru Basin
04N18W31D06S - D06S



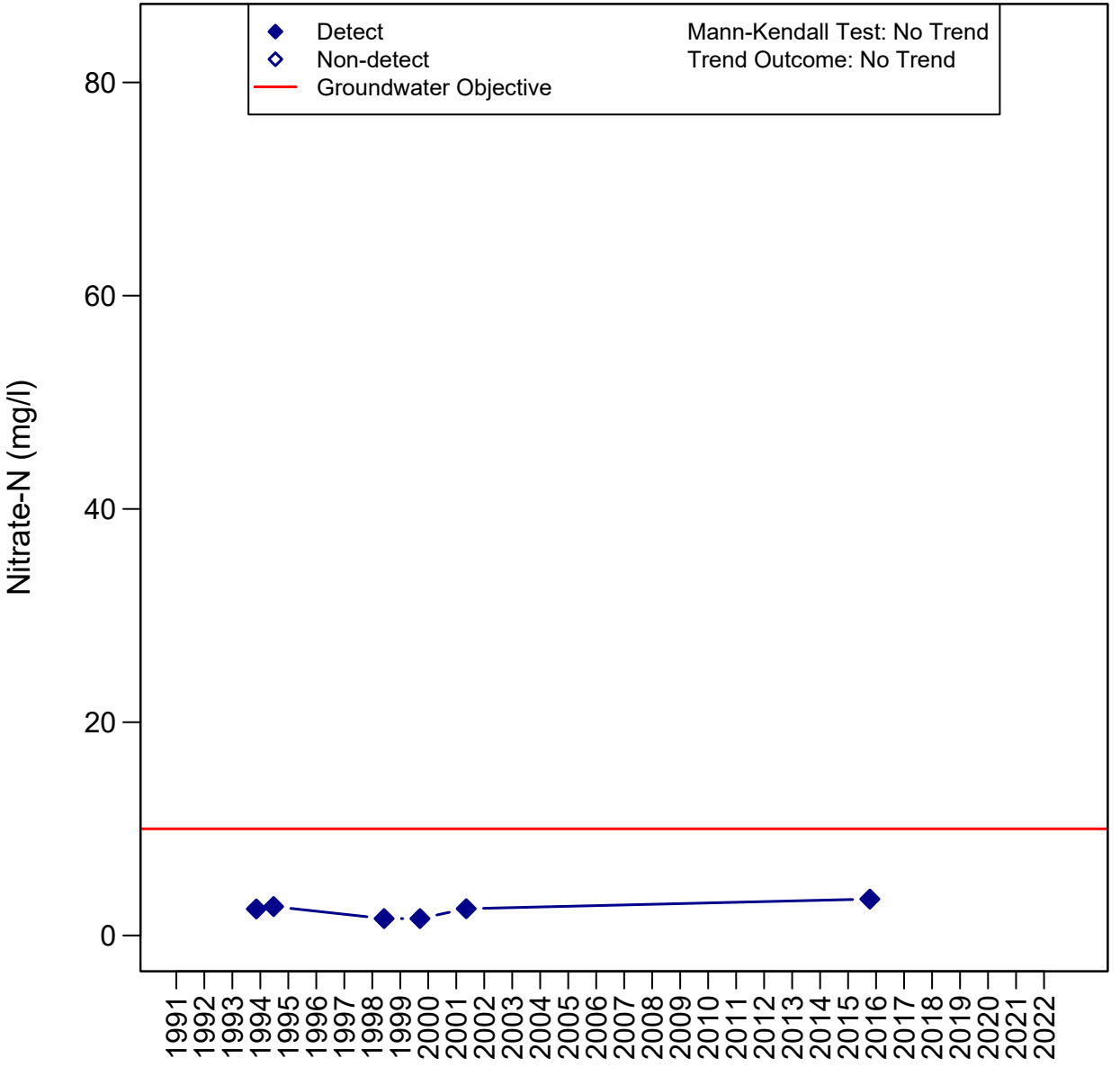
Piru Basin
04N18W31D07S - D07S



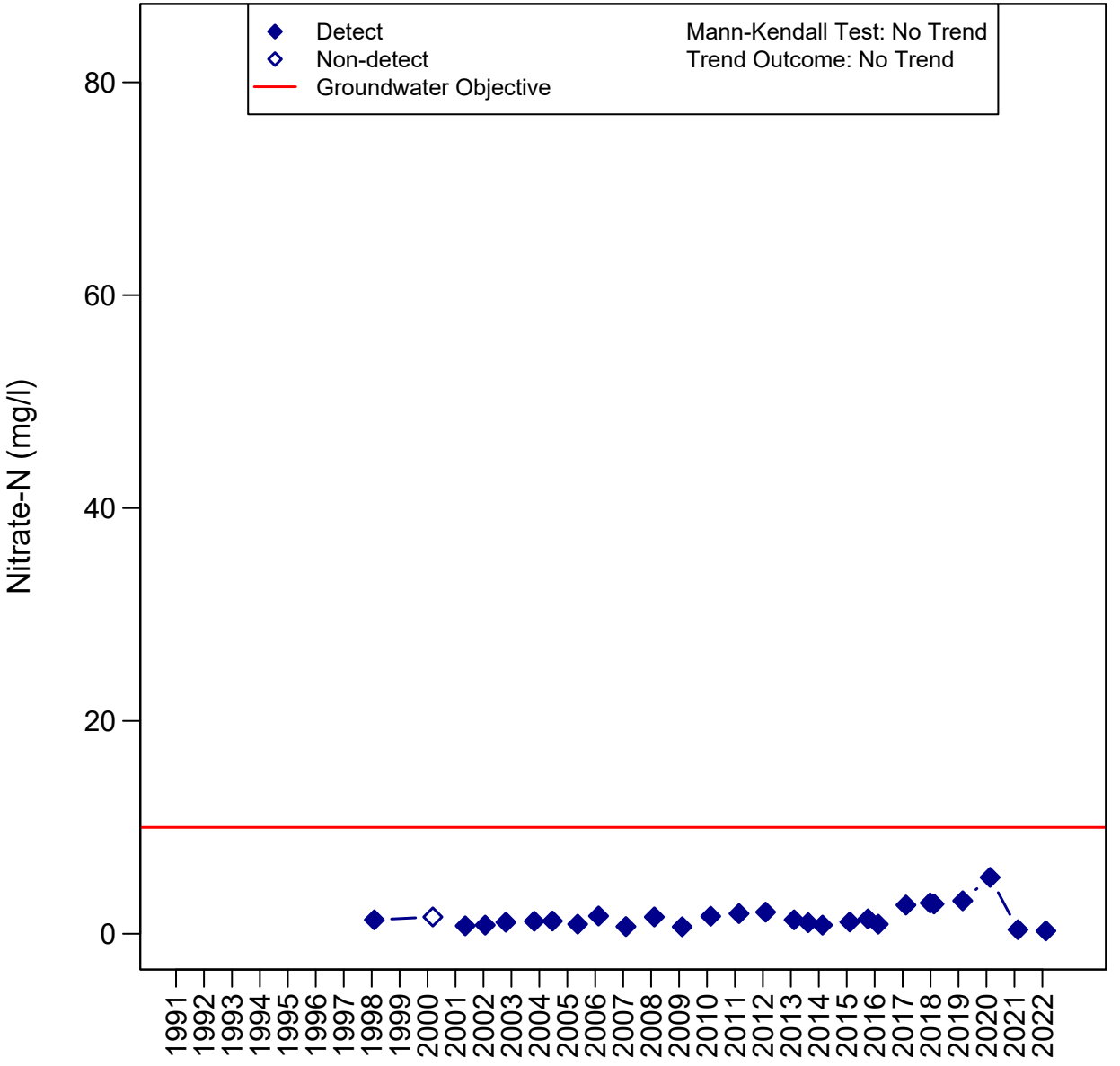
Piru Basin
04N18W20R01S - R01S



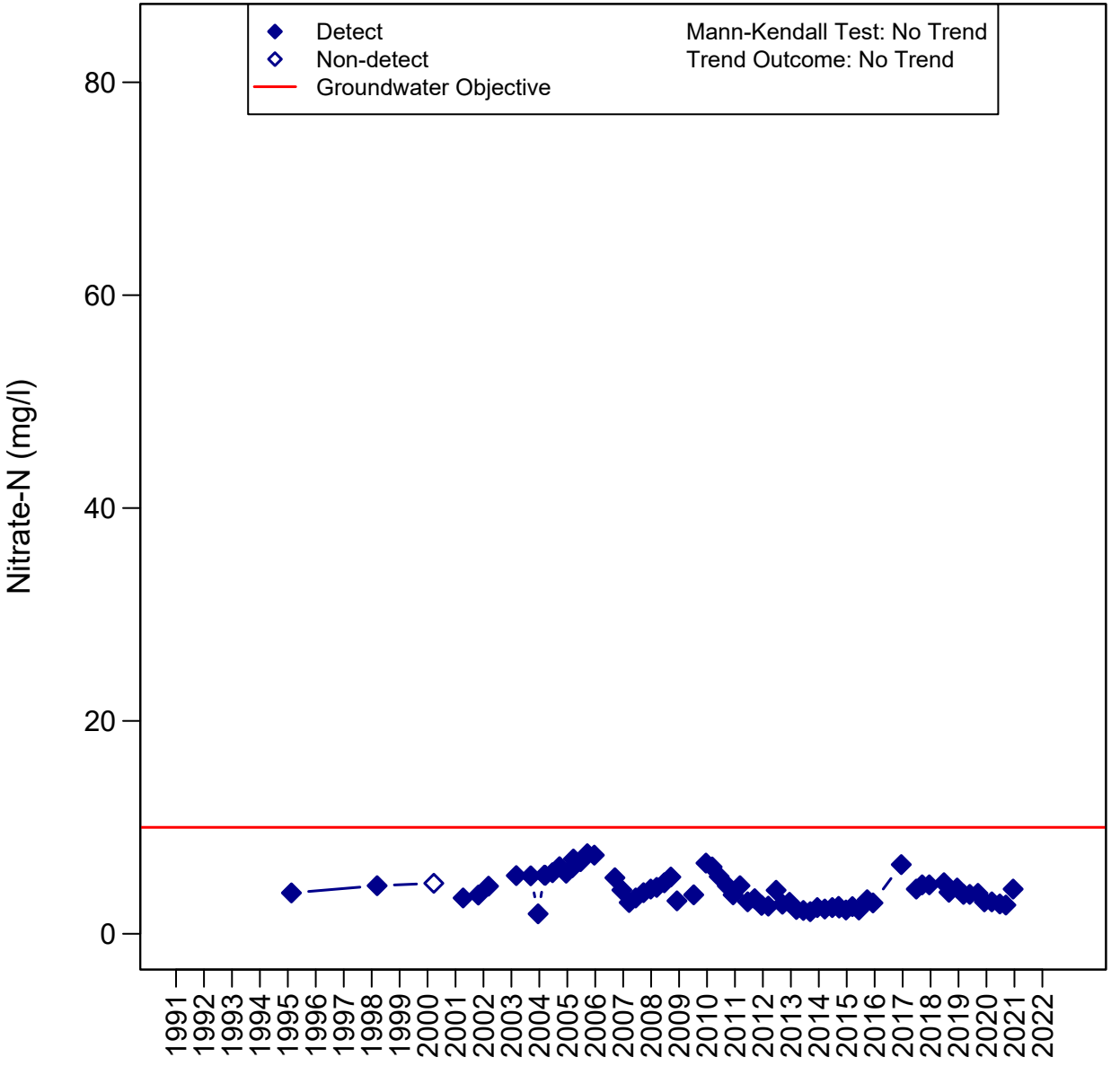
Piru Basin
04N19W25C02S - C02S



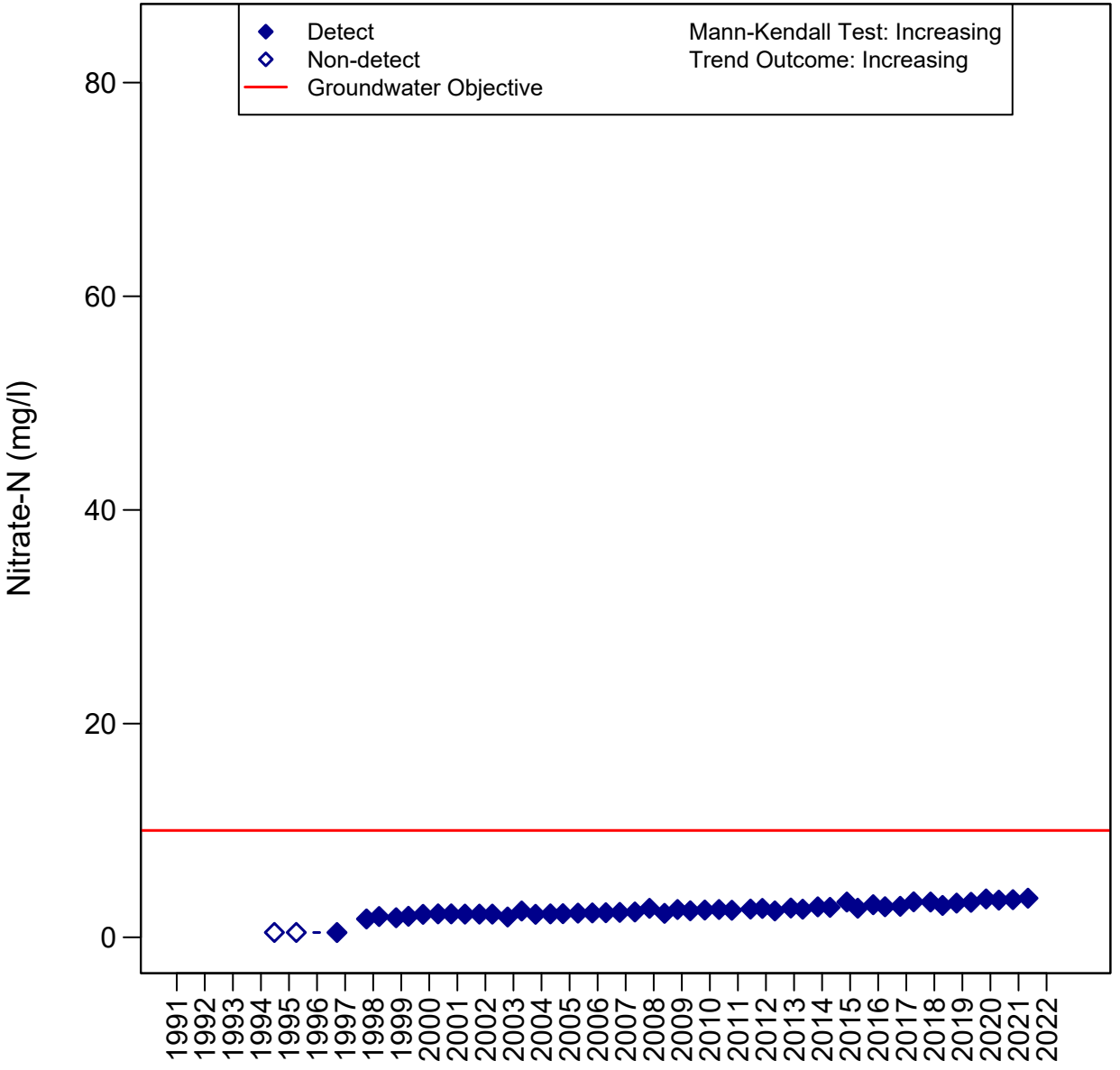
Piru Basin
04N18W20M01S - M01S



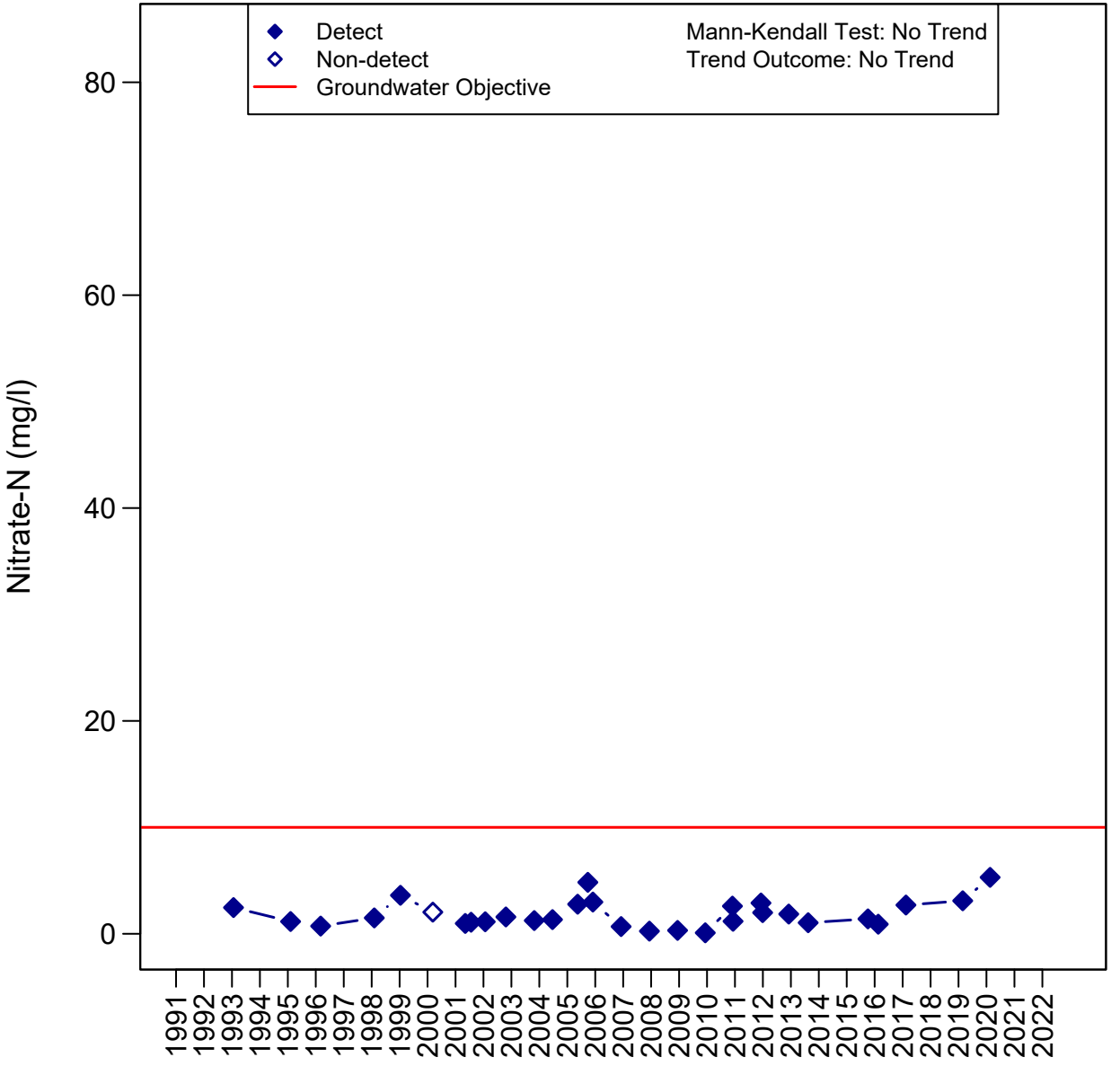
Piru Basin
04N19W25K03S - K03S

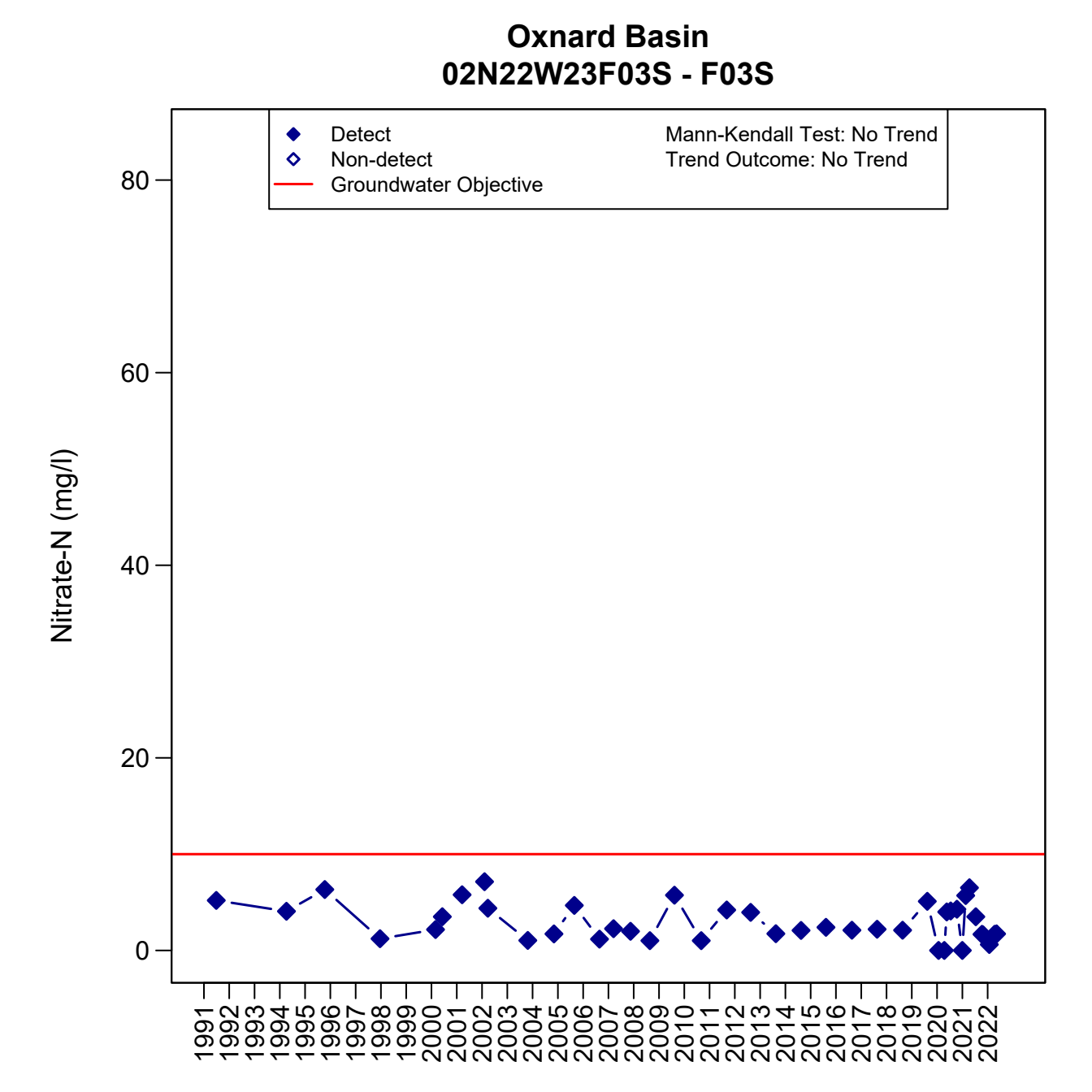


Piru Basin
04N18W31D03S - D03S



Piru Basin
04N18W20M02S - M02S




Oxnard Basin
02N22W23F03S - F03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
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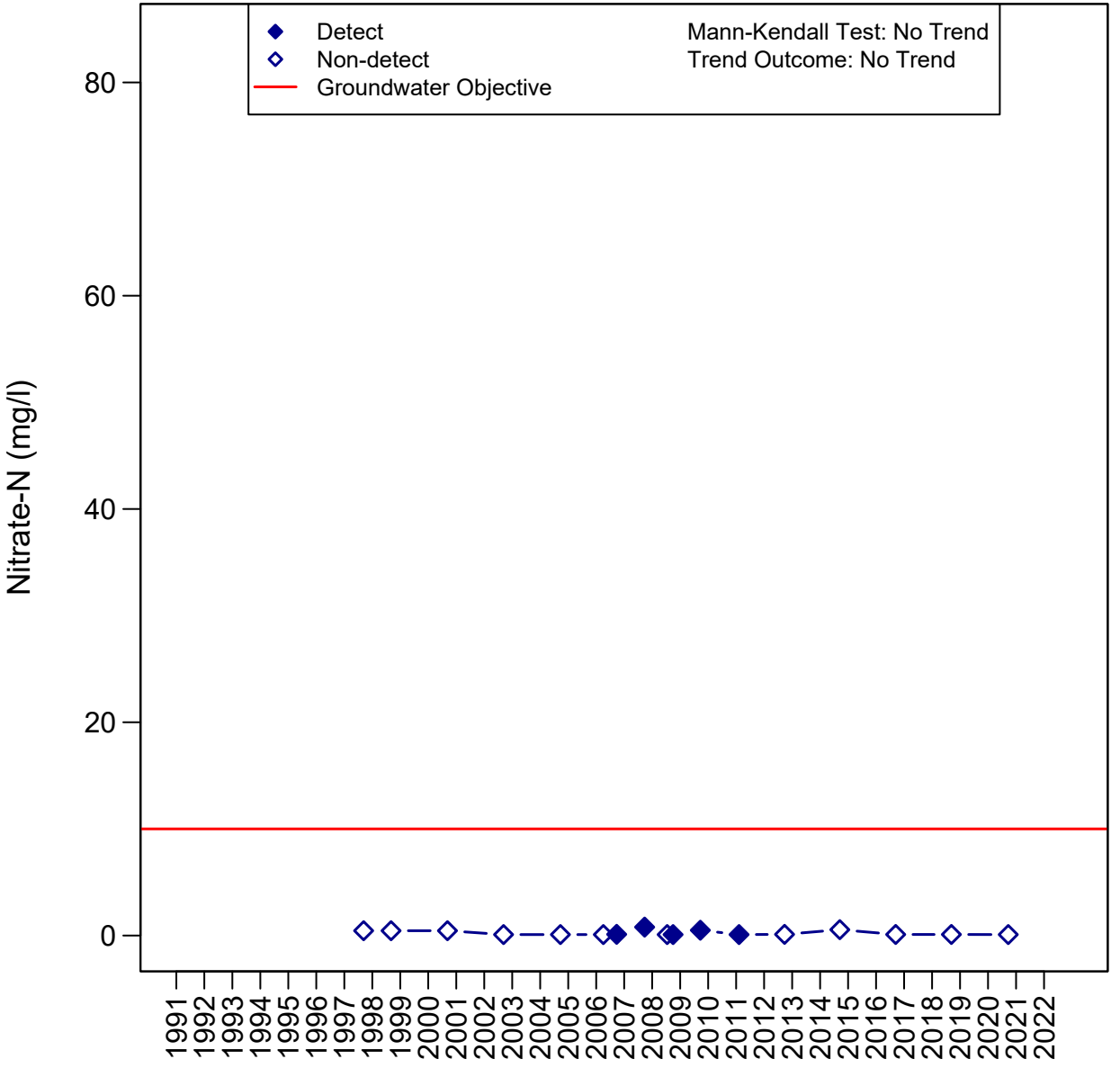
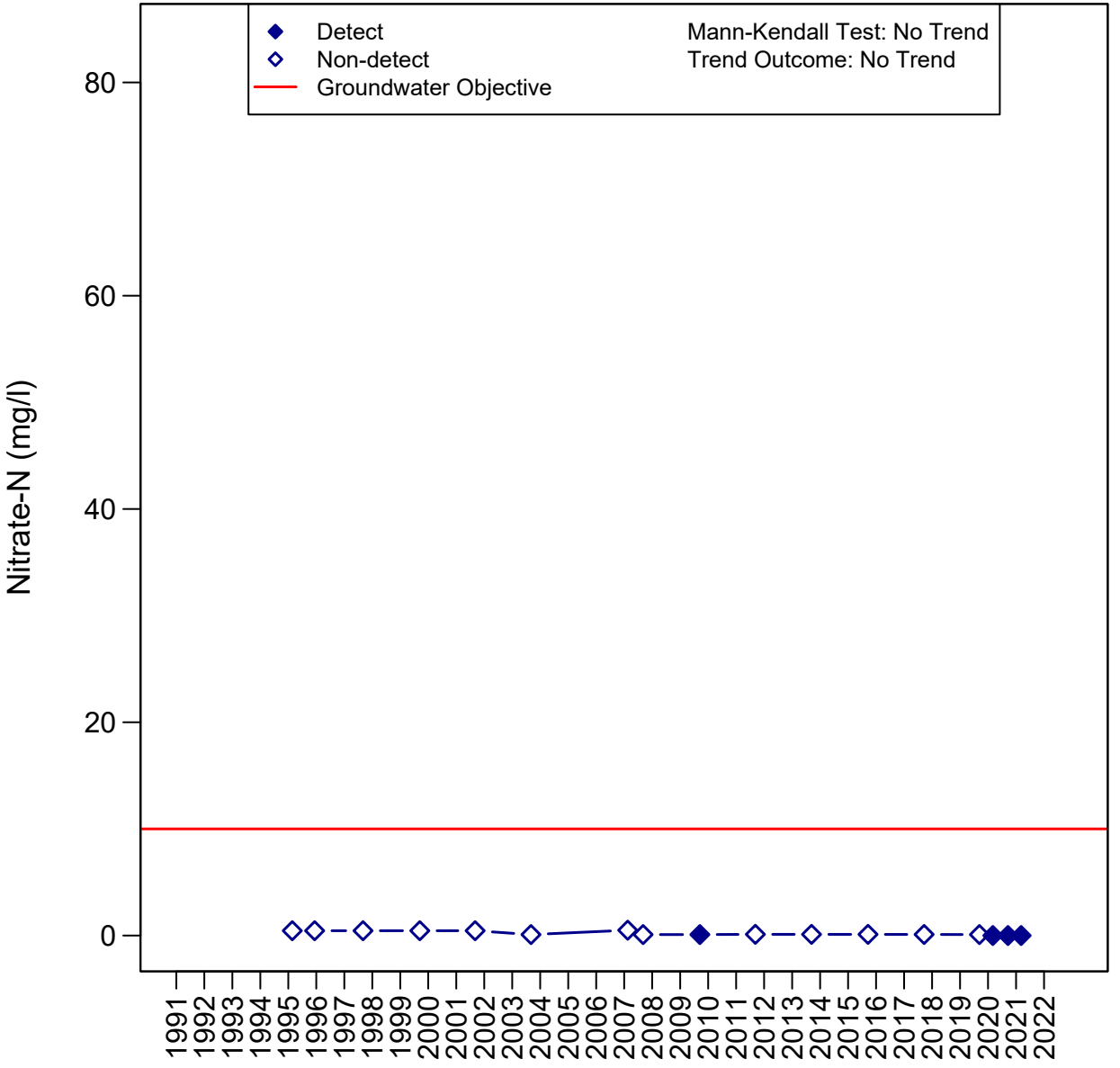
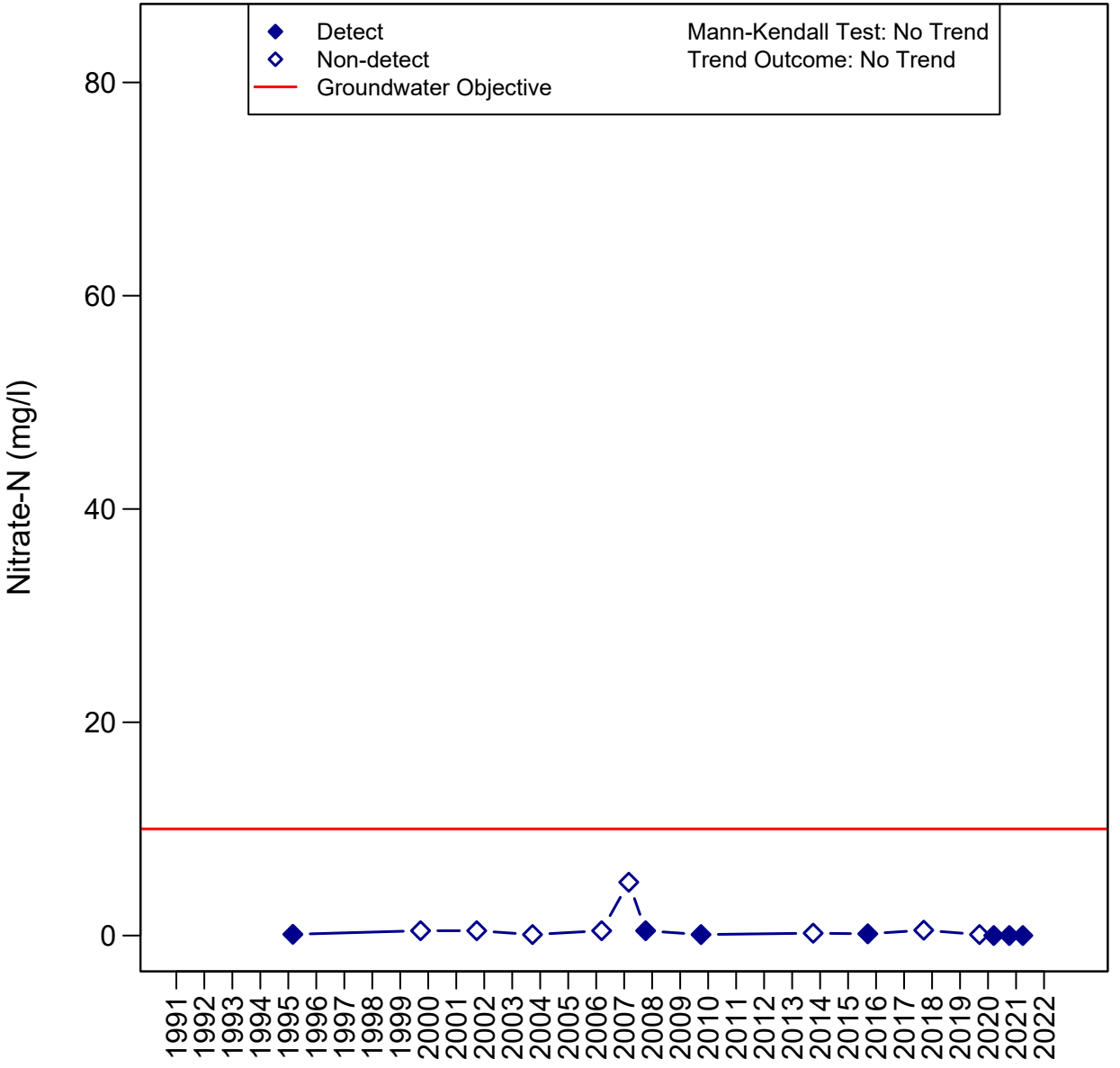
Oxnard Basin
01N22W26J03S - J03S



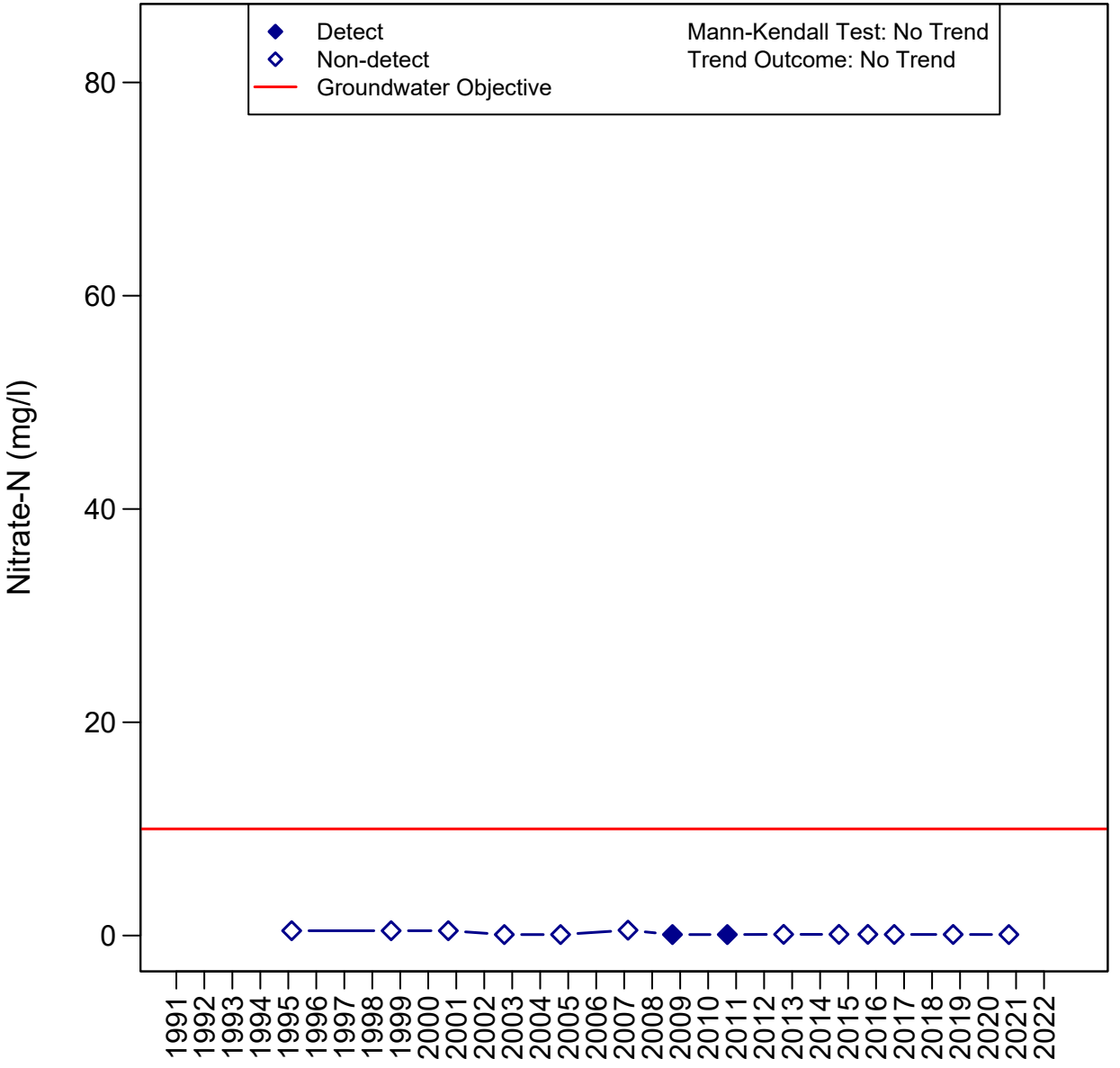
Oxnard Basin
01N22W28G02S - G02S



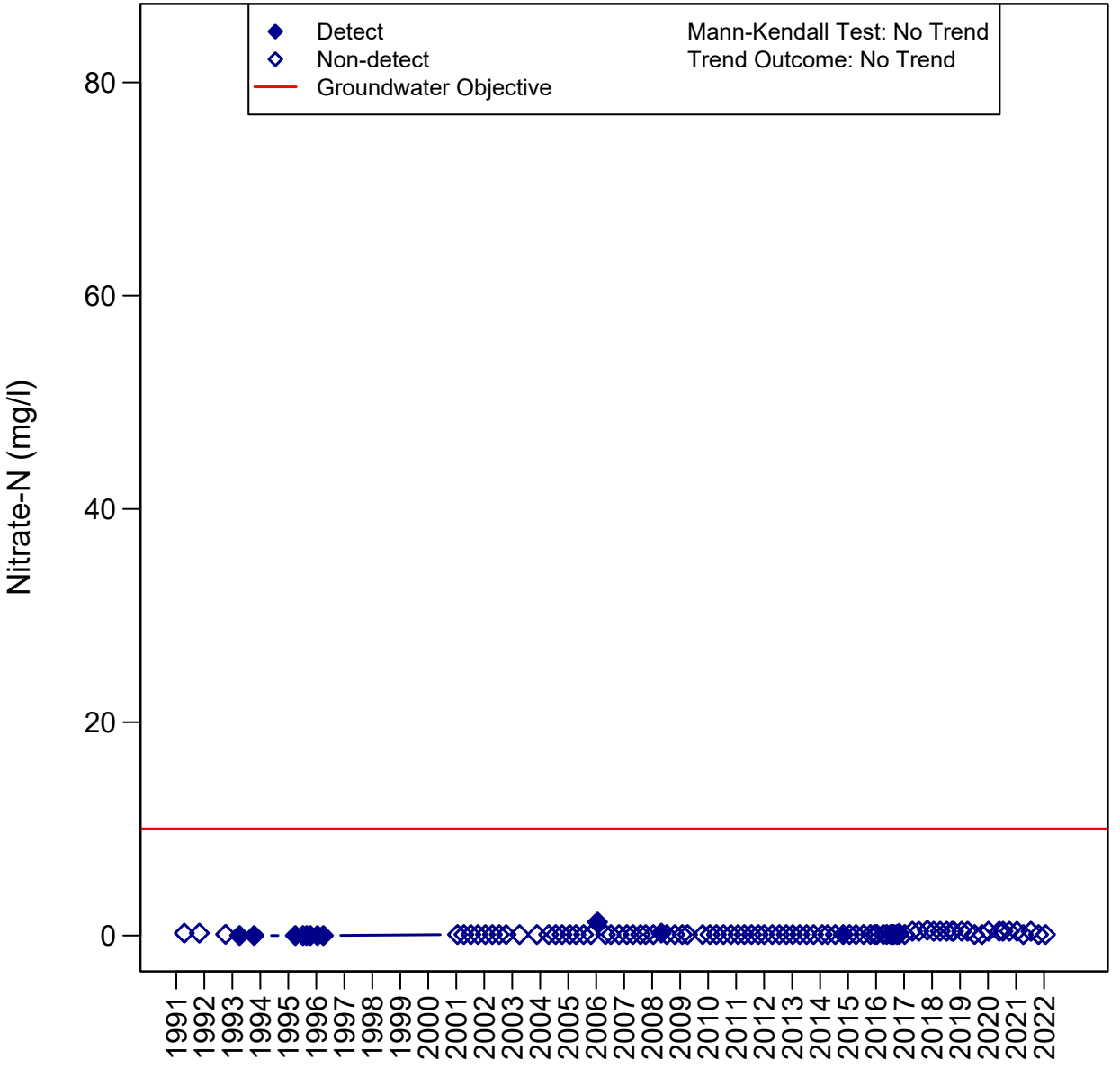
Oxnard Basin
01S22W01H01S - H01S

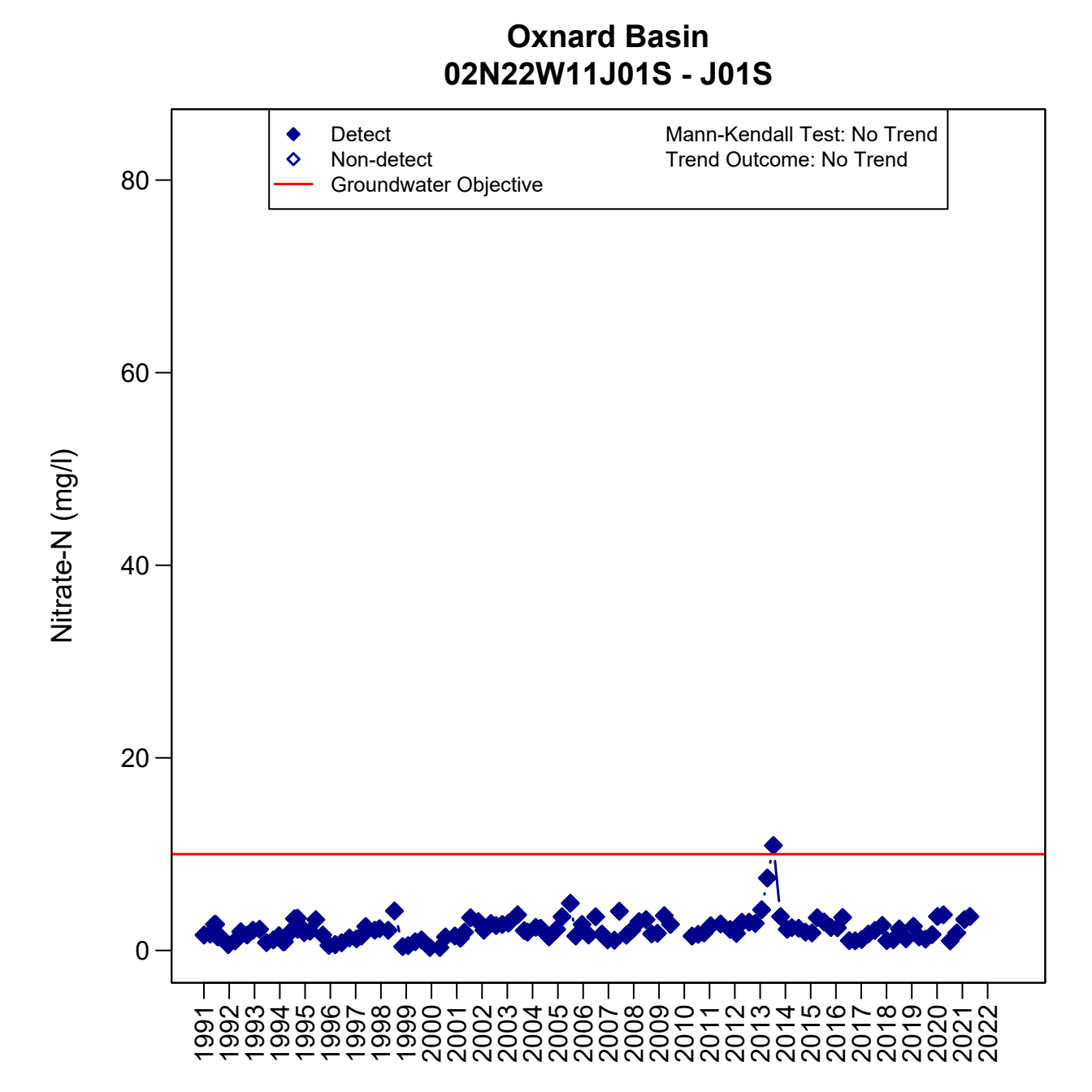


Oxnard Basin
01N22W29D01S - D01S



Oxnard Basin
02N22W23H04S - H04S




Oxnard Basin
02N22W11J01S - J01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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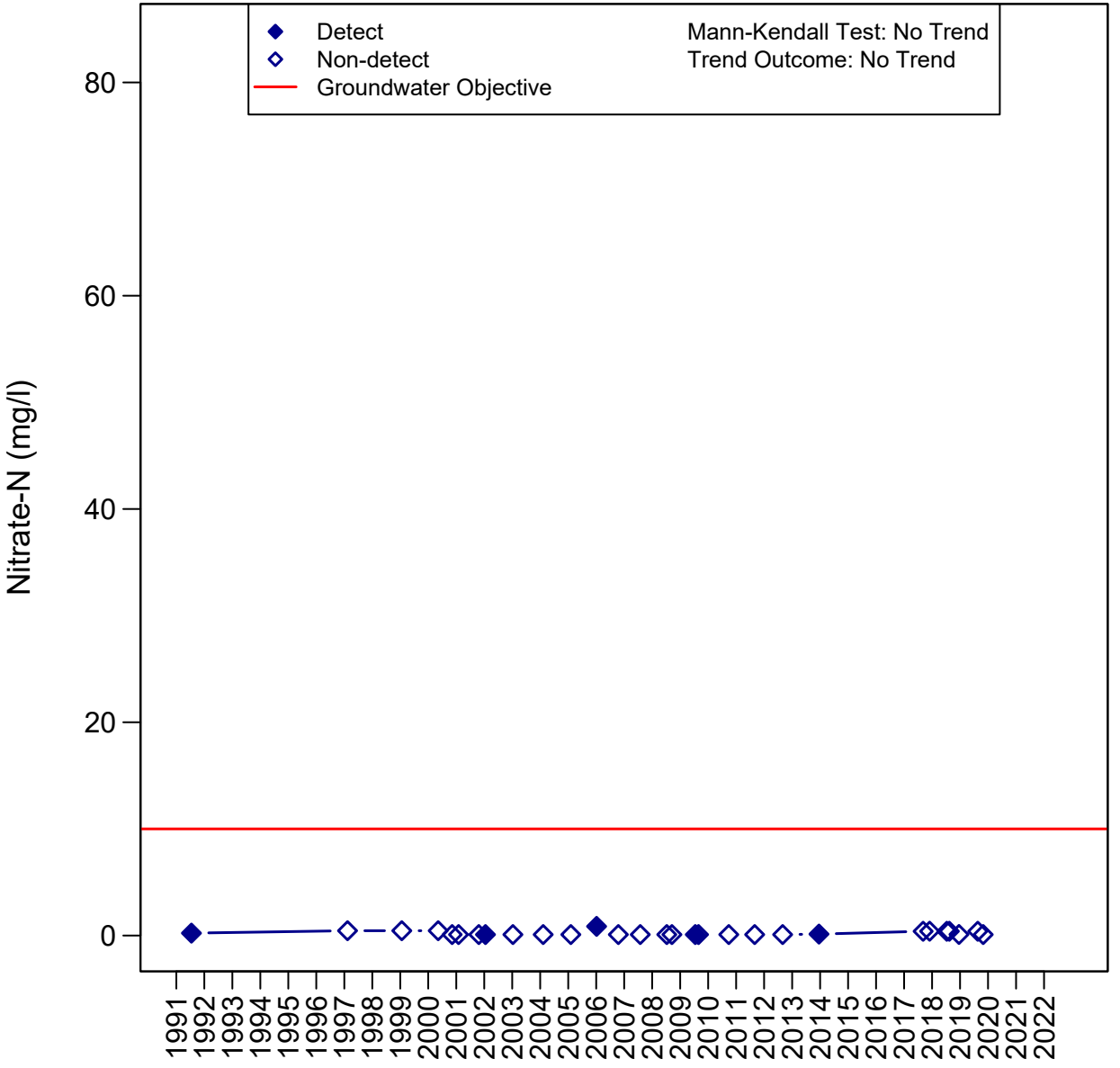
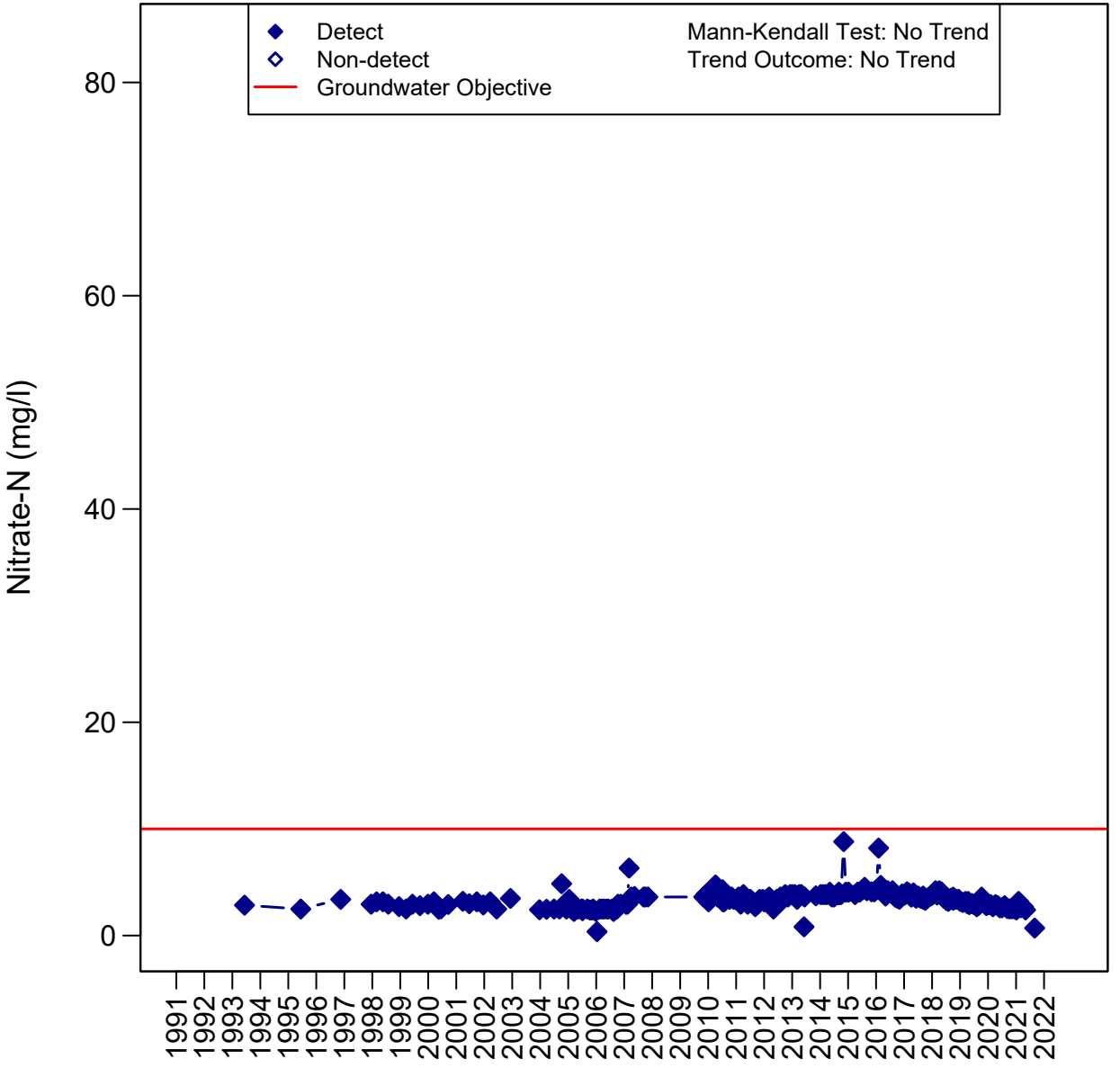
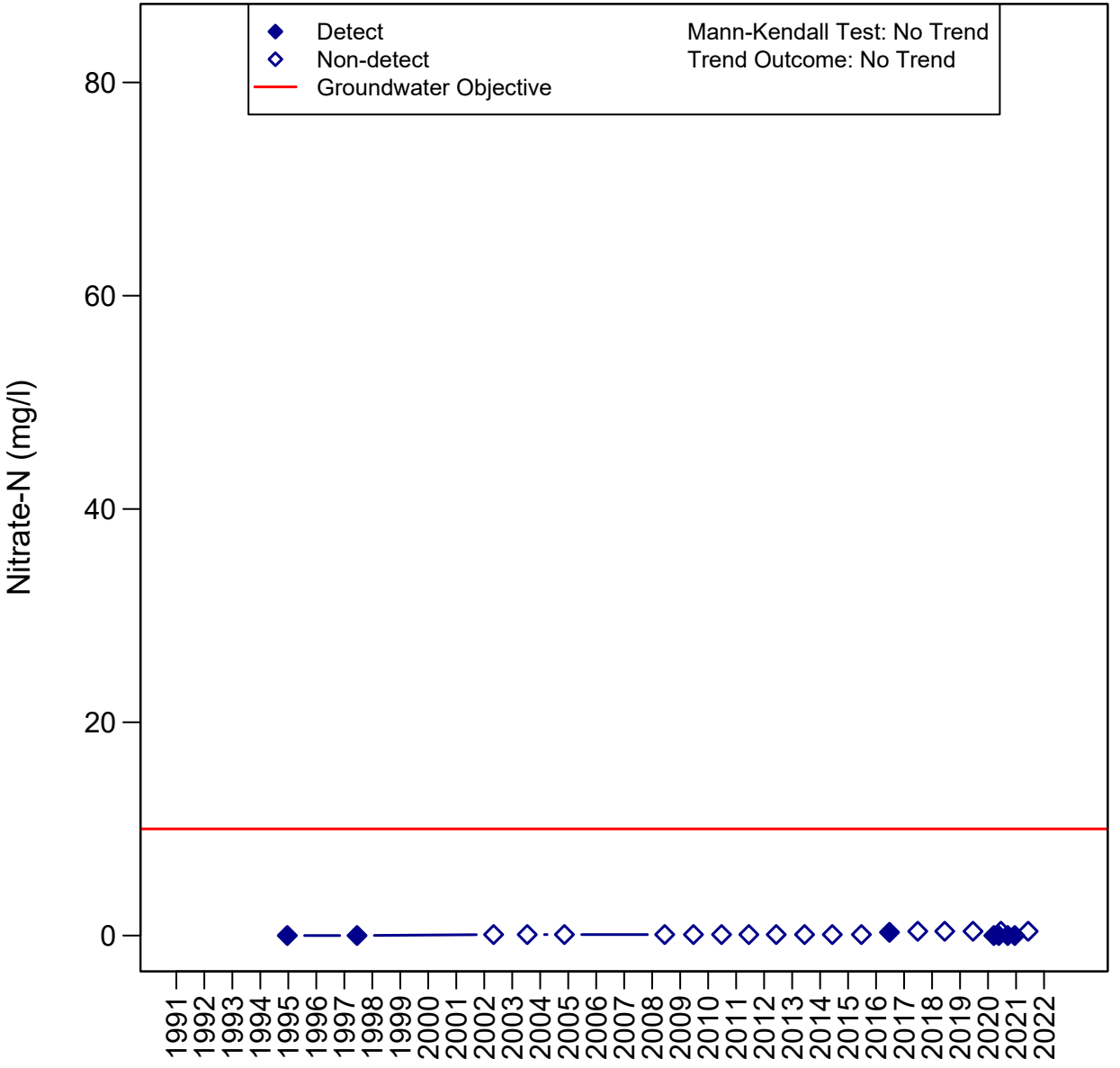
Oxnard Basin
01N22W21B06S - B06S



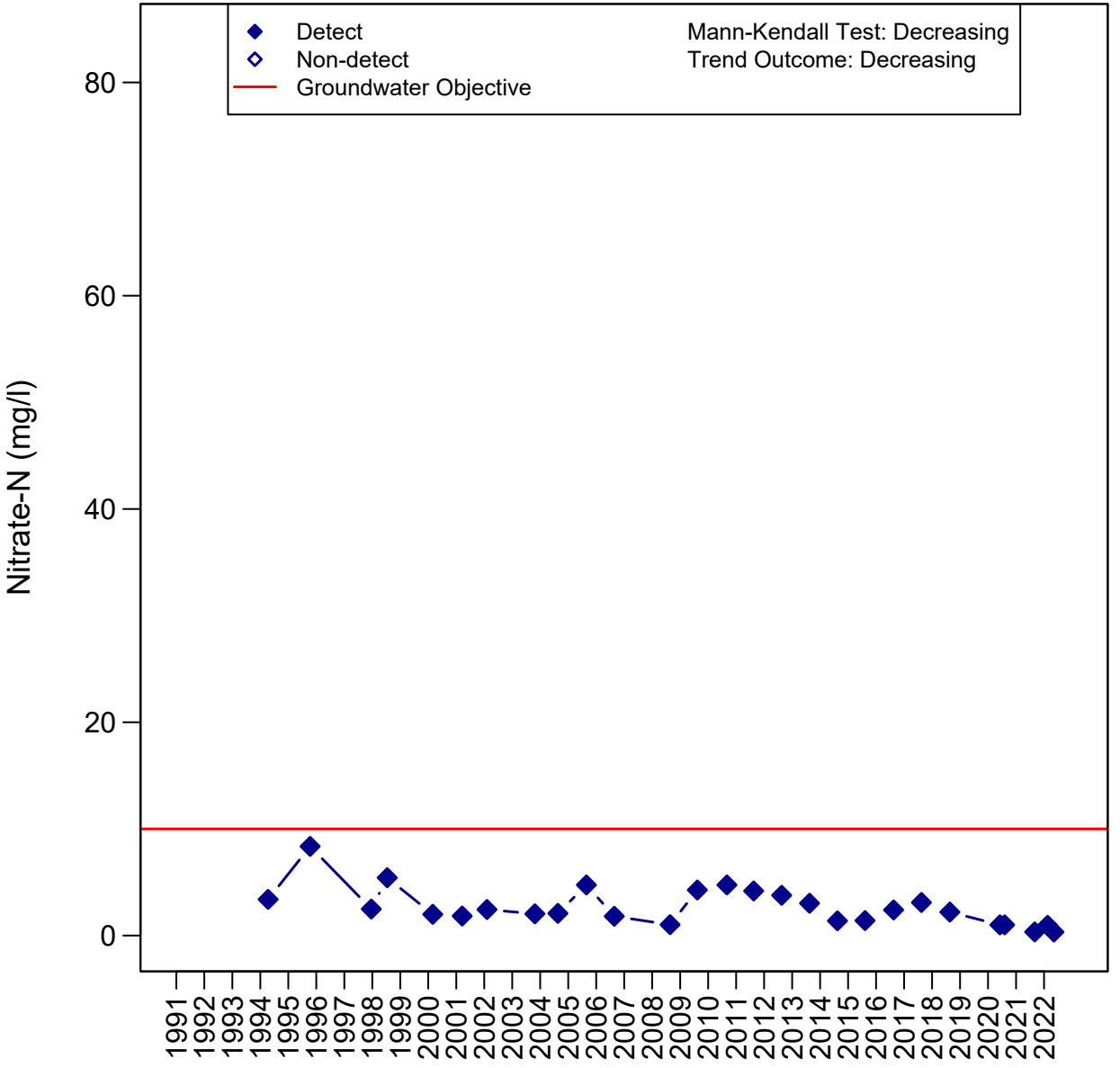
Oxnard Basin
01N22W03F05S - F05S



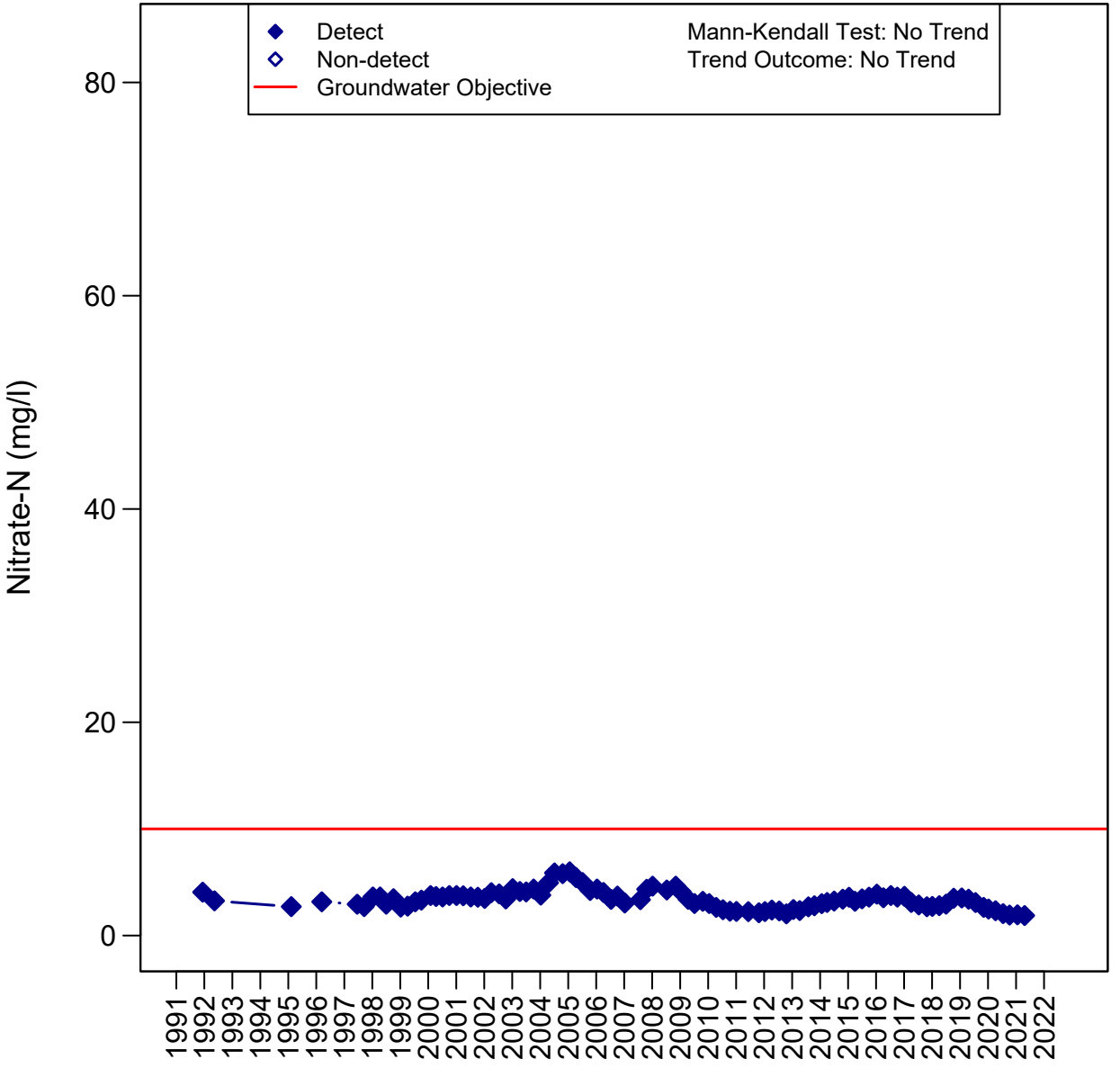
Oxnard Basin
01N21W19K03S - K03S



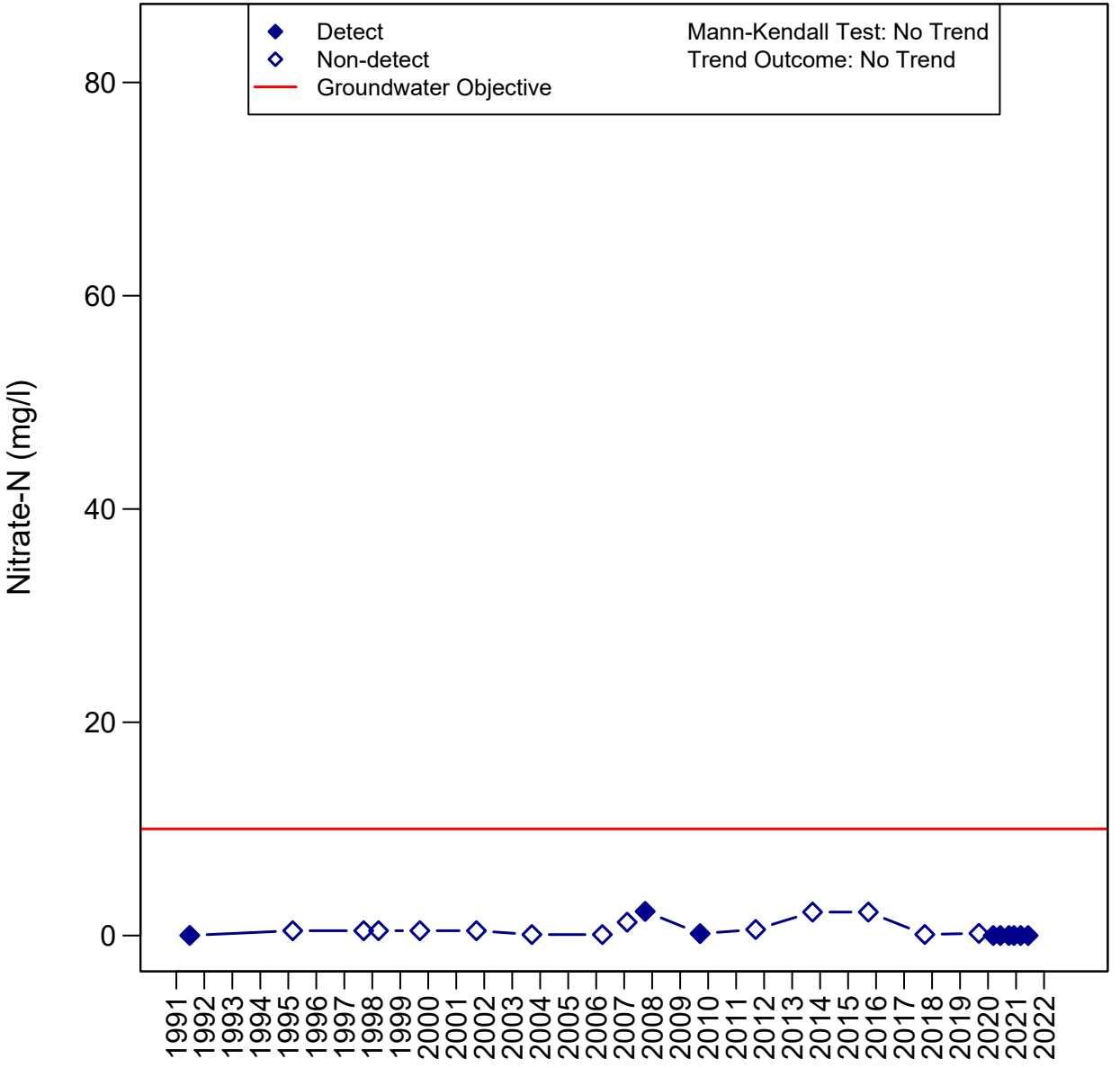
Oxnard Basin
02N22W23F05S - F05S



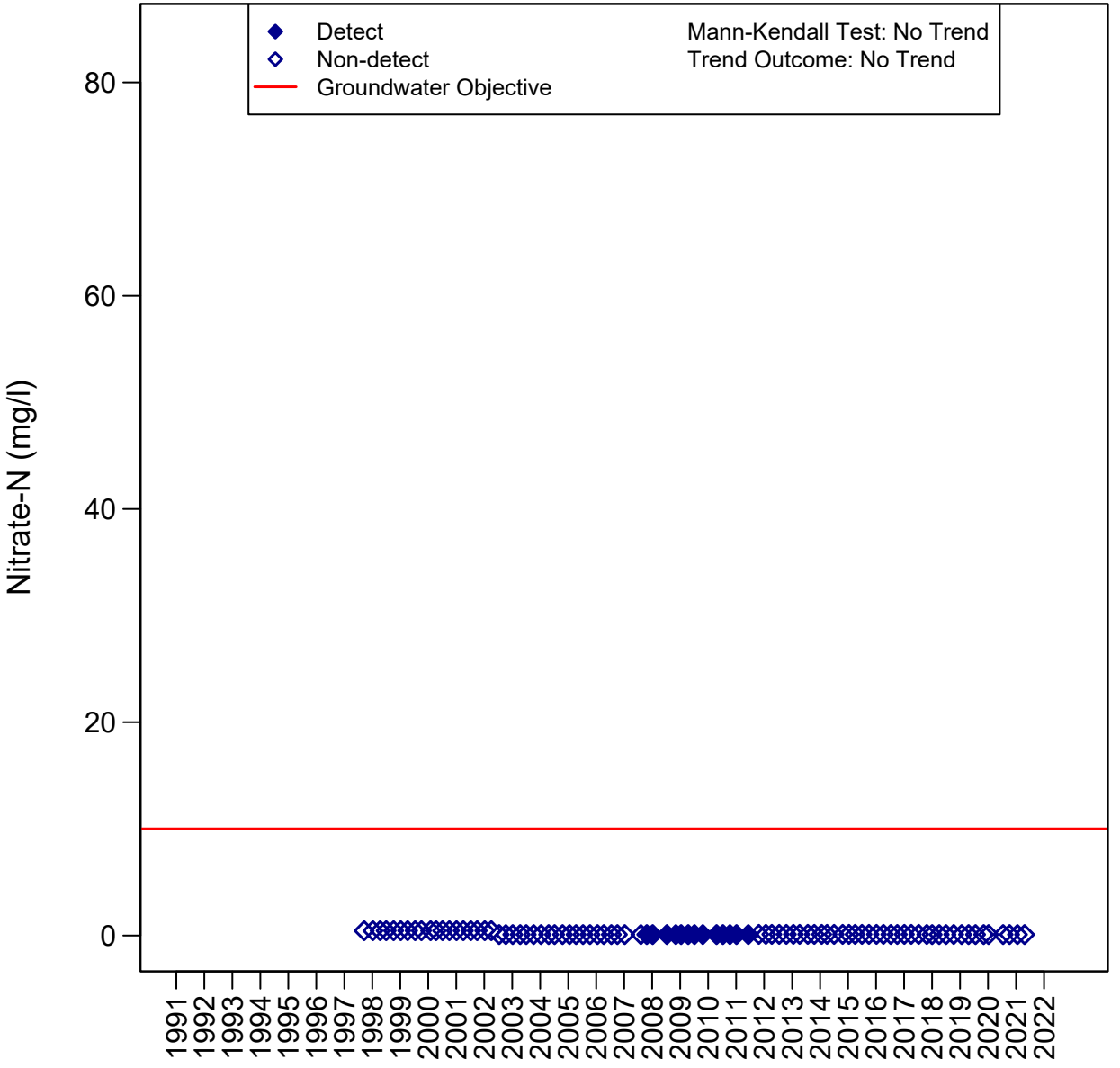
Oxnard Basin
02N22W23B06S - B06S



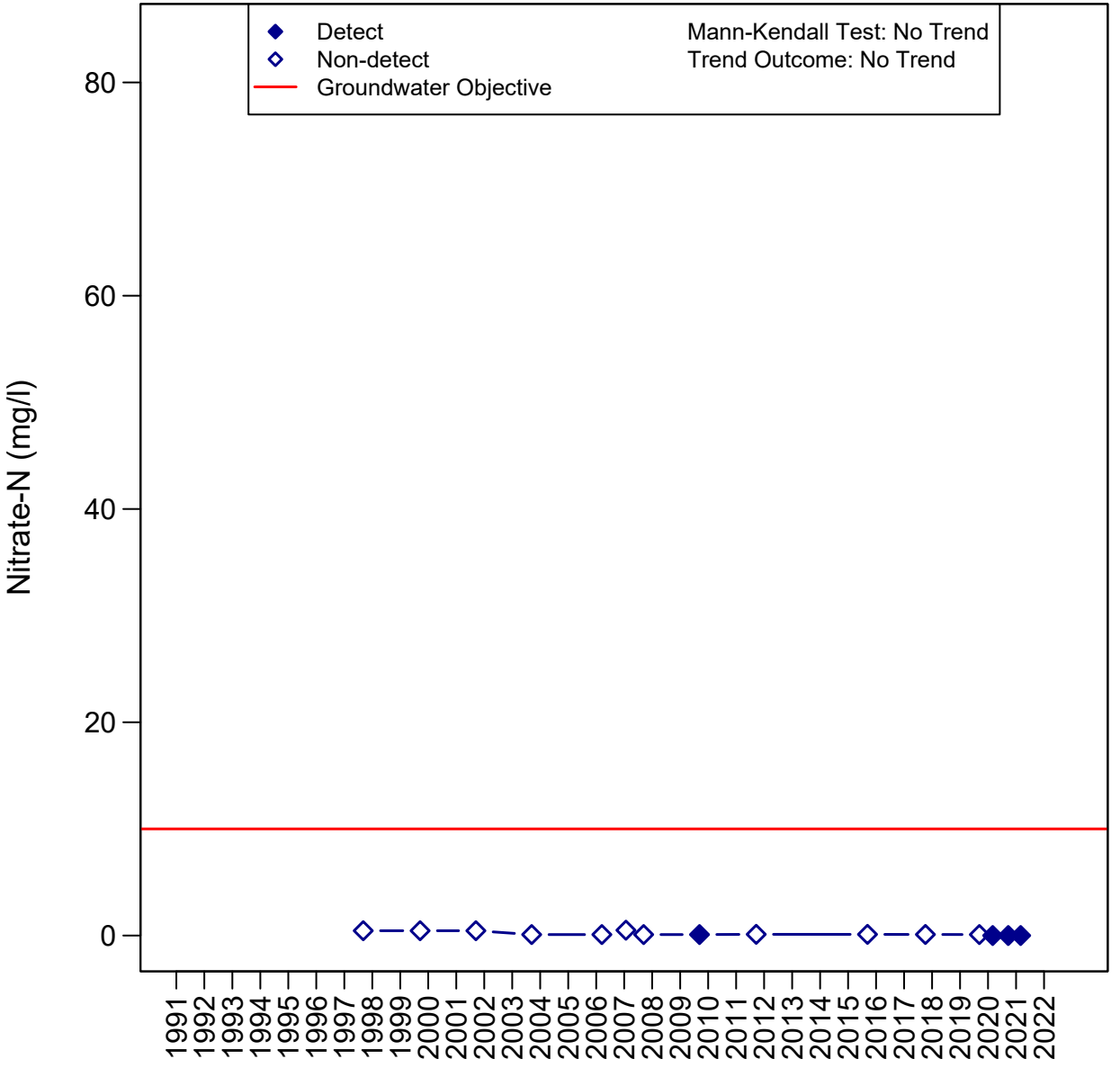
Oxnard Basin
01N21W32Q07S - Q07S



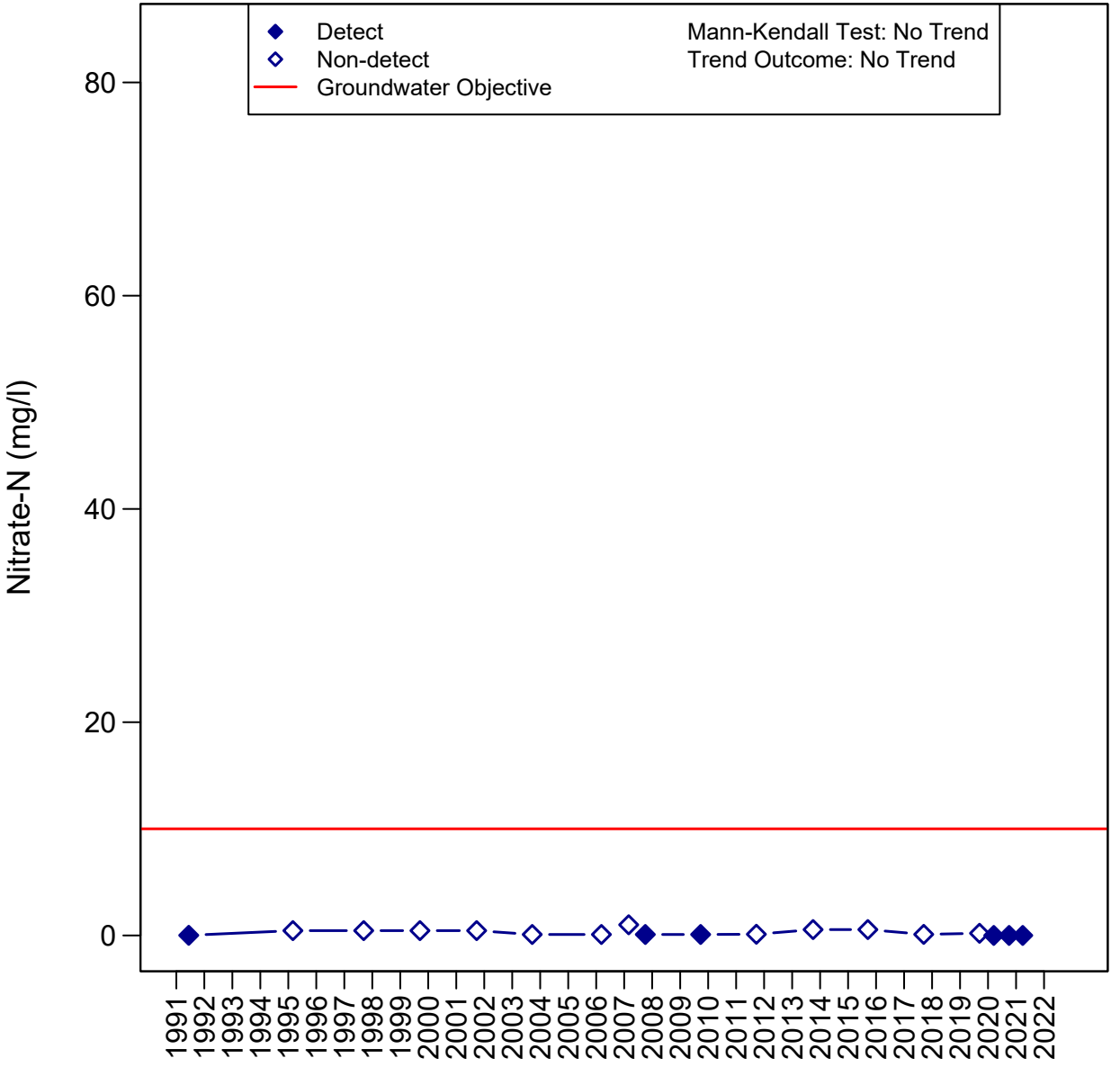
Oxnard Basin
02N22W23B04S - B04S



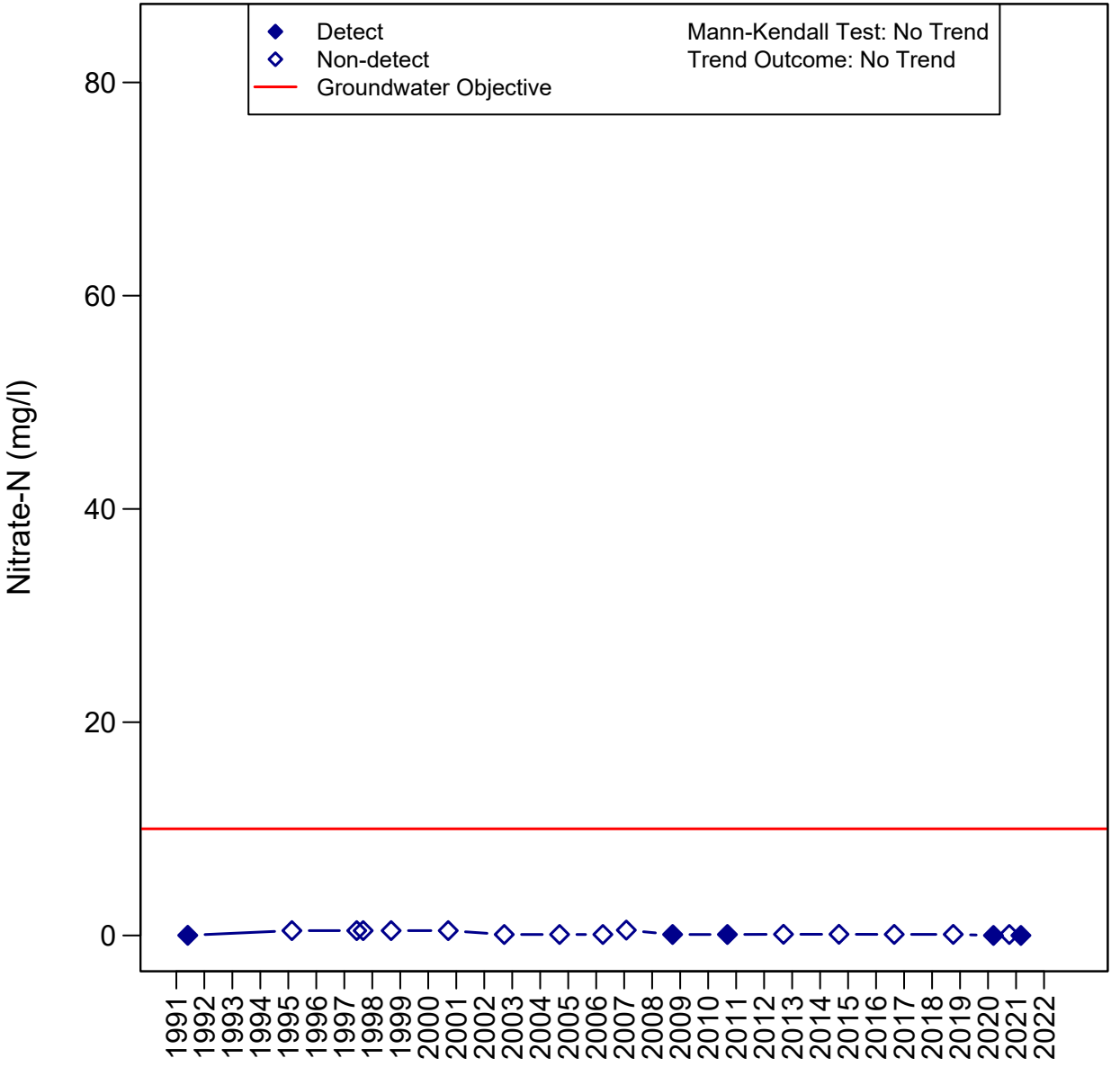
Oxnard Basin
01N22W35E04S - E04S



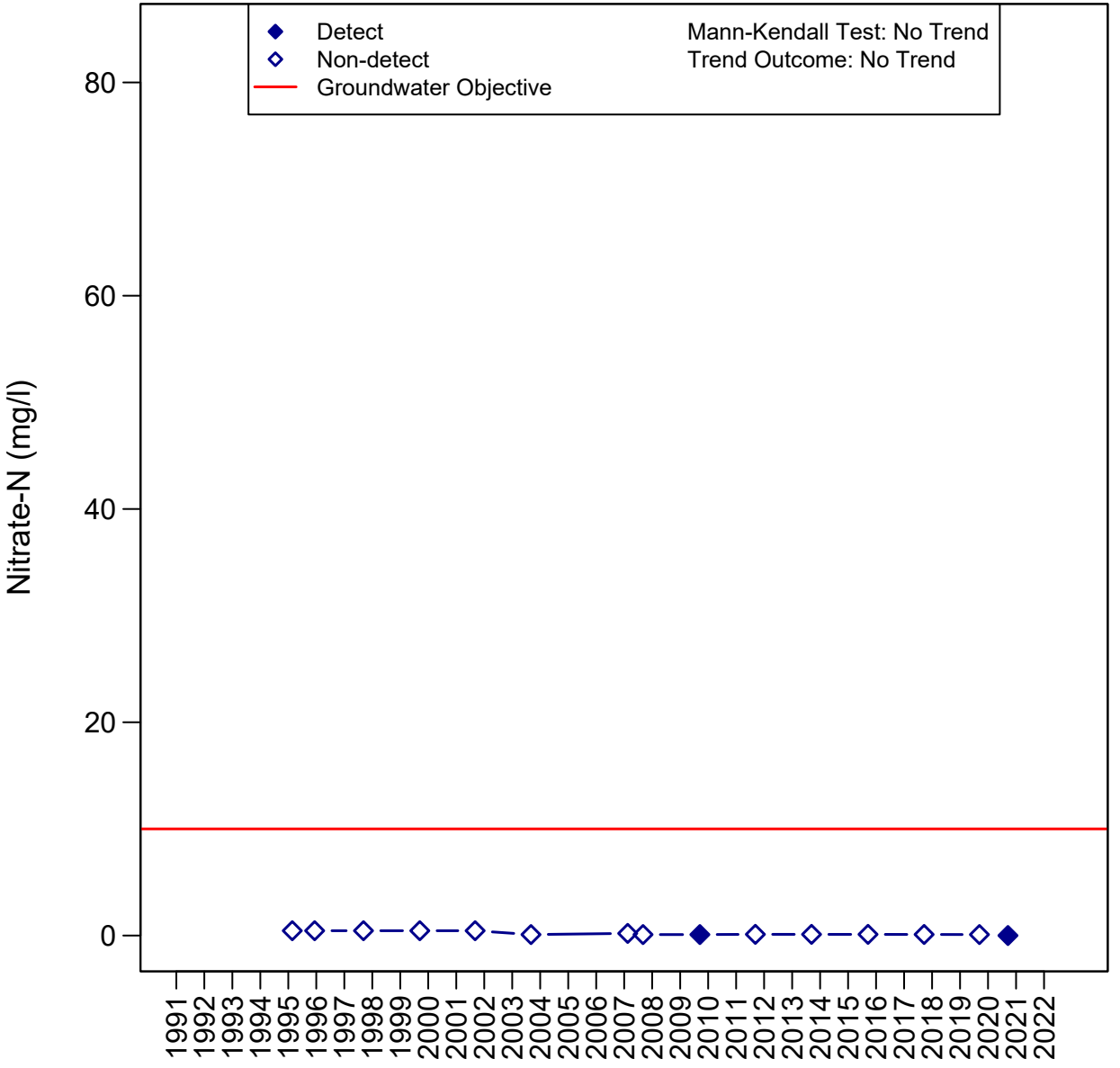
Oxnard Basin
01S22W01H02S - H02S

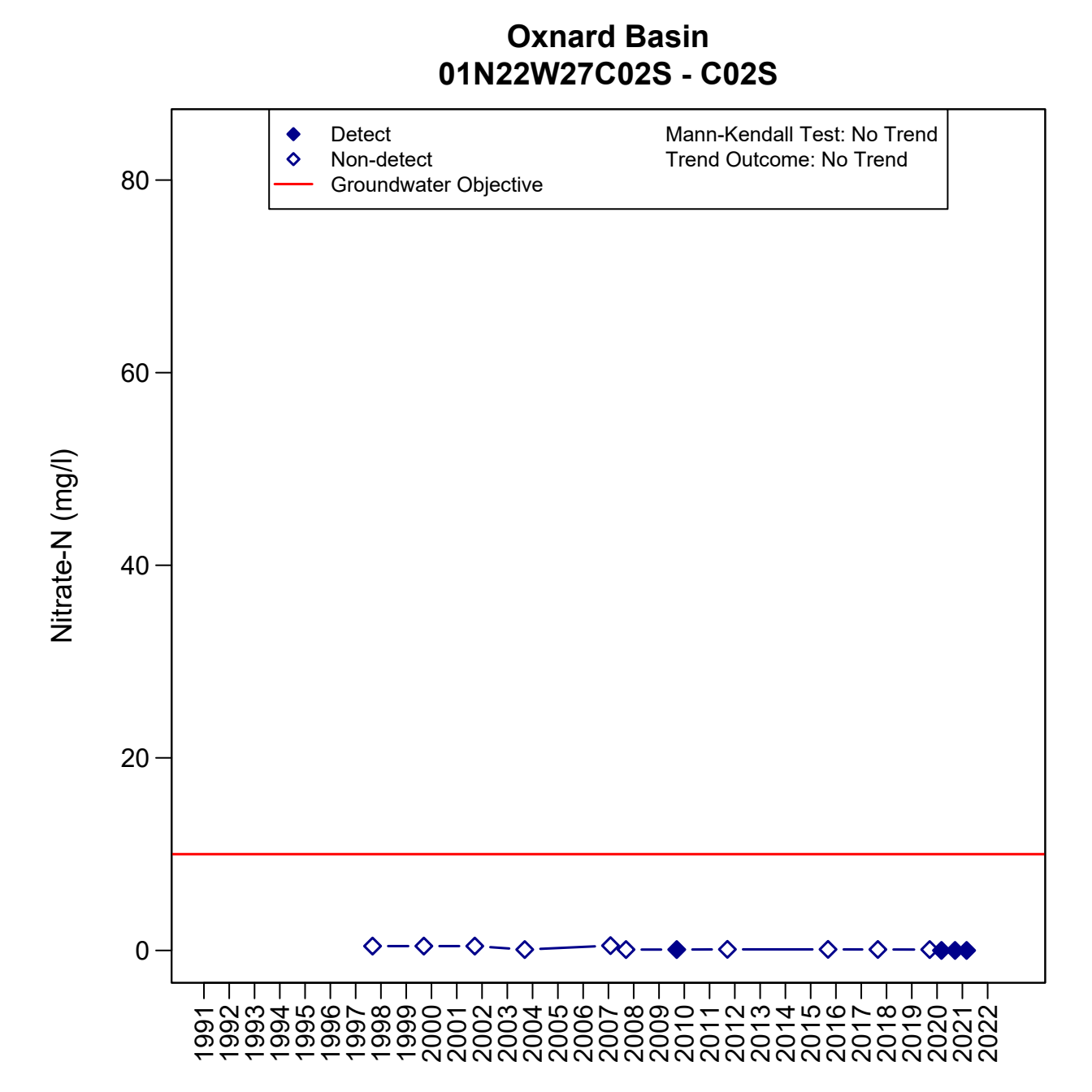


Oxnard Basin
01N22W20J07S - J07S



Oxnard Basin
01N22W28G01S - G01S




Oxnard Basin
01N22W27C02S - C02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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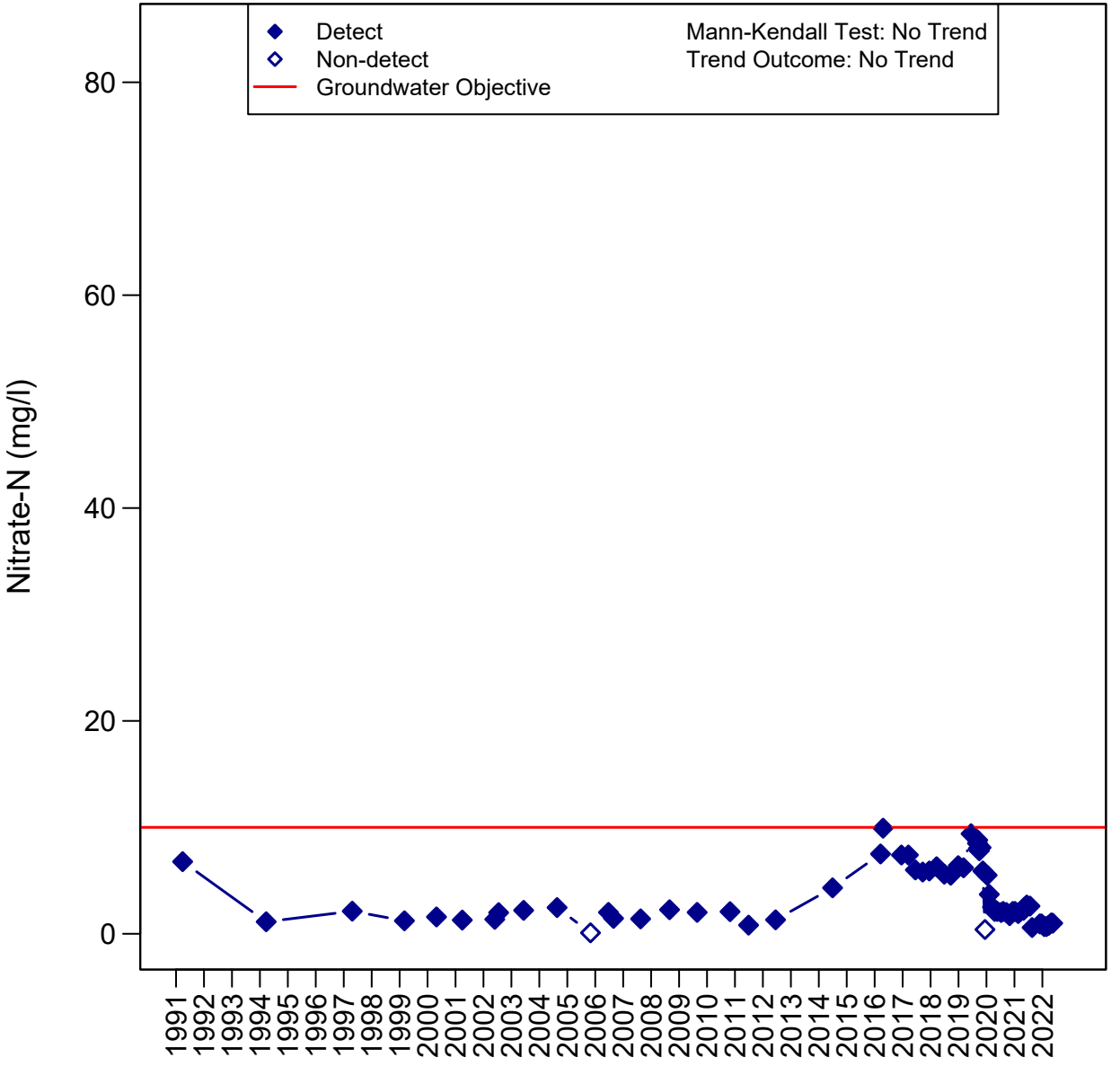
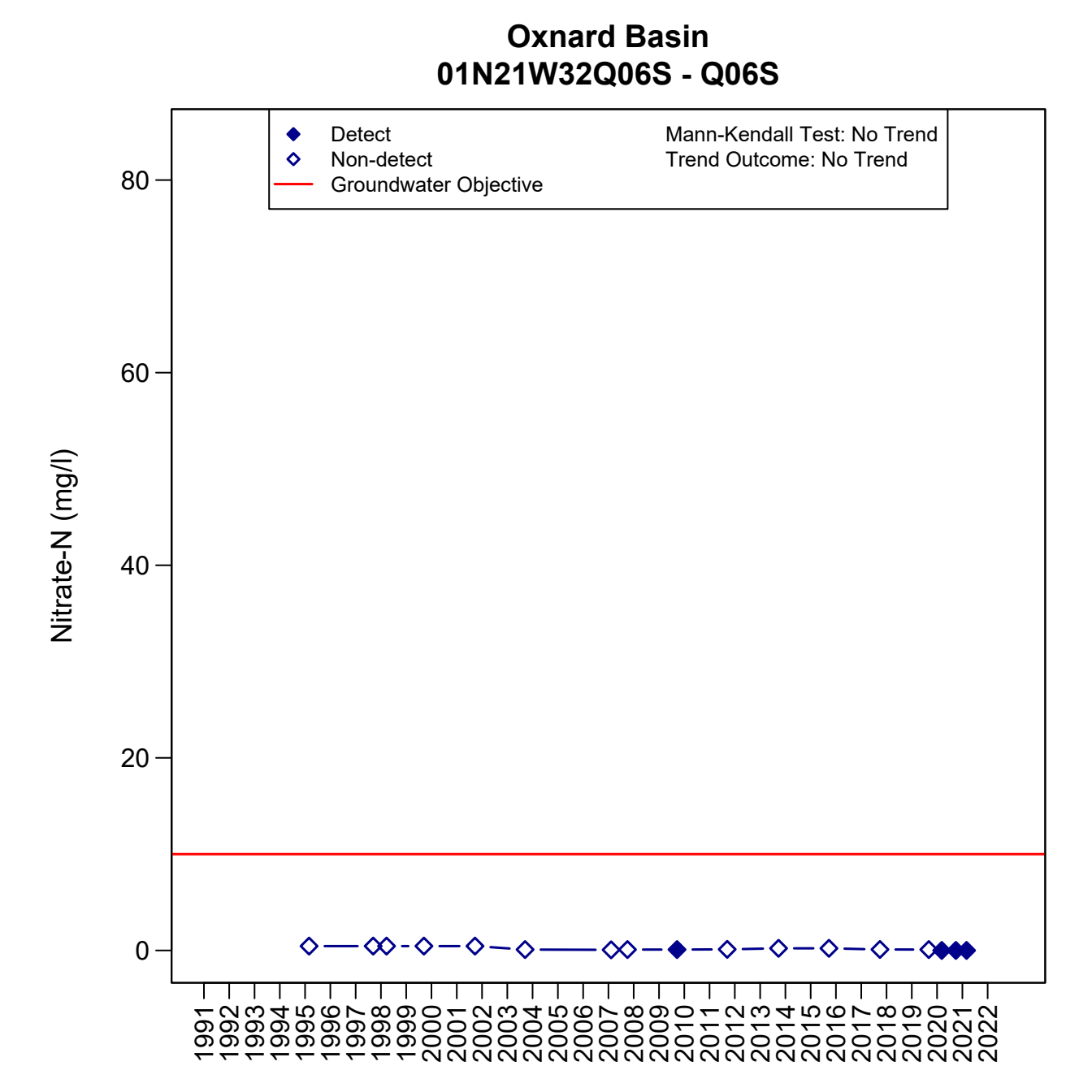
Oxnard Basin
02N22W27A02S - A02S




Oxnard Basin
01N21W32Q06S - Q06S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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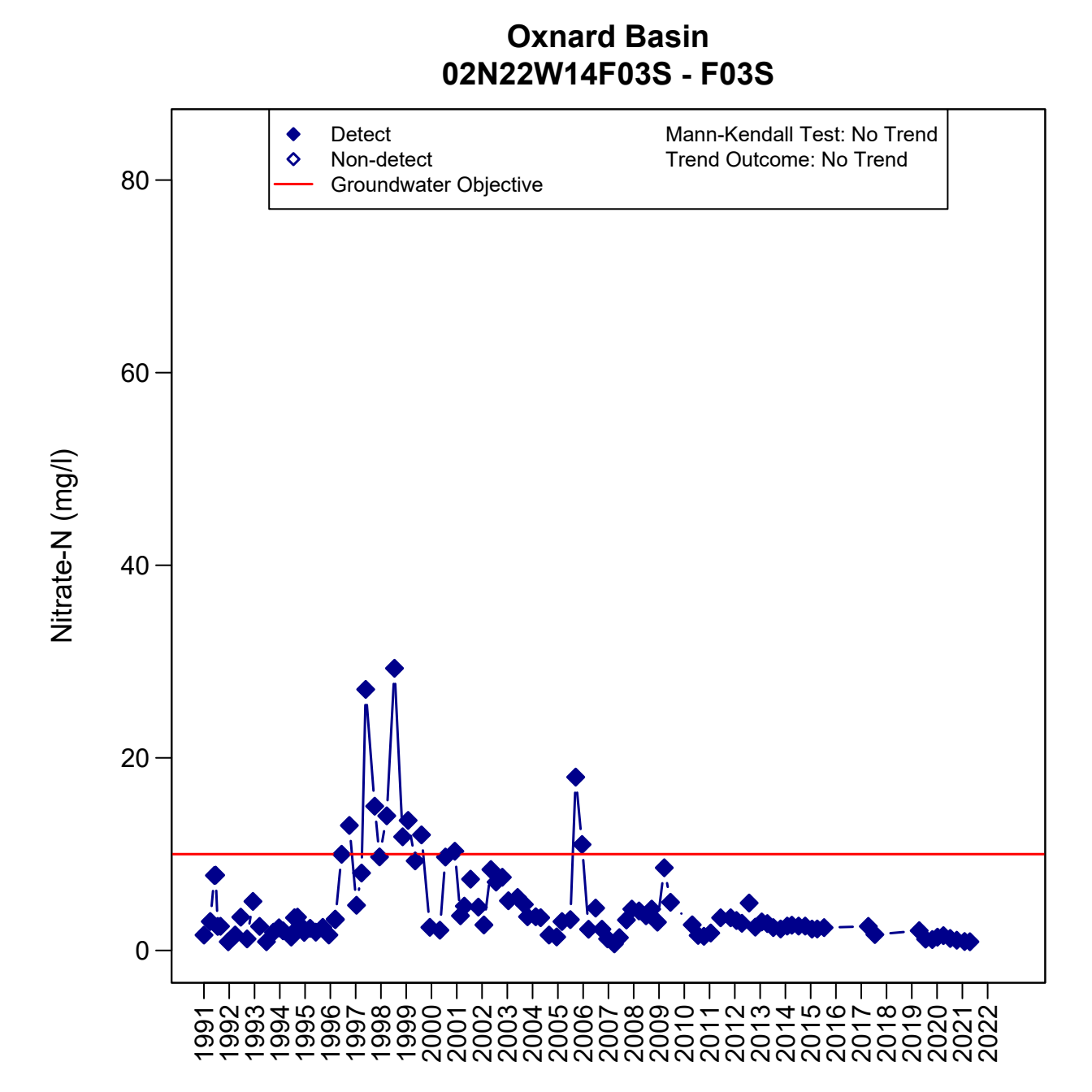
Oxnard Basin
02N22W14F03S - F03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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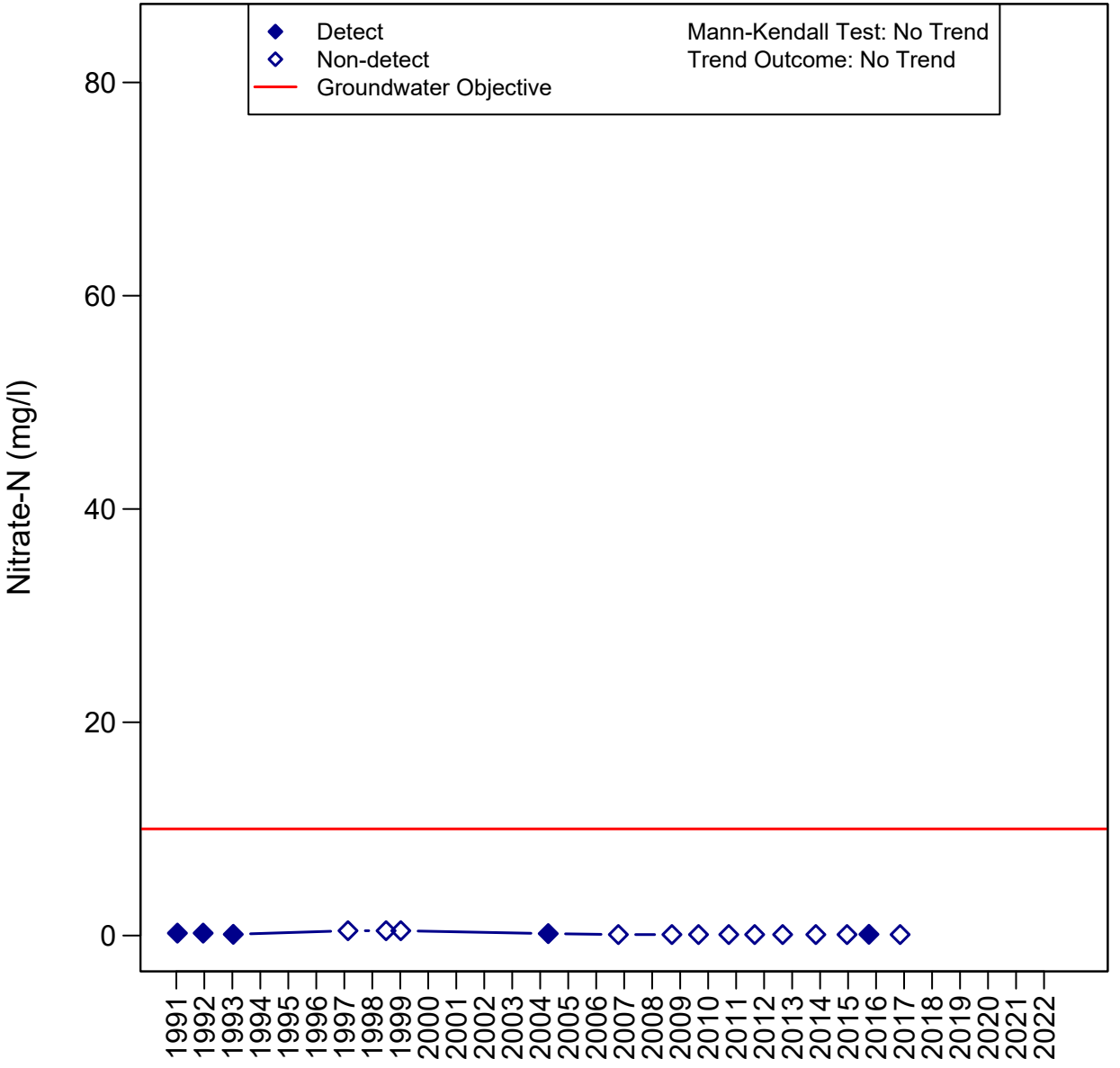
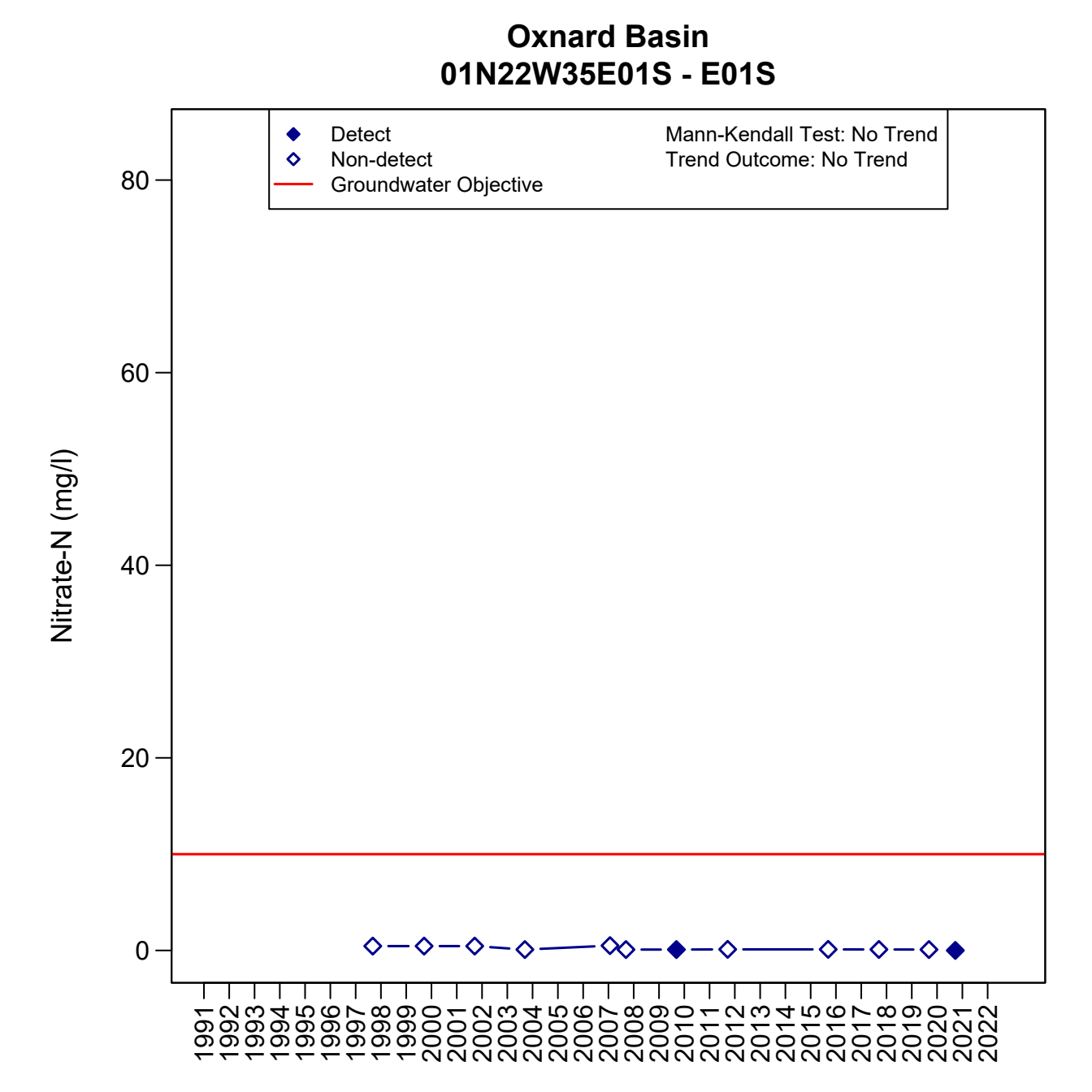
Oxnard Basin
01N22W19A01S - A01S




Oxnard Basin
01N22W35E01S - E01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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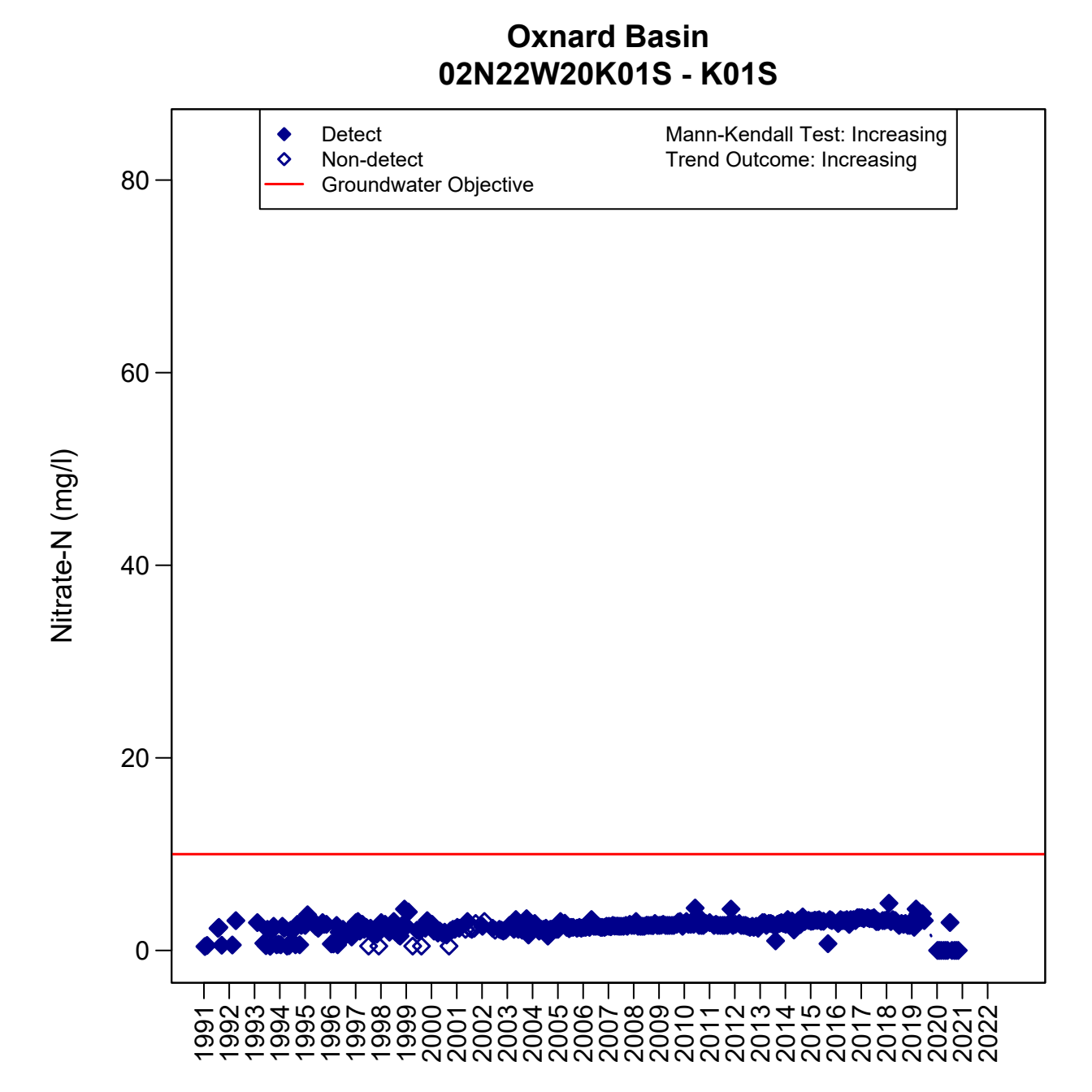
Oxnard Basin
02N22W20K01S - K01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: Increasing
Nitrate-N (mg/l)
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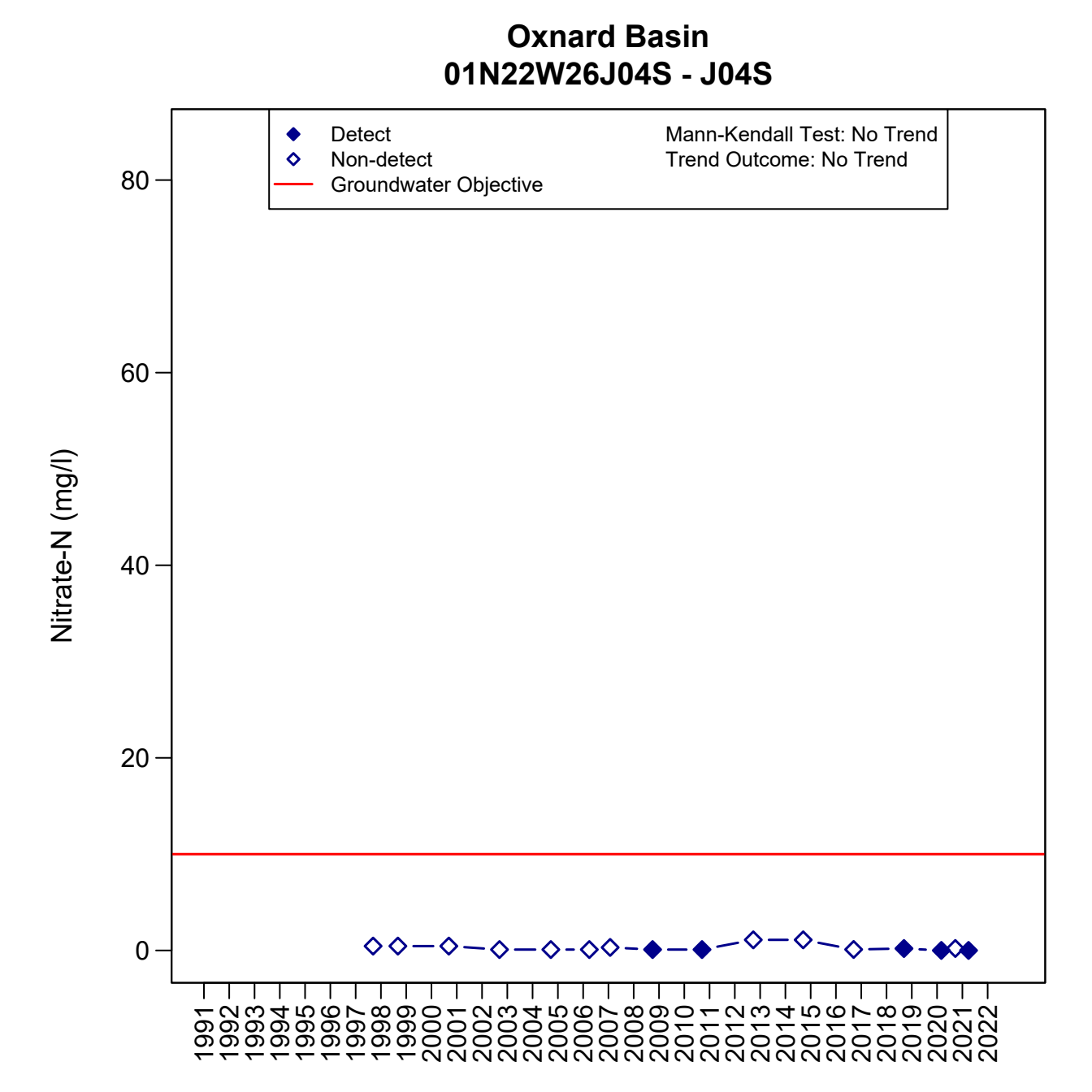
Oxnard Basin
01N22W26J04S - J04S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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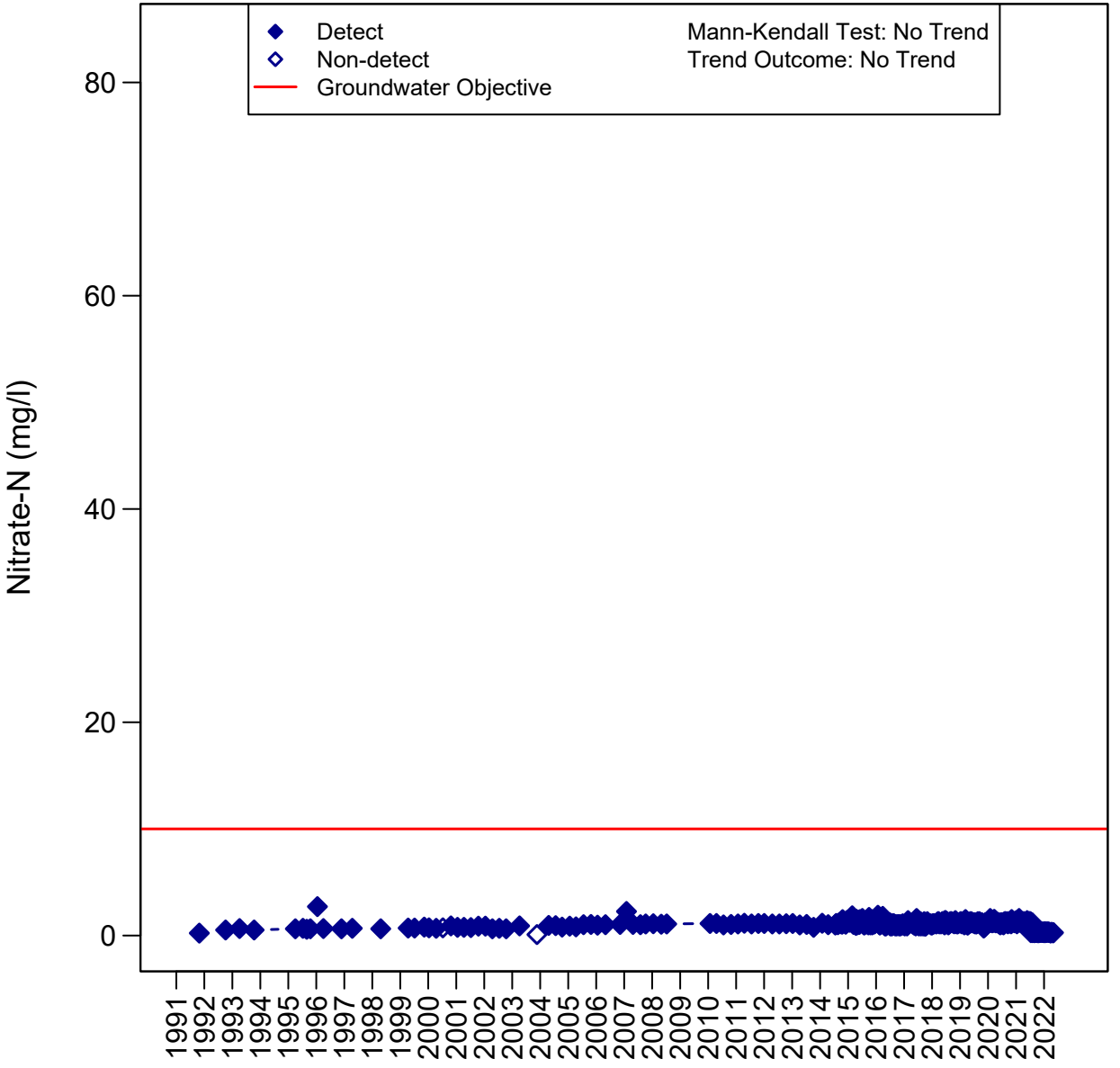
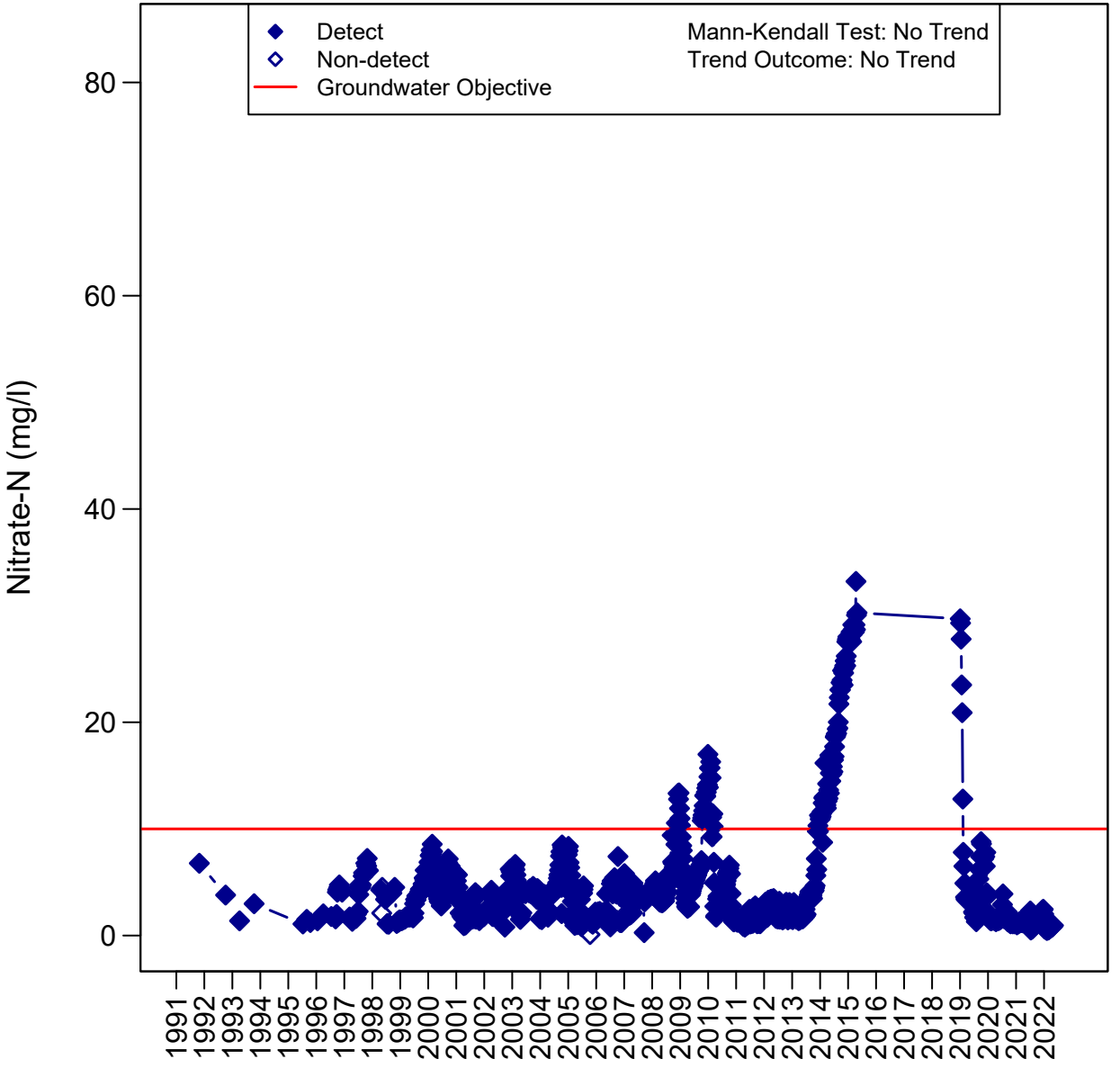
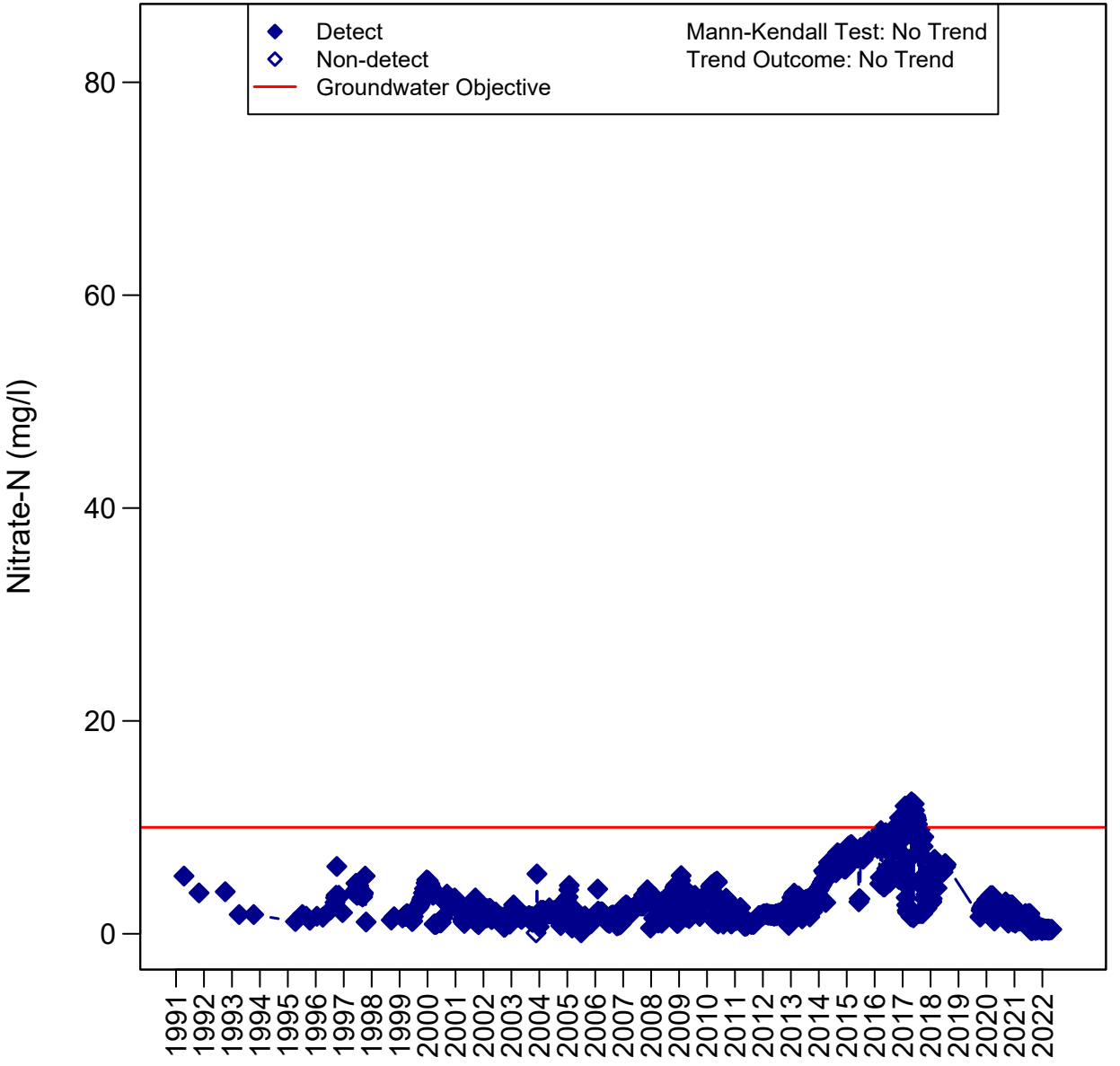
Oxnard Basin
02N22W26B03S - B03S

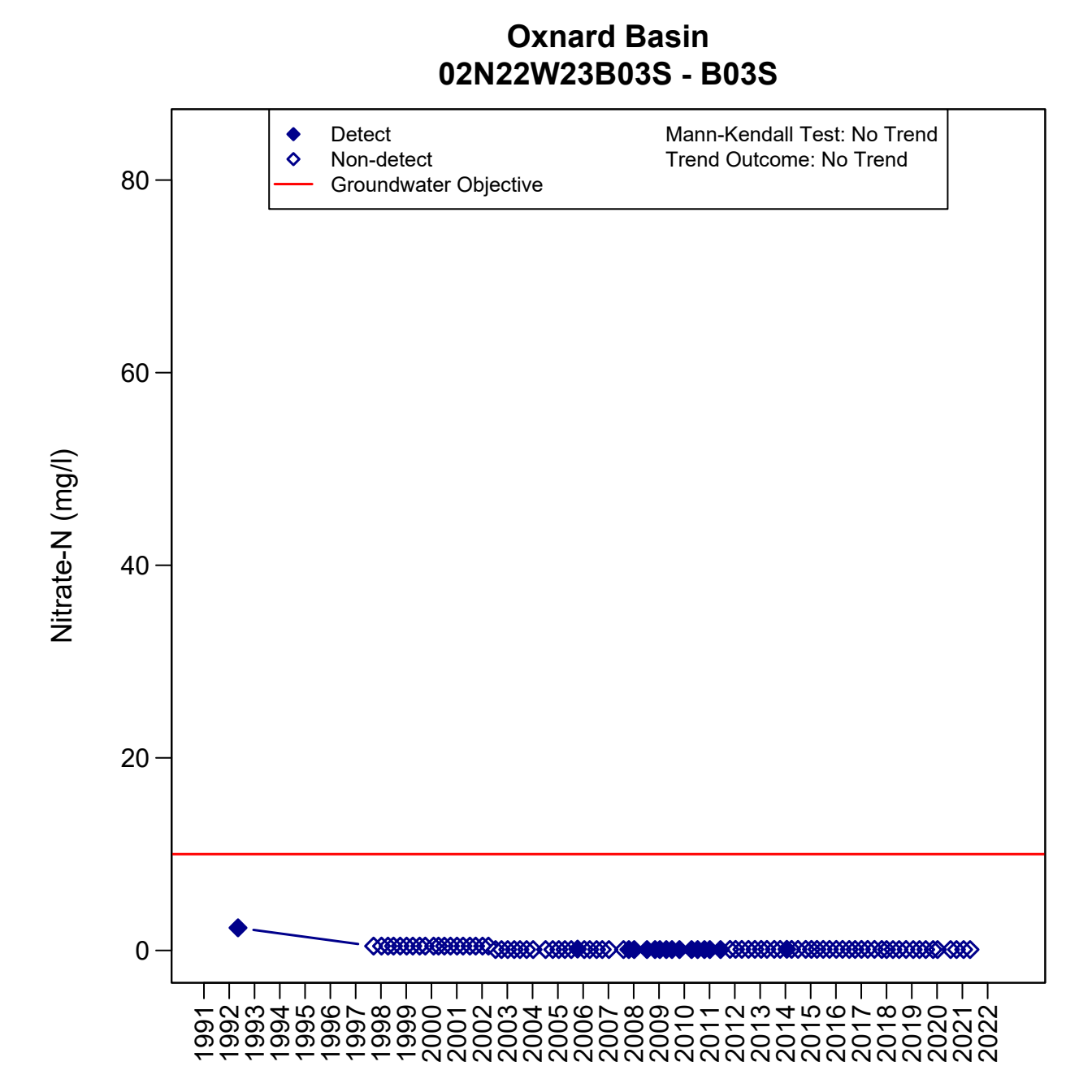


Oxnard Basin
02N22W23K05S - K05S



Oxnard Basin
02N22W23C02S - C02S




Oxnard Basin
02N22W23B03S - B03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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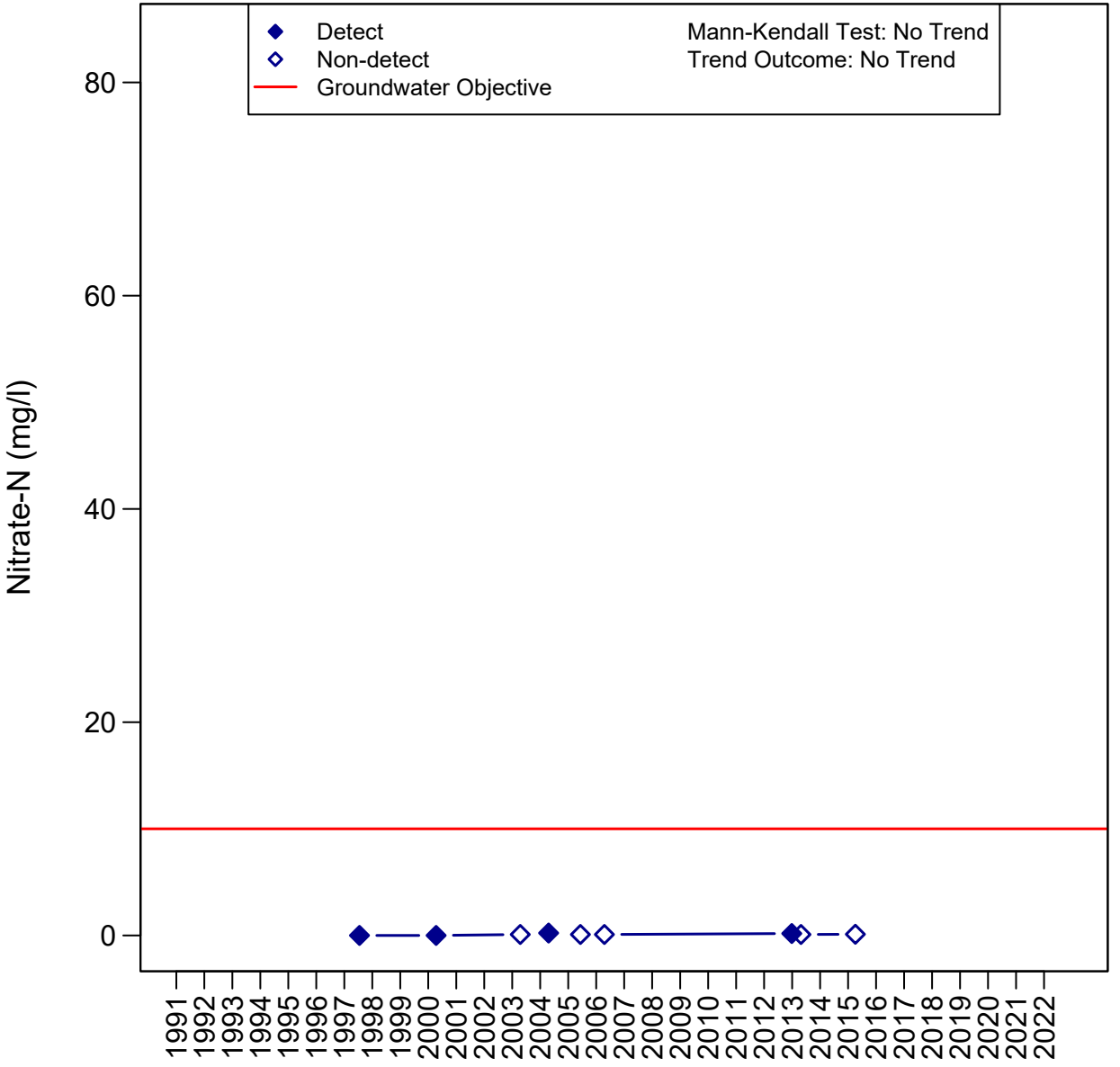
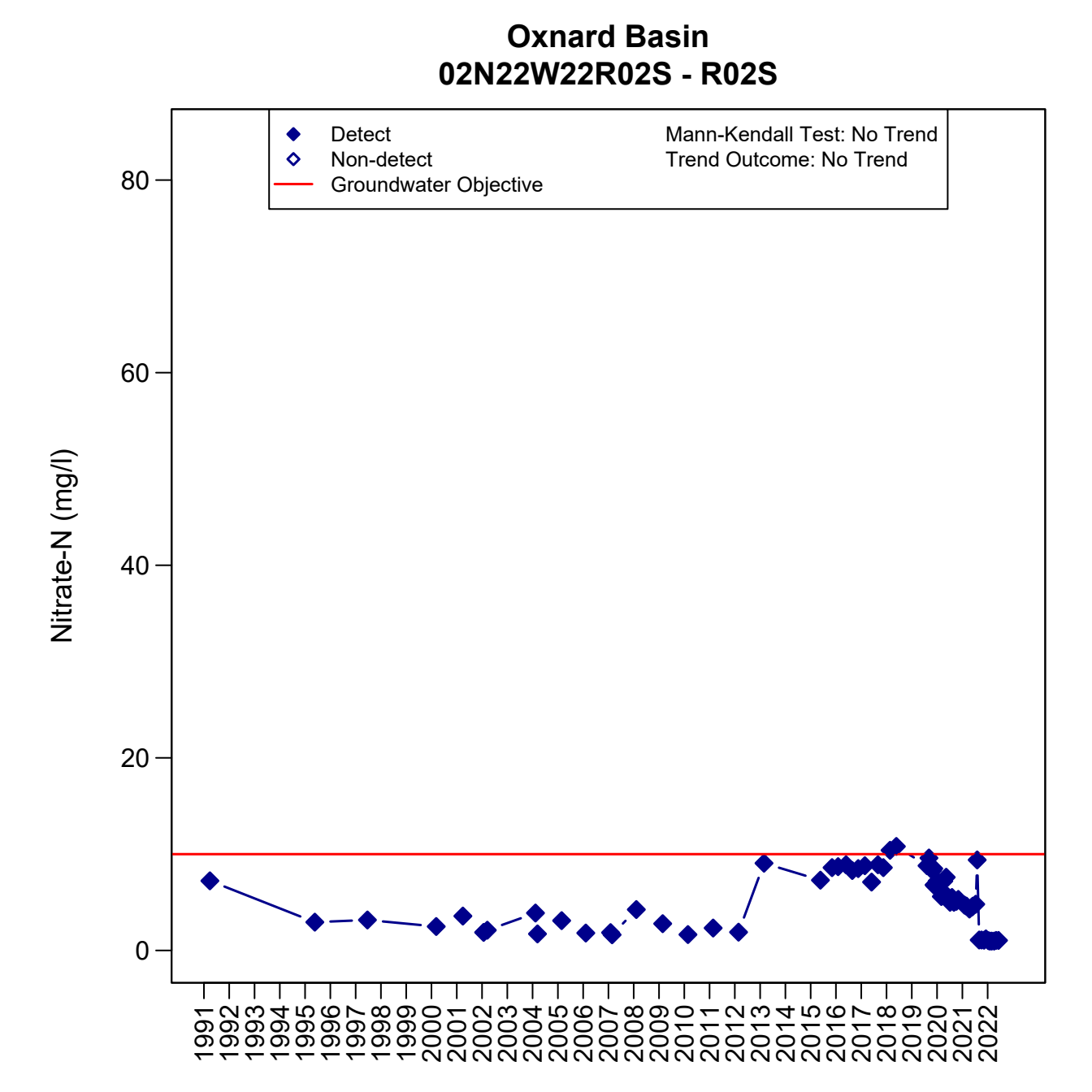
Oxnard Basin
01N21W29G01S - G01S




Oxnard Basin
02N22W22R02S - R02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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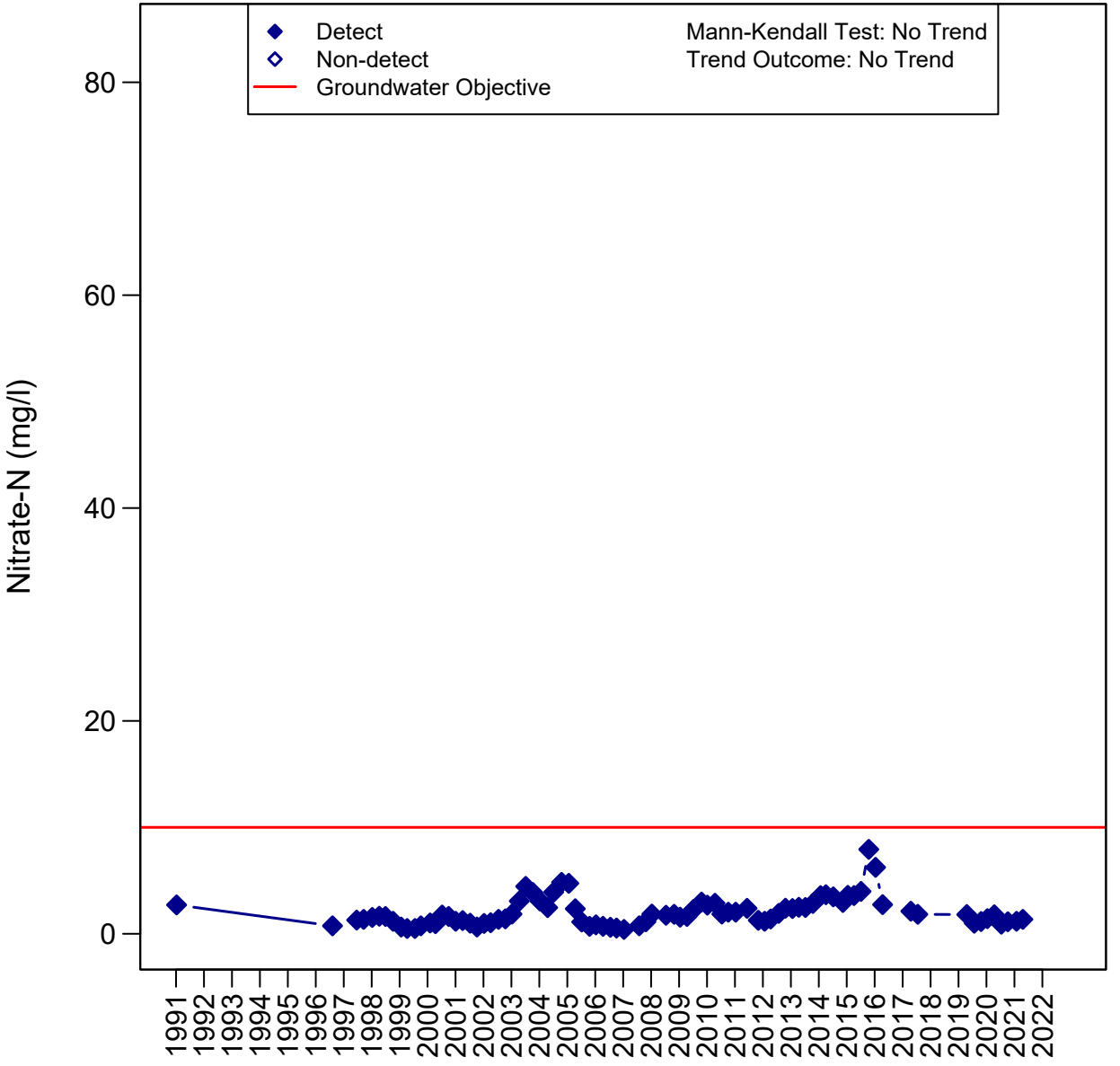
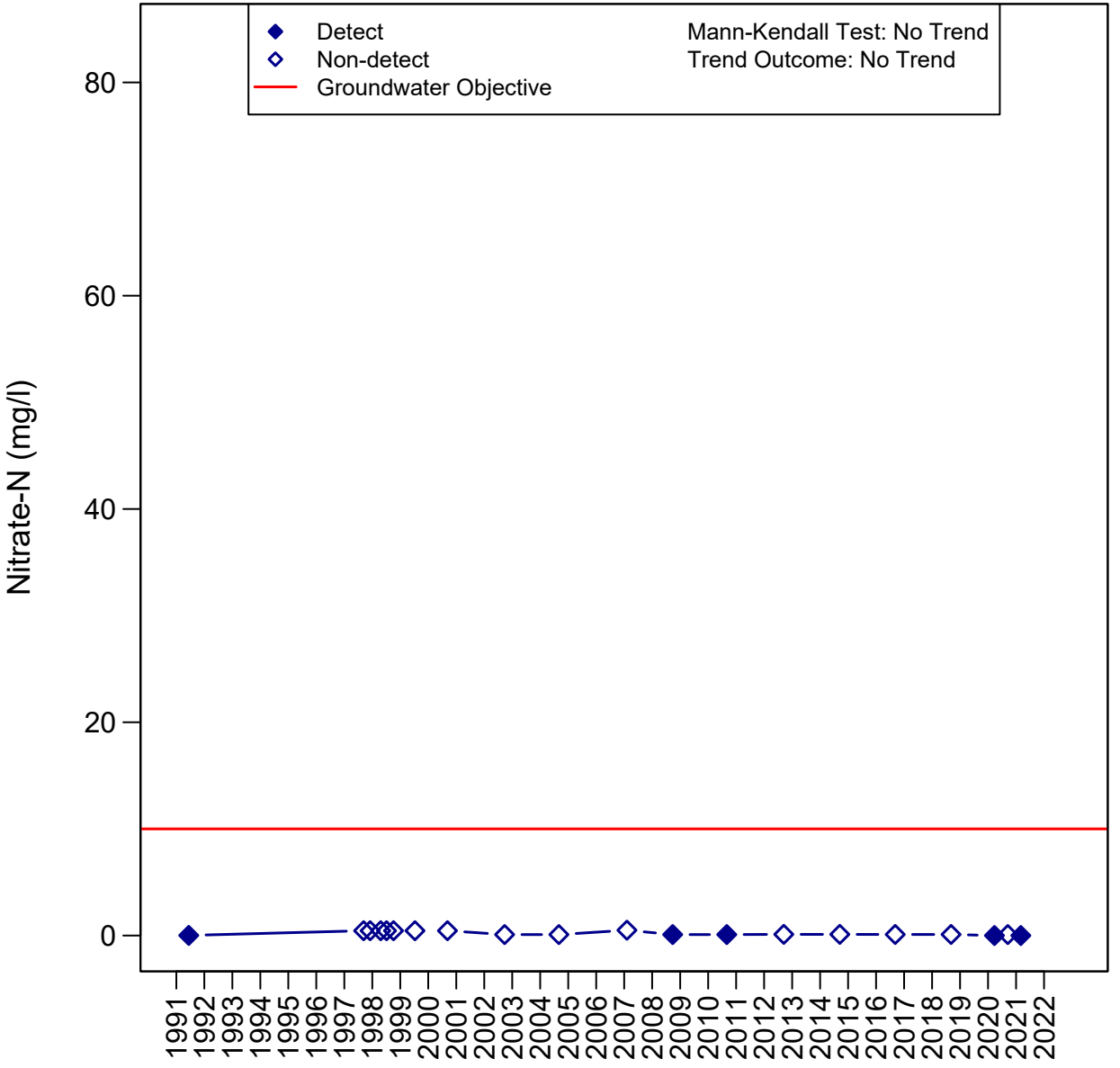
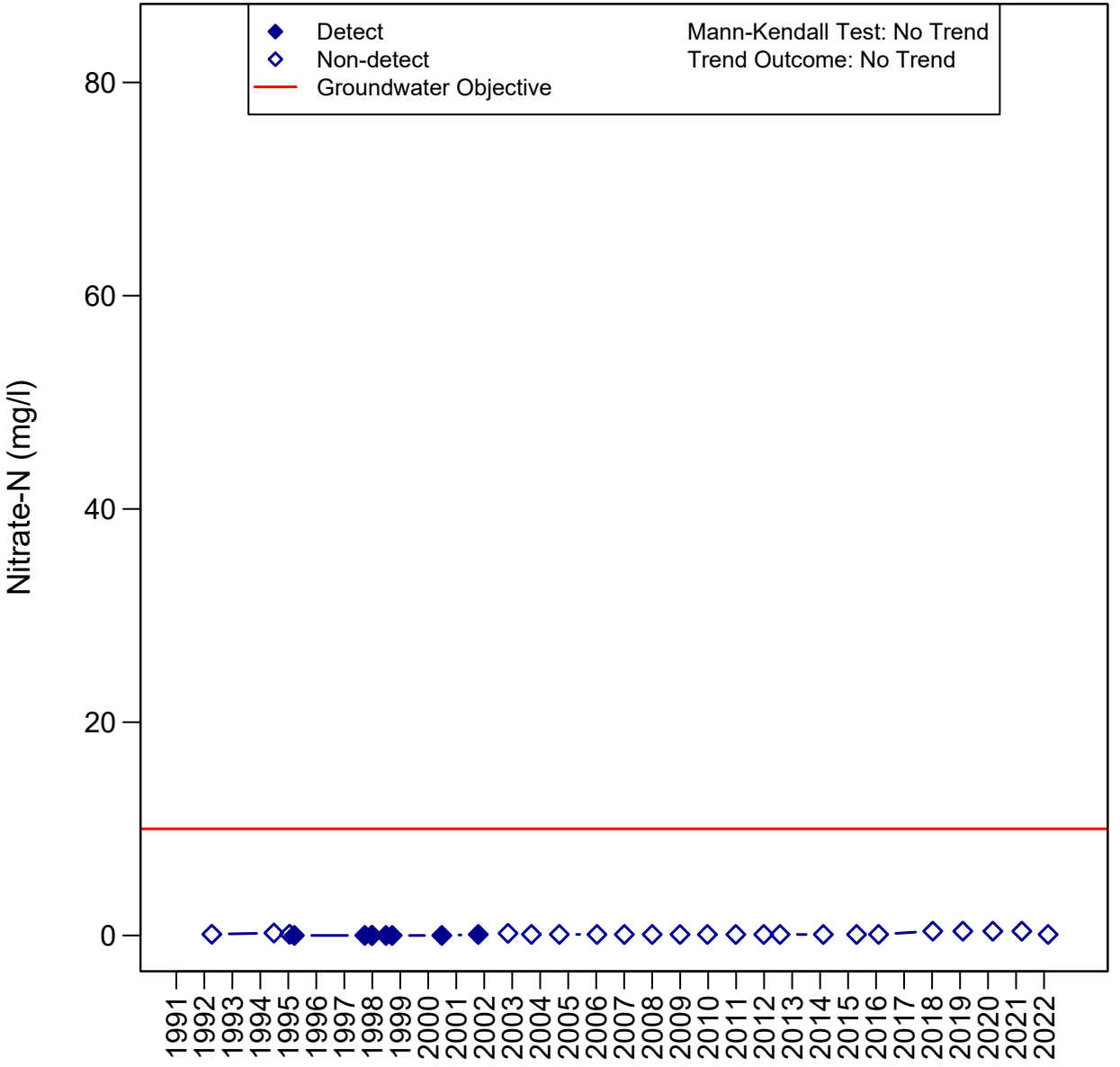
Oxnard Basin
02N22W14G07S - G07S



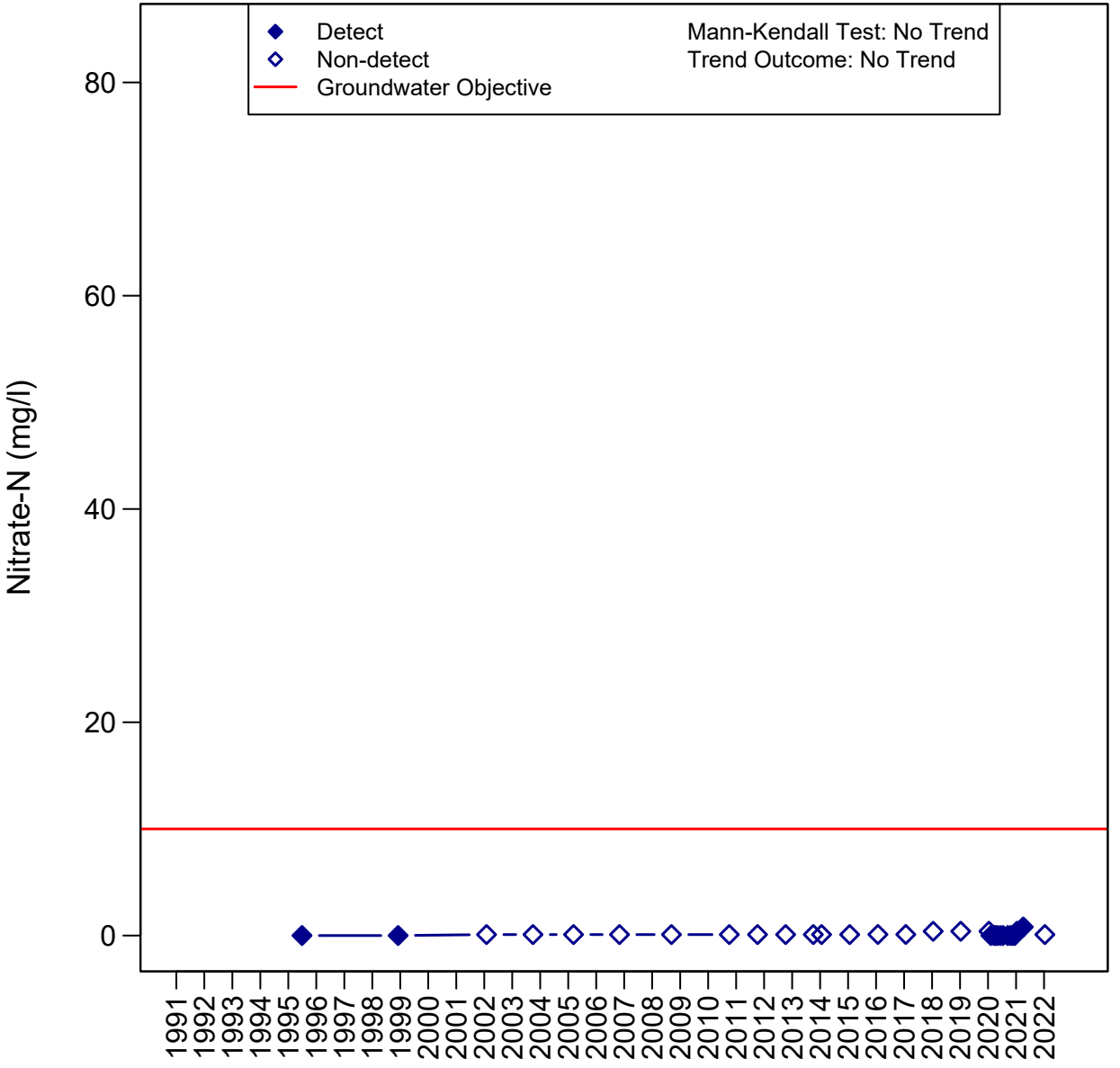
Oxnard Basin
01N21W19L10S - L10S



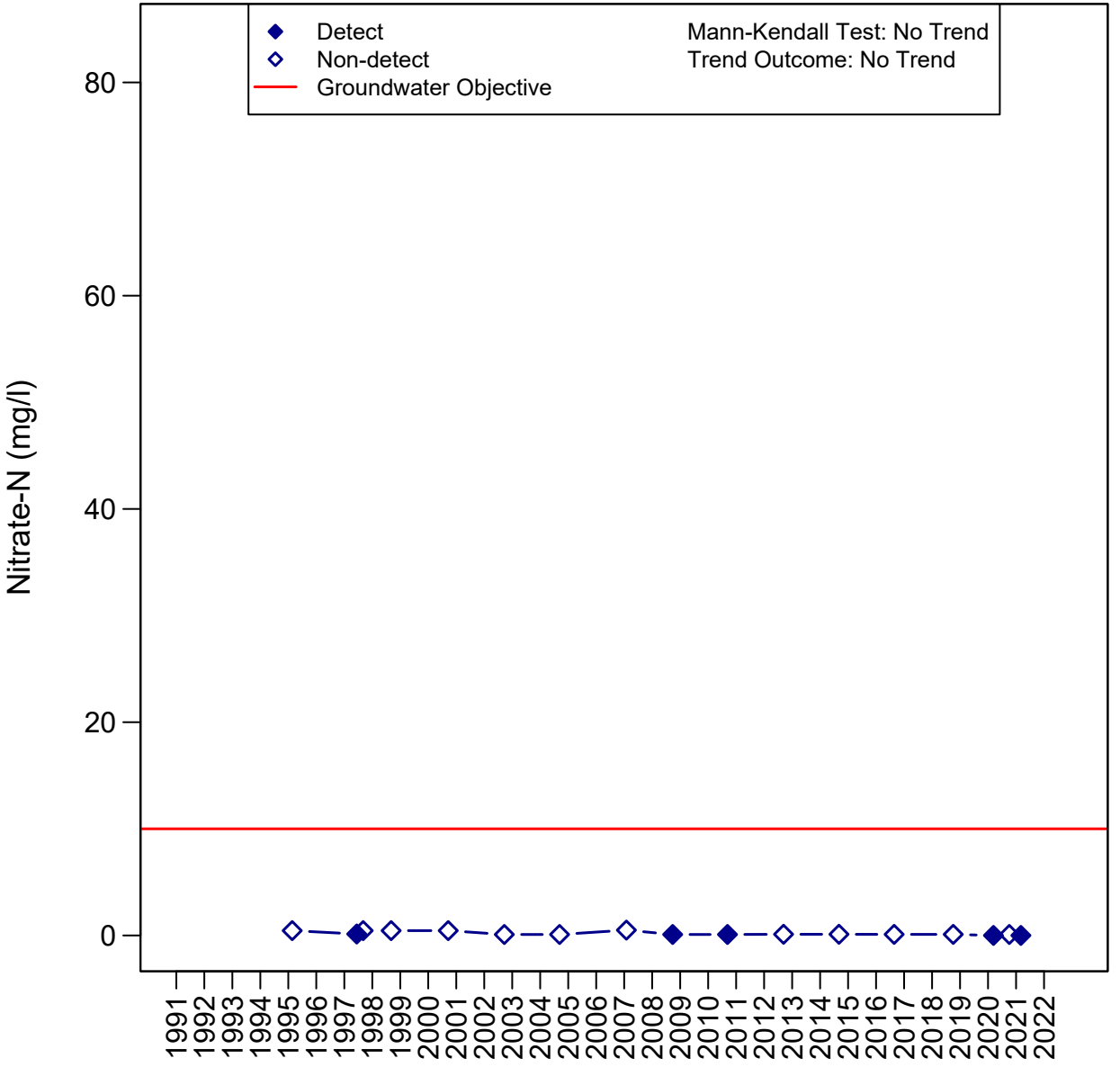
Oxnard Basin
01N22W17C03S - C03S



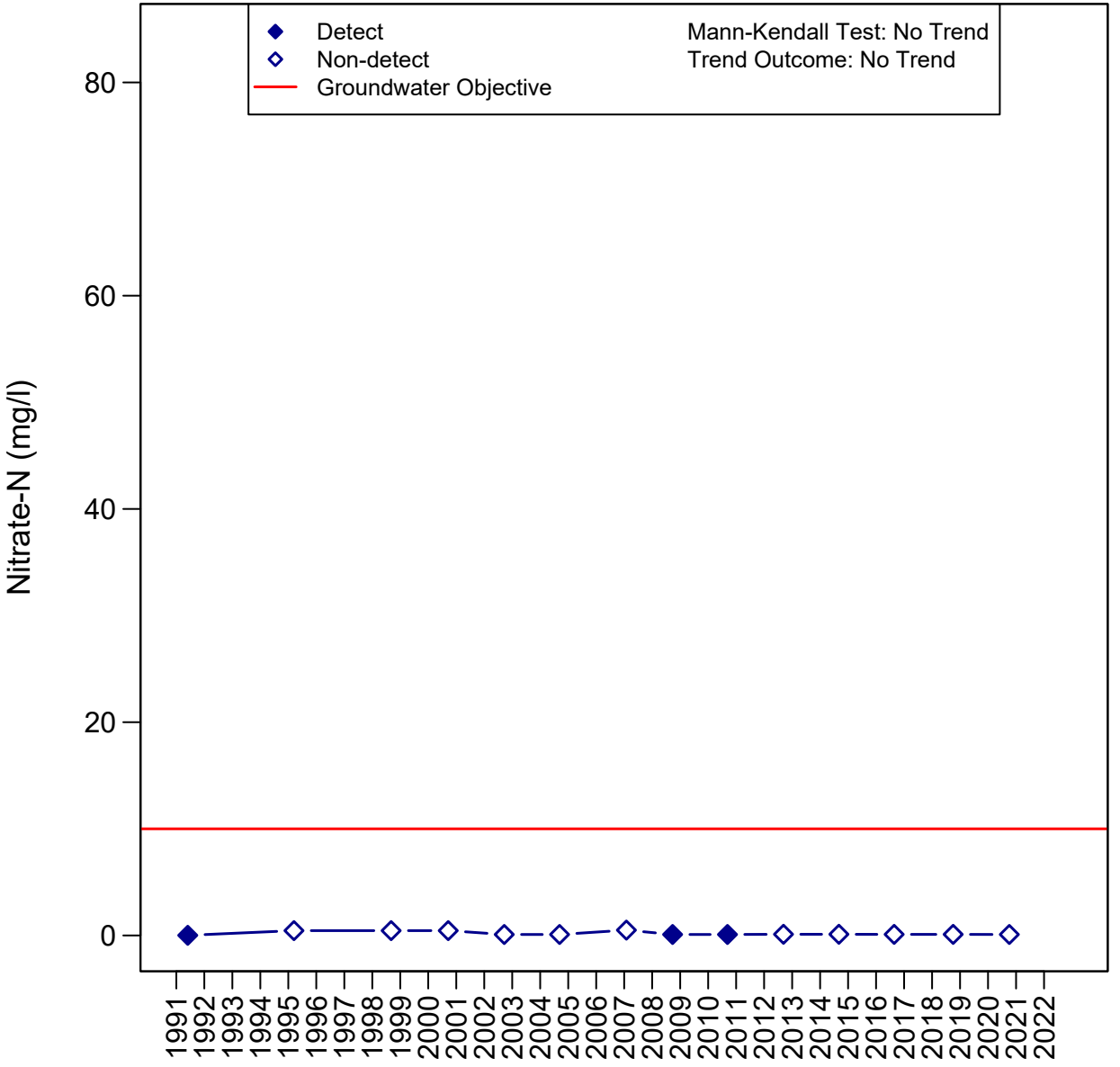
Oxnard Basin
01N21W19L08S - L08S



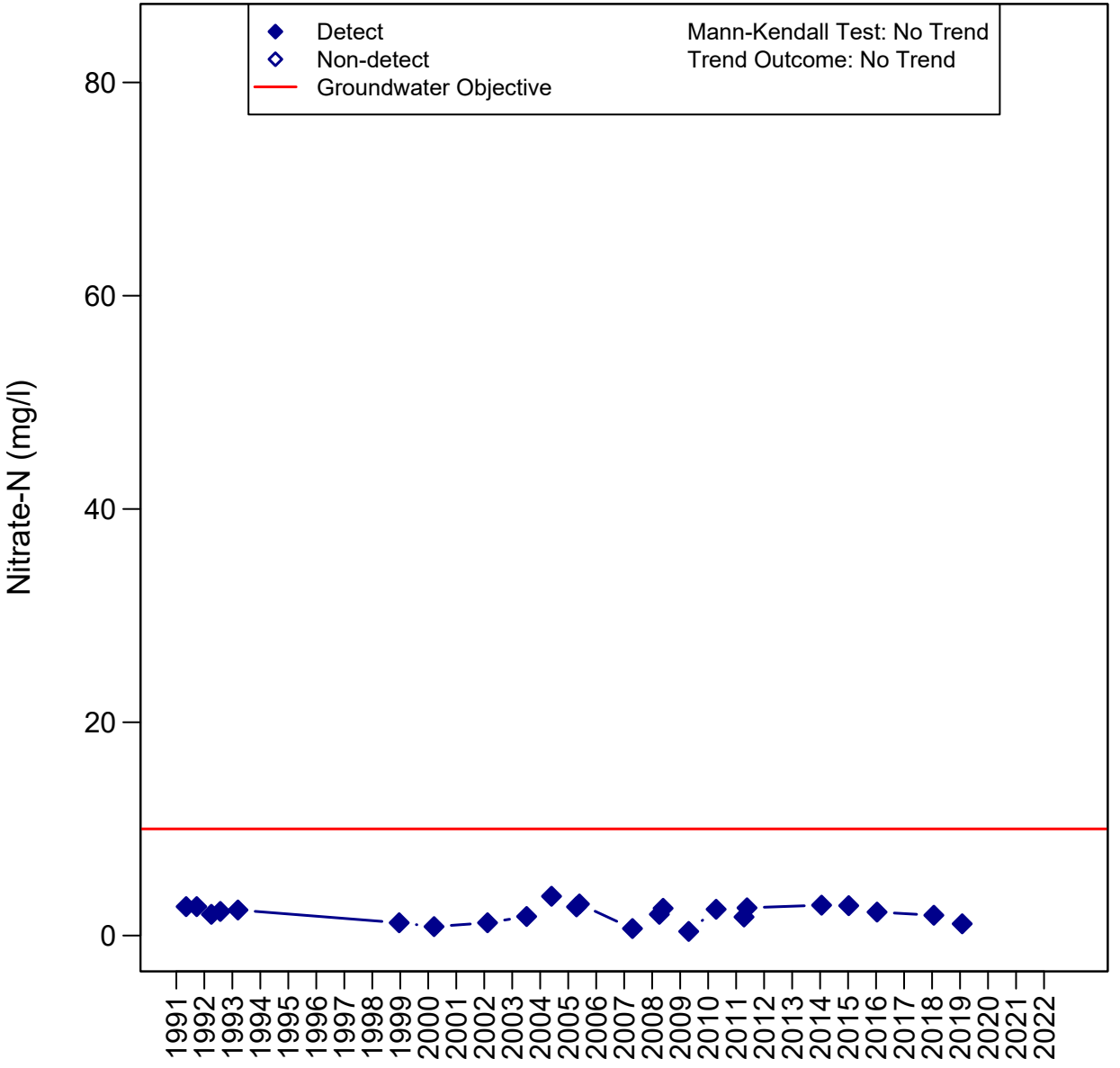
Oxnard Basin
01N22W20J06S - J06S



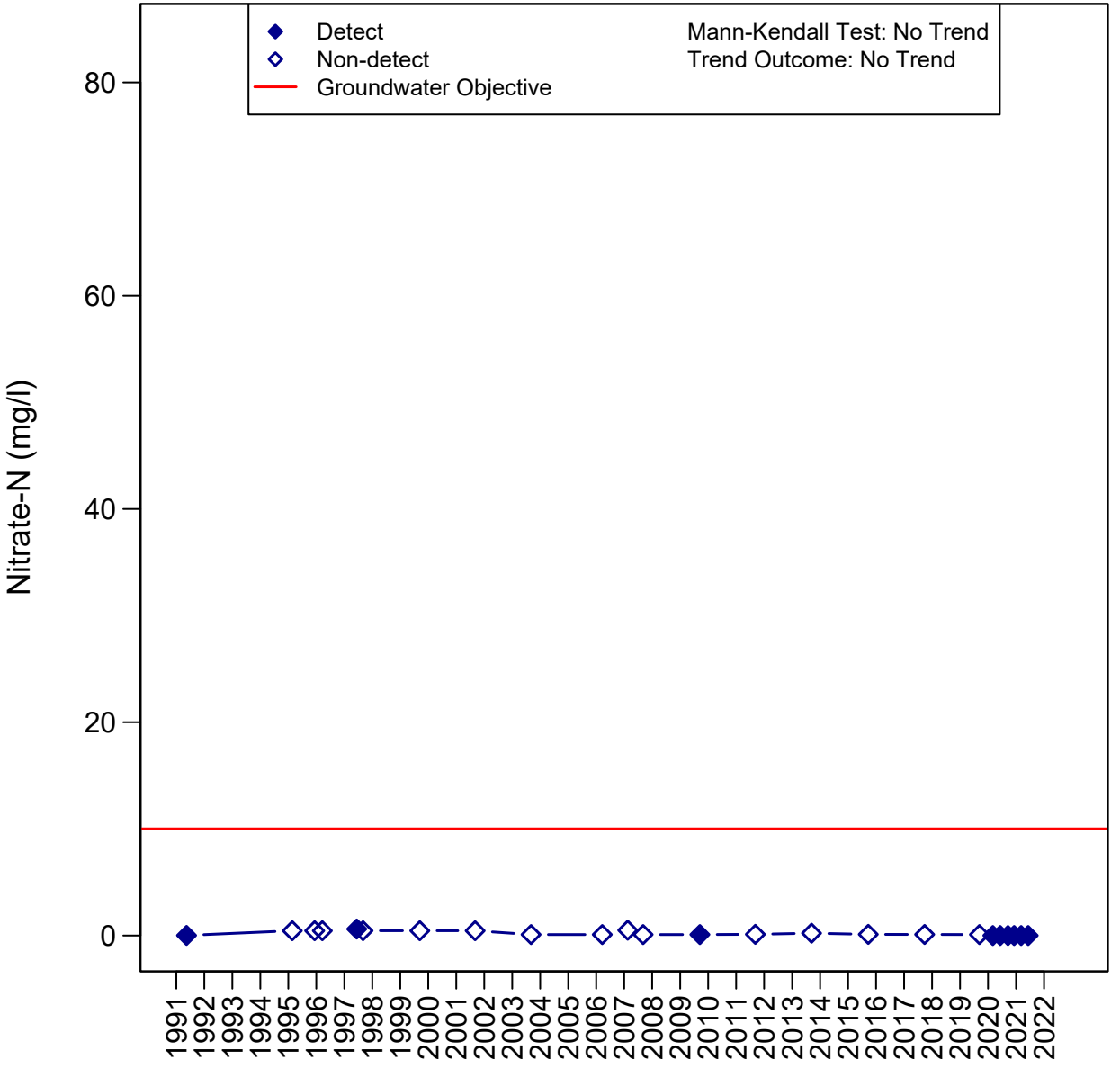
Oxnard Basin
01N22W20J04S - J04S



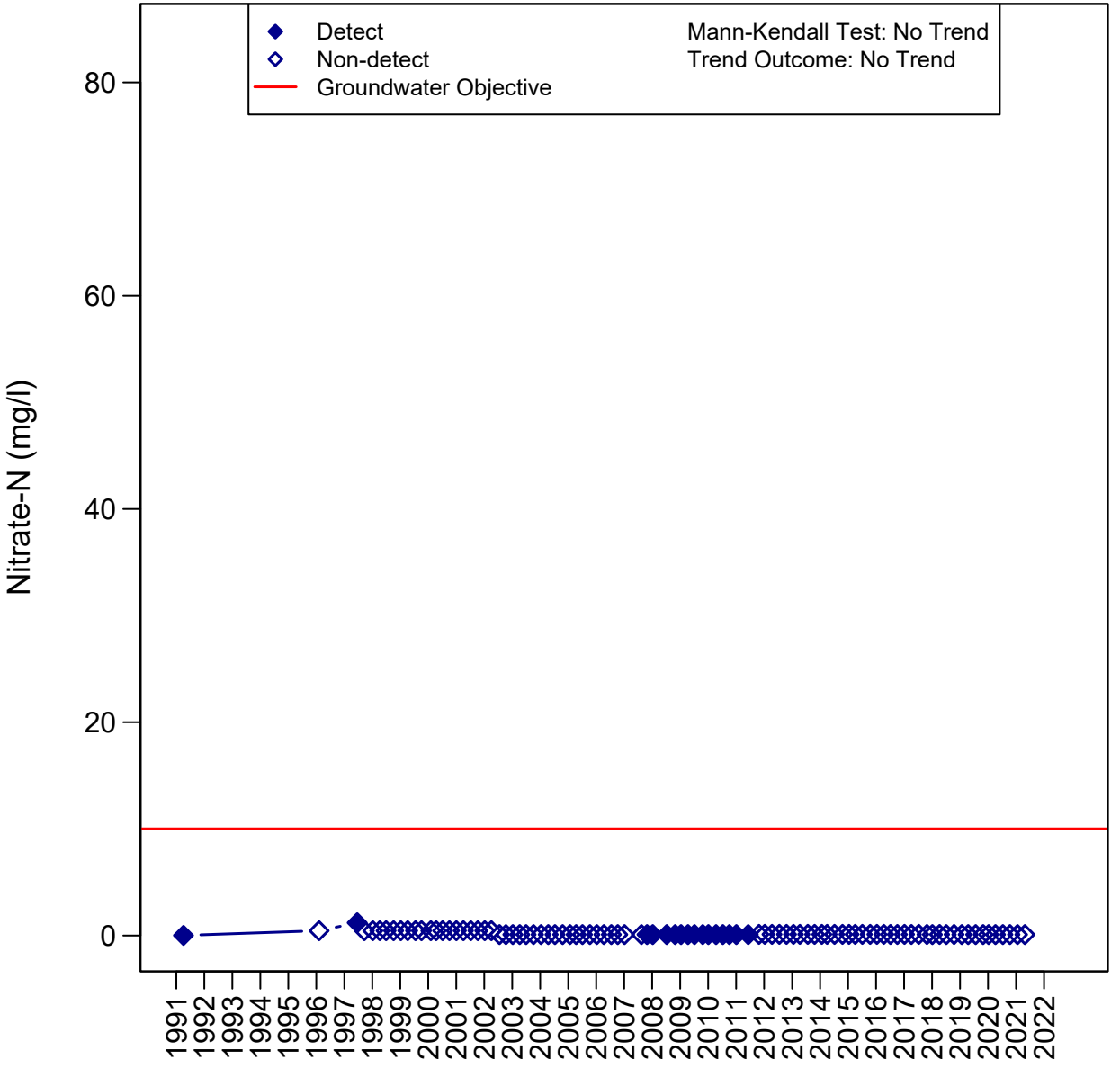
Oxnard Basin
02N22W14L06S - L06S



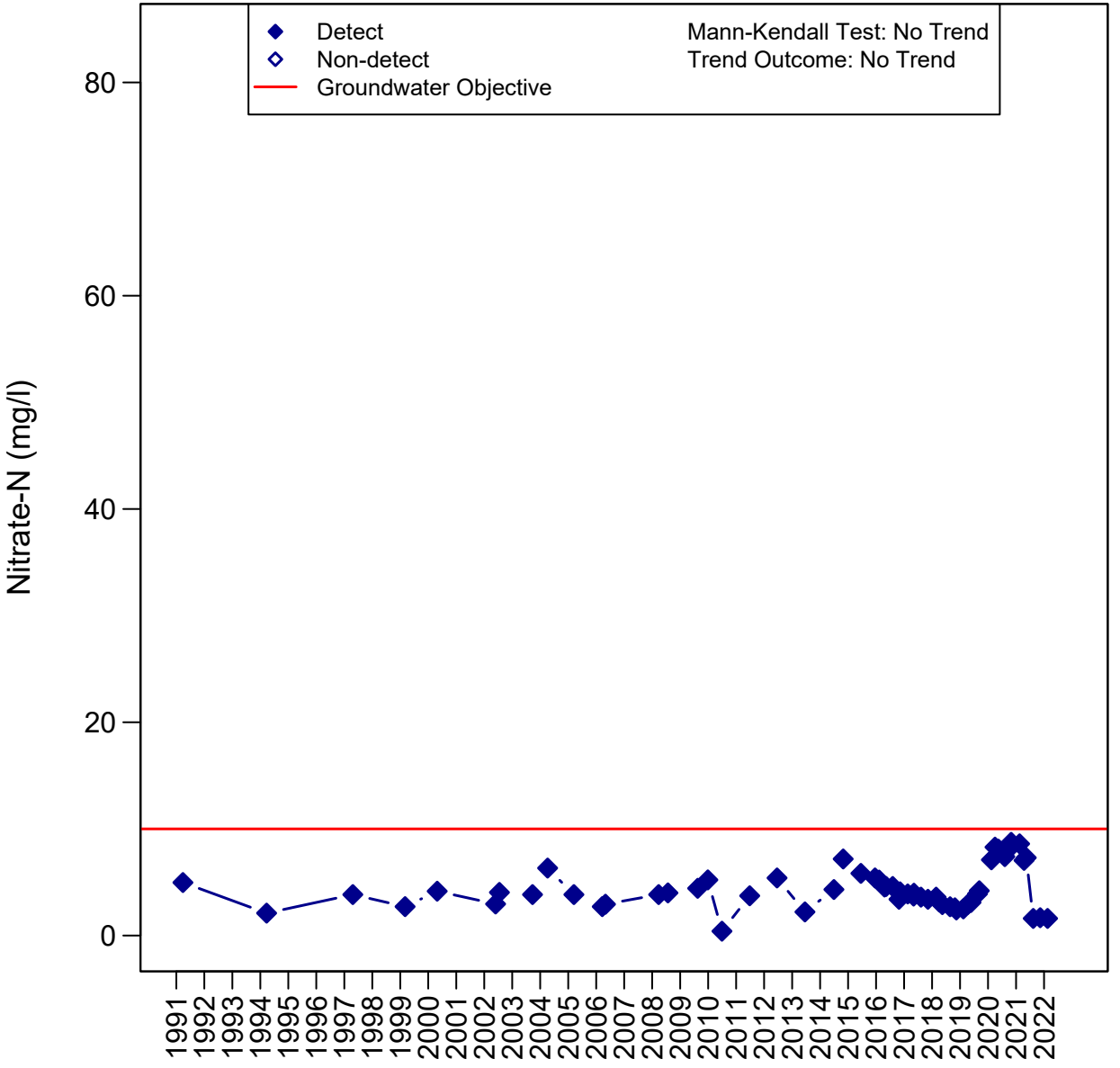
Oxnard Basin
01N22W28G05S - G05S

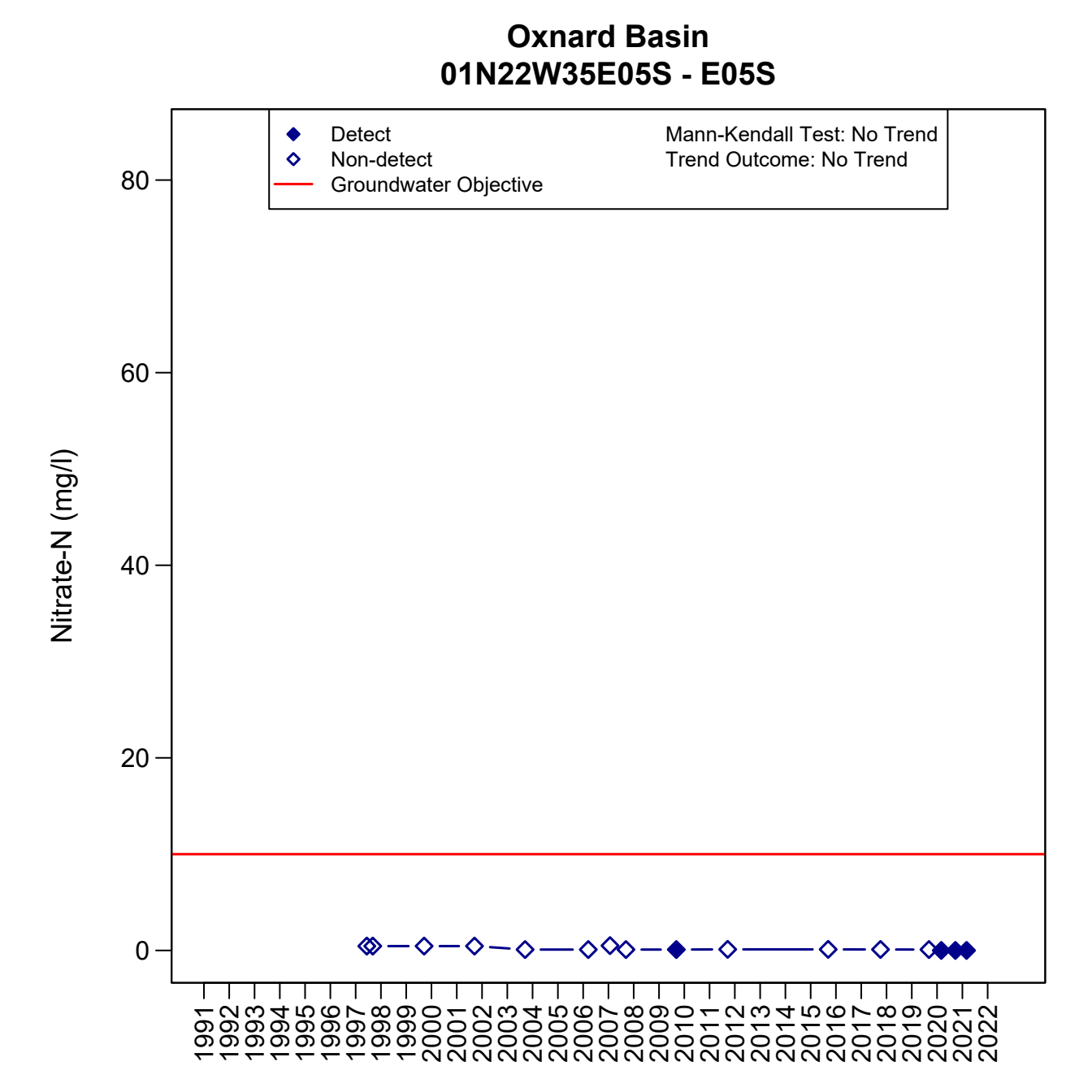


Oxnard Basin
02N21W07L05S - L05S



Oxnard Basin
02N22W27L01S - L01S




Oxnard Basin
01N22W35E05S - E05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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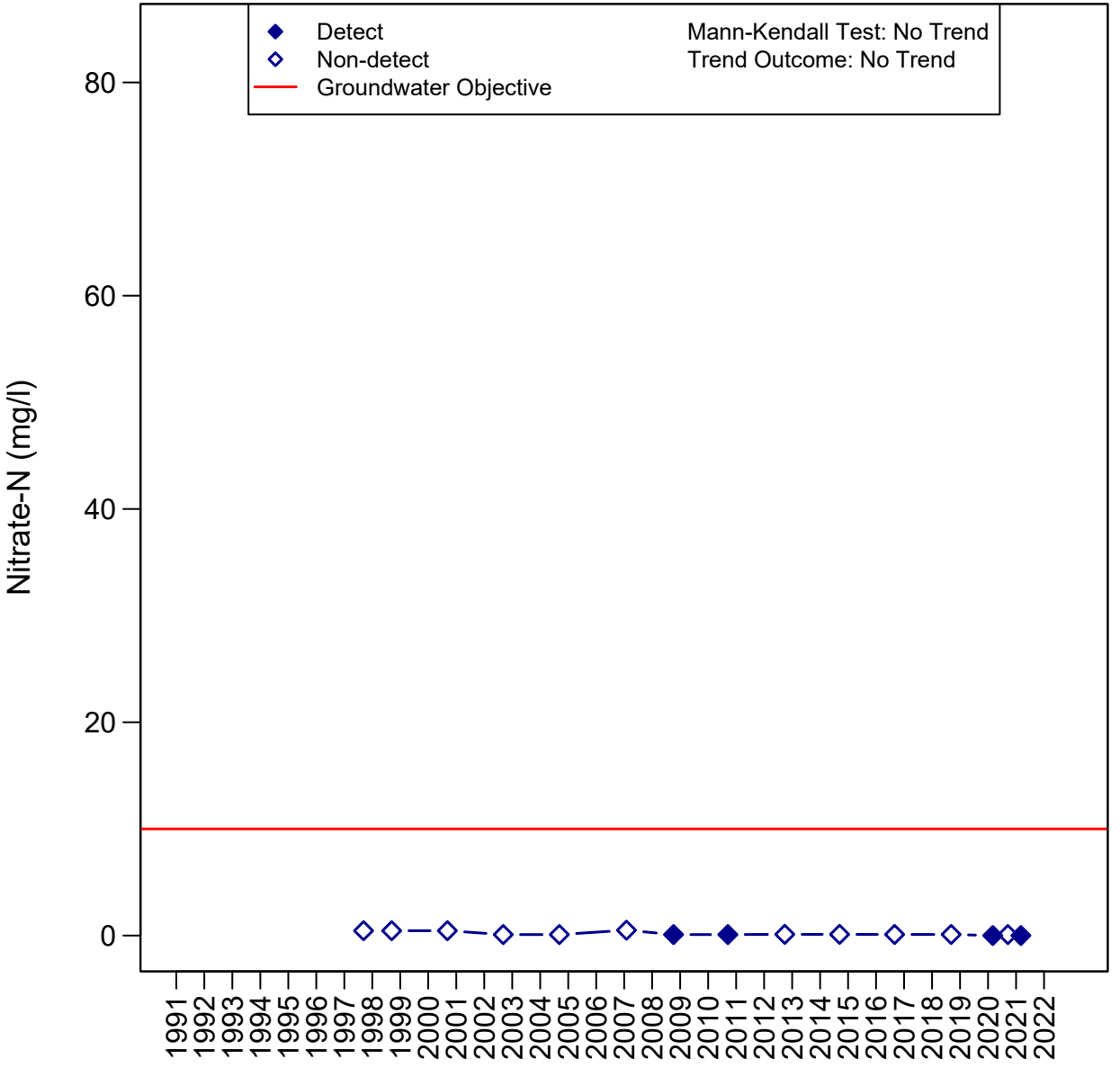
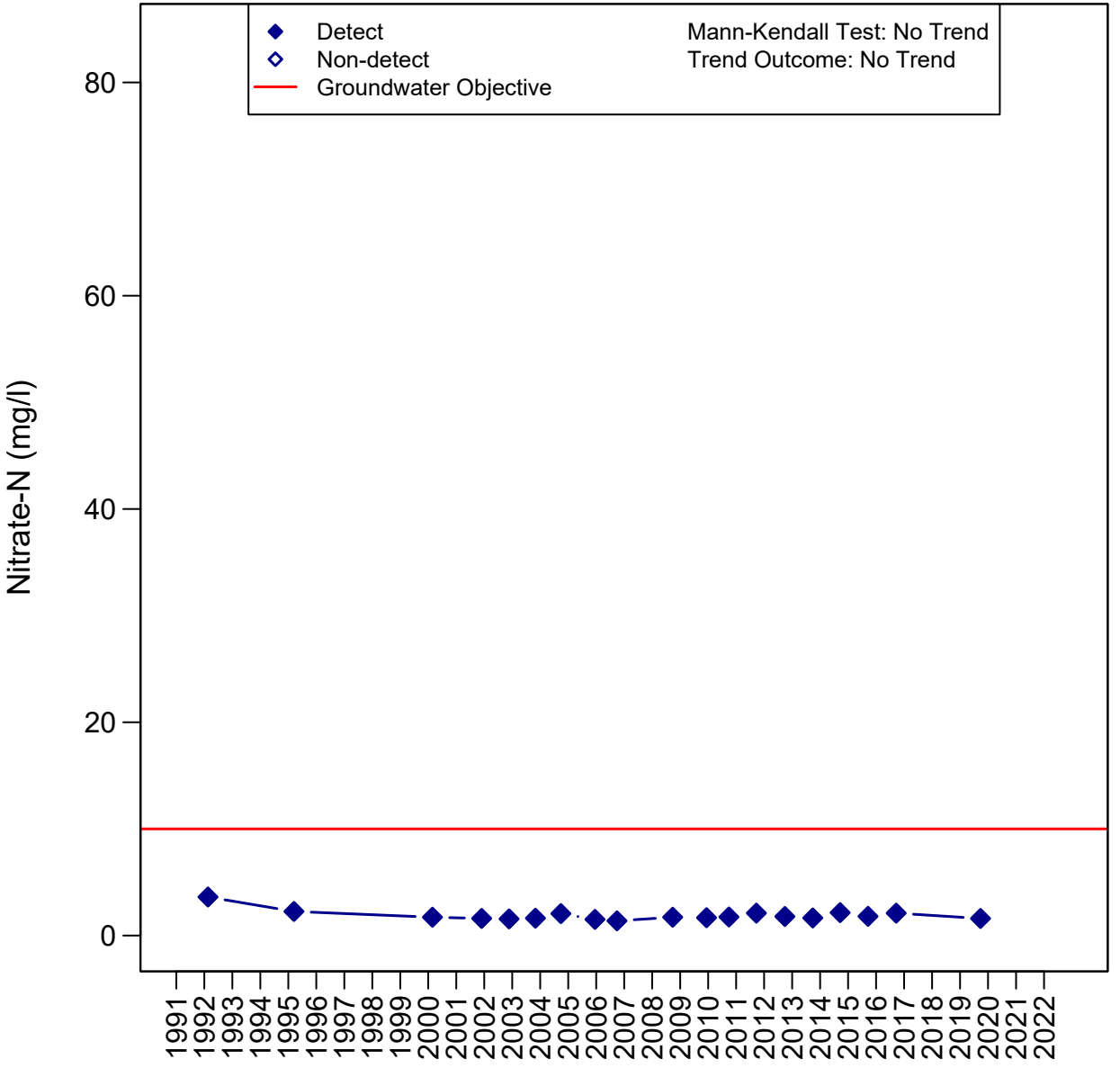
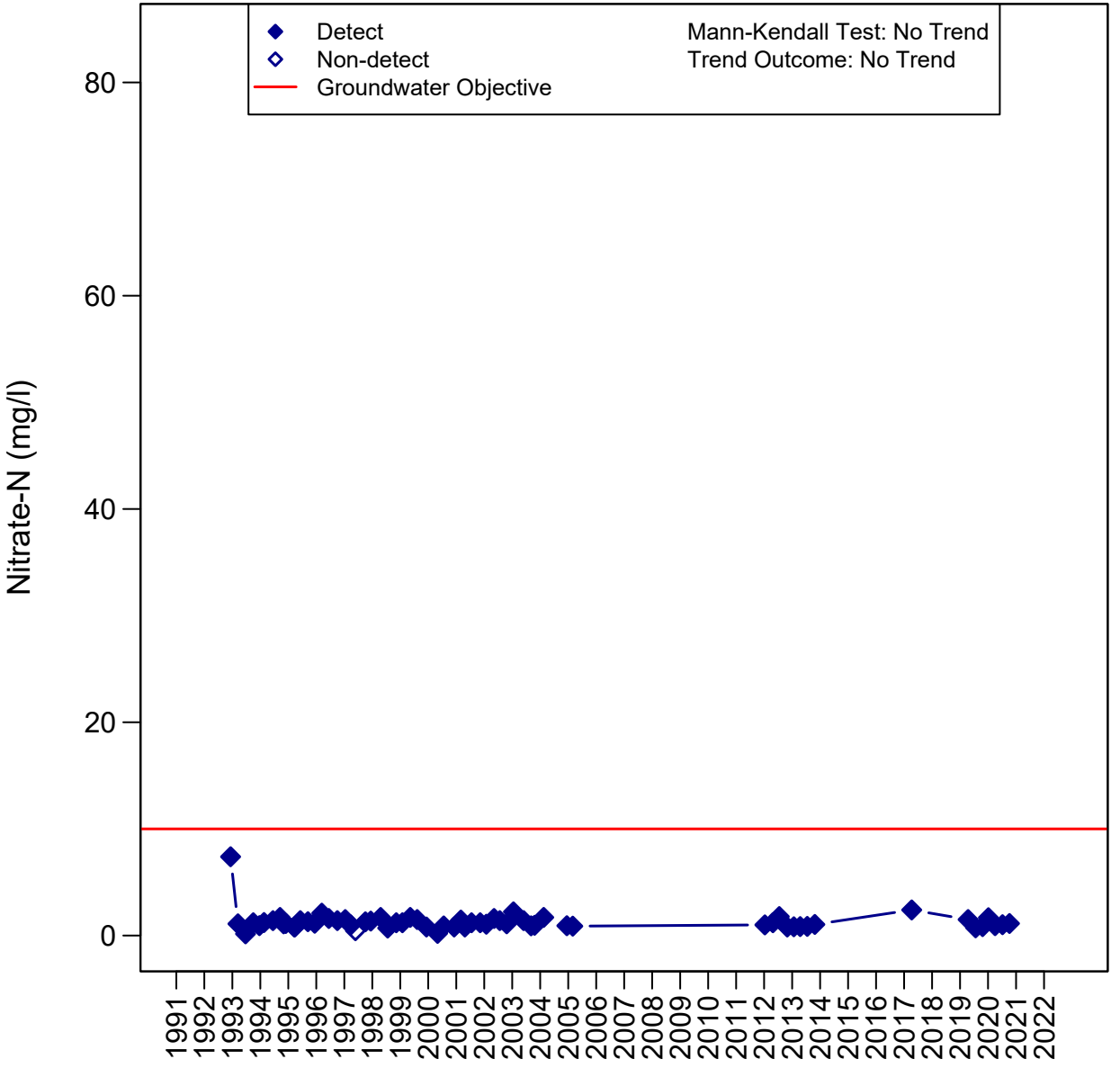
Oxnard Basin
01N23W01C04S - C04S

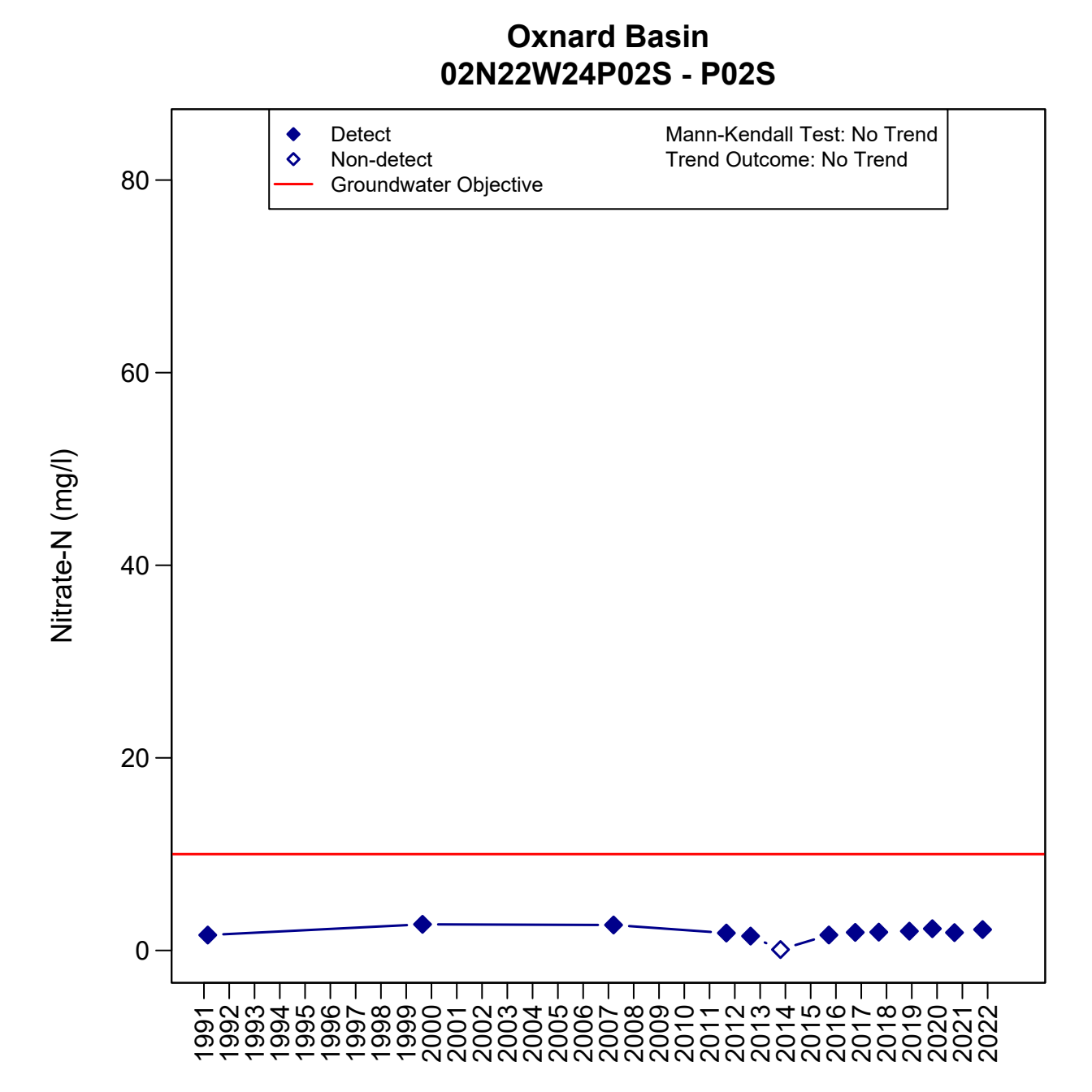


Oxnard Basin
02N22W14H01S - H01S



Oxnard Basin
02N22W12R04S - R04S




Oxnard Basin
02N22W24P02S - P02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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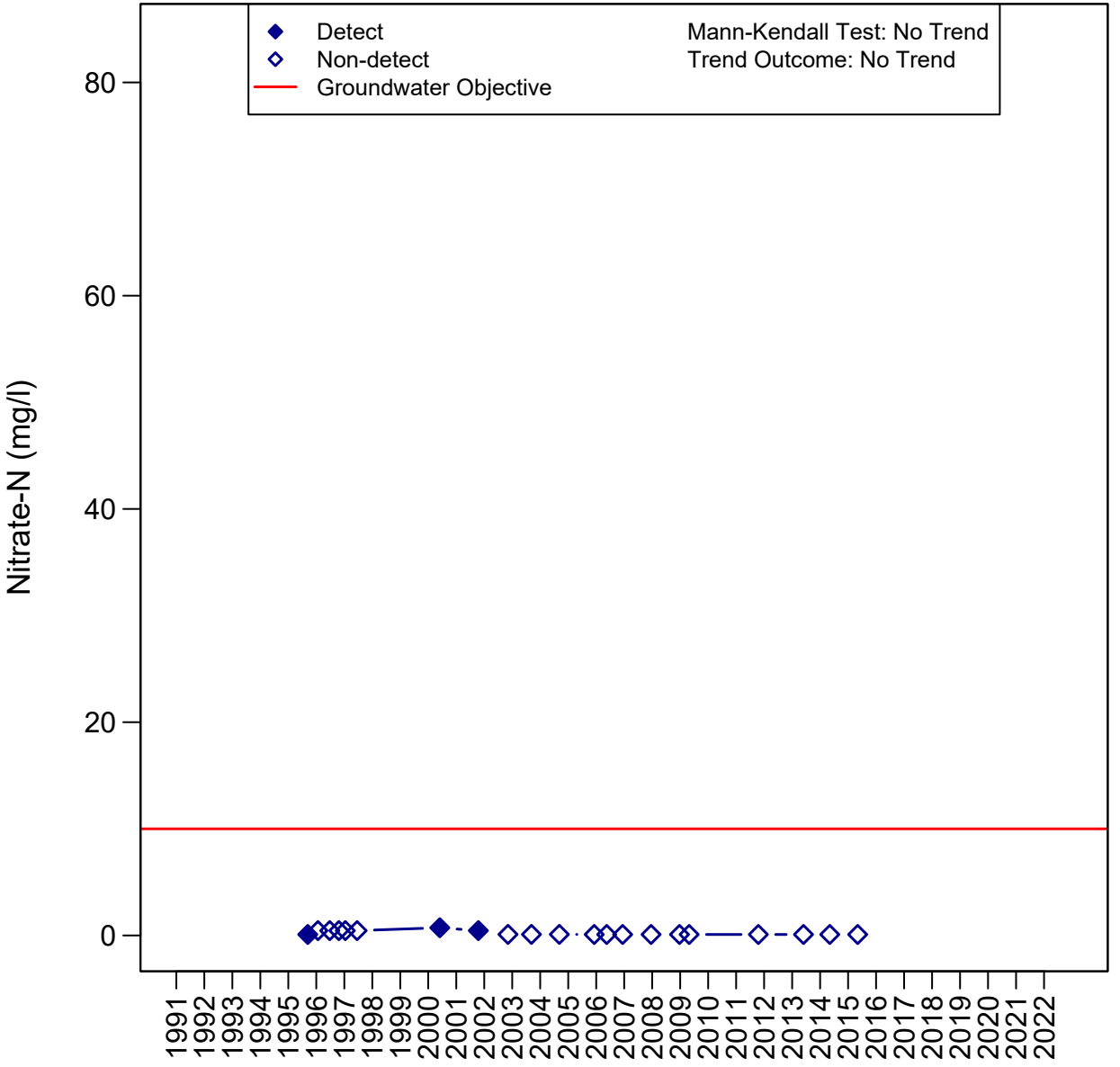
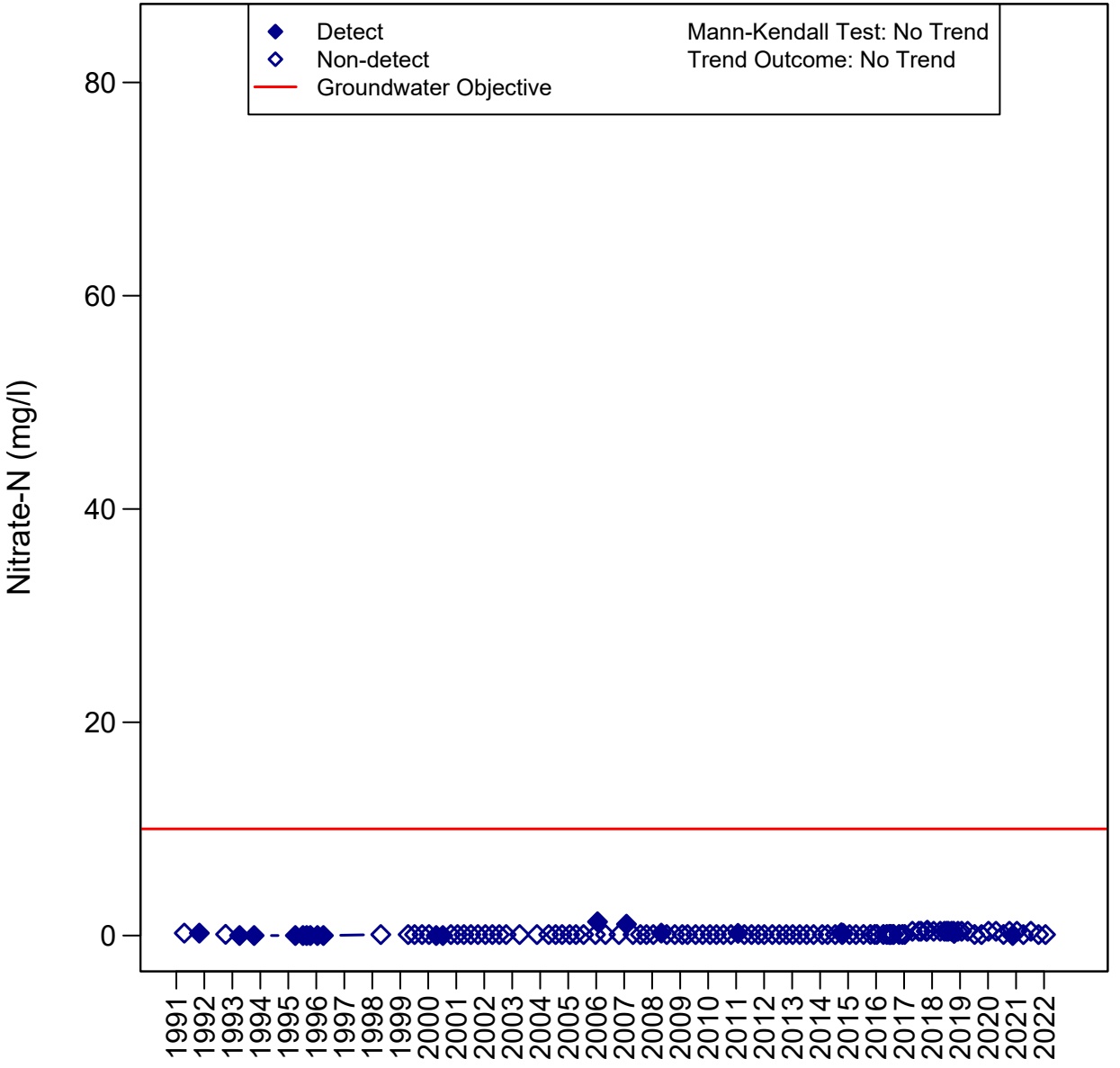
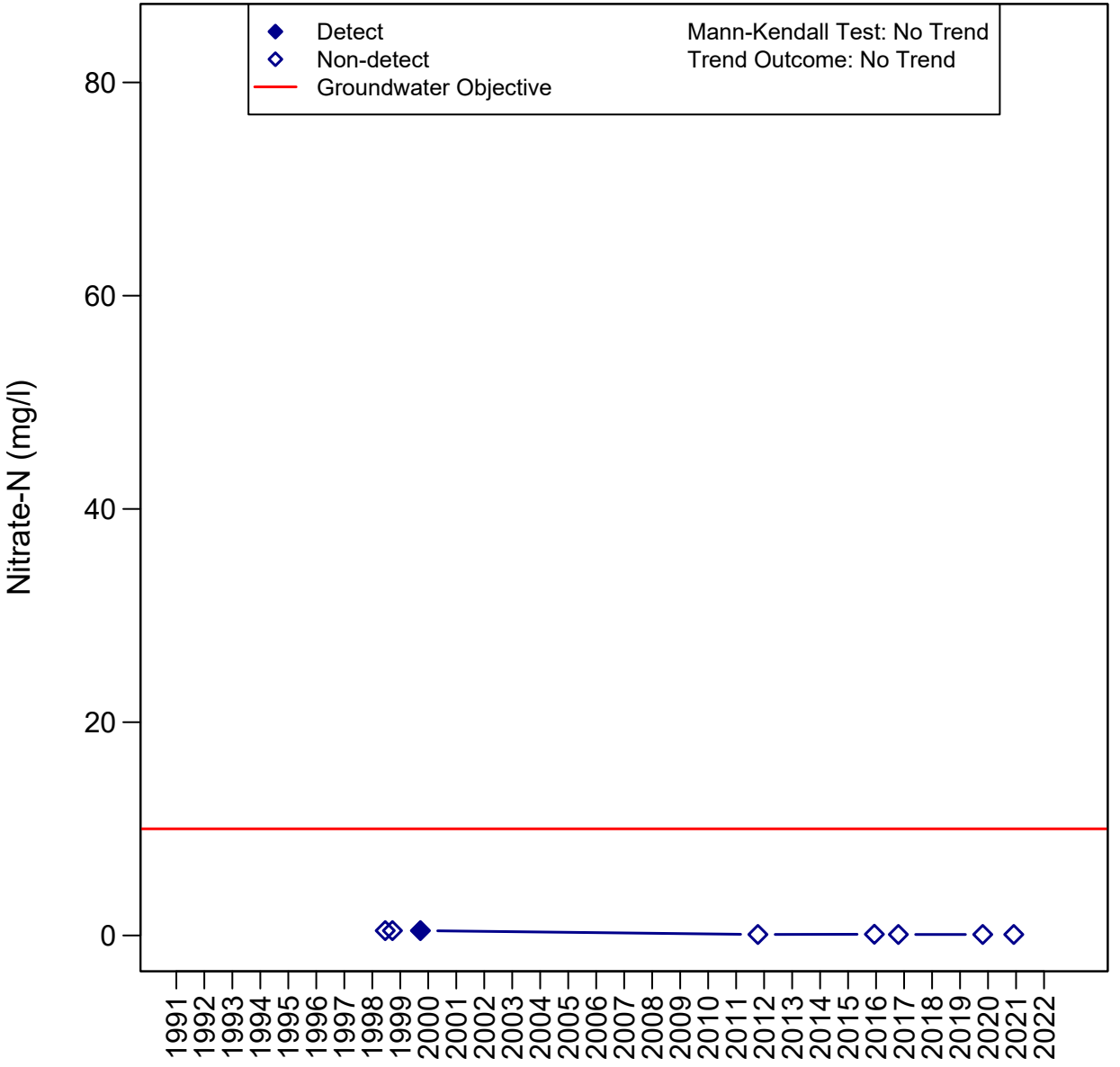
Oxnard Basin
01N21W32C01S - C01S



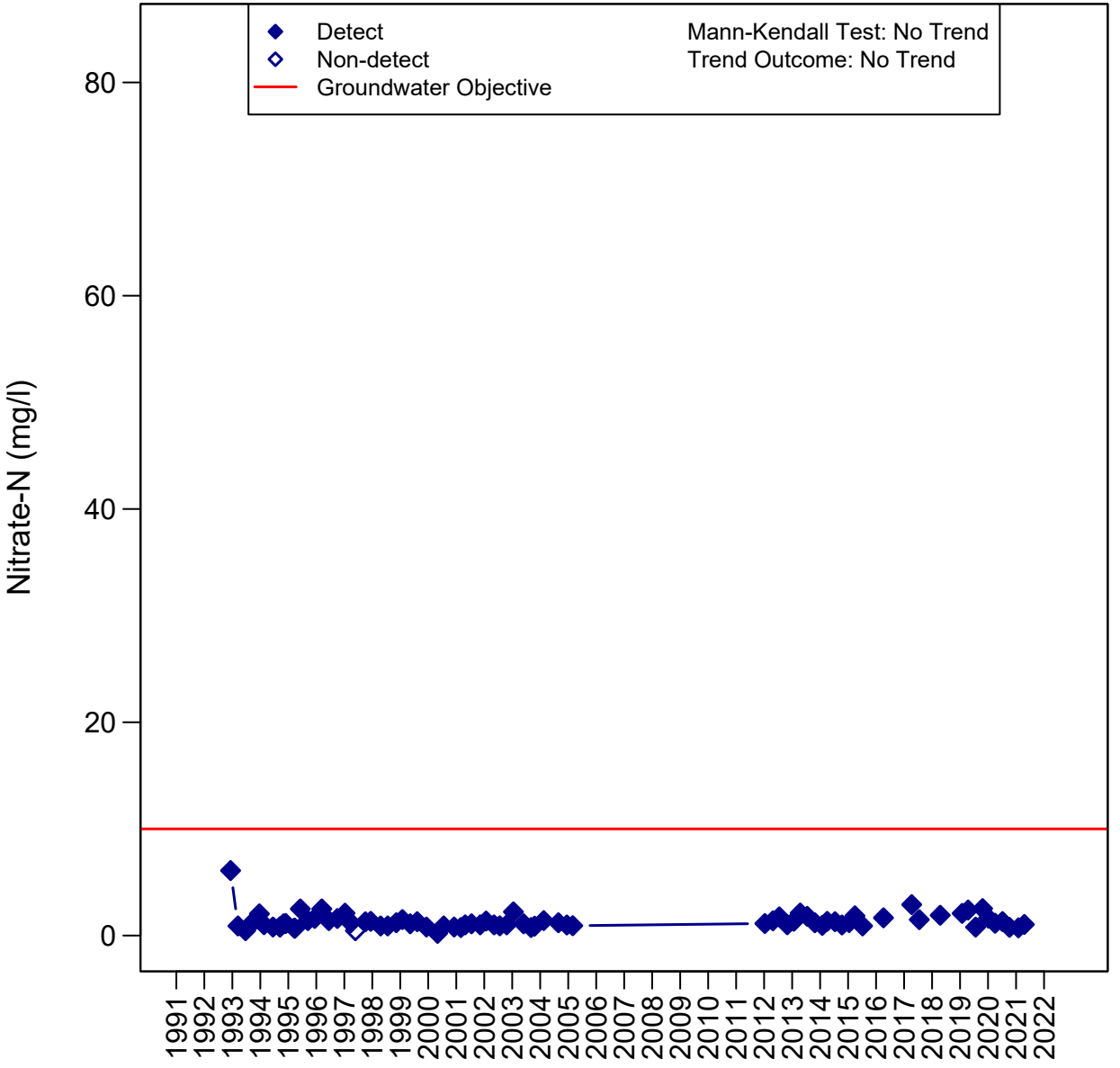
Oxnard Basin
02N22W13N02S - N02S



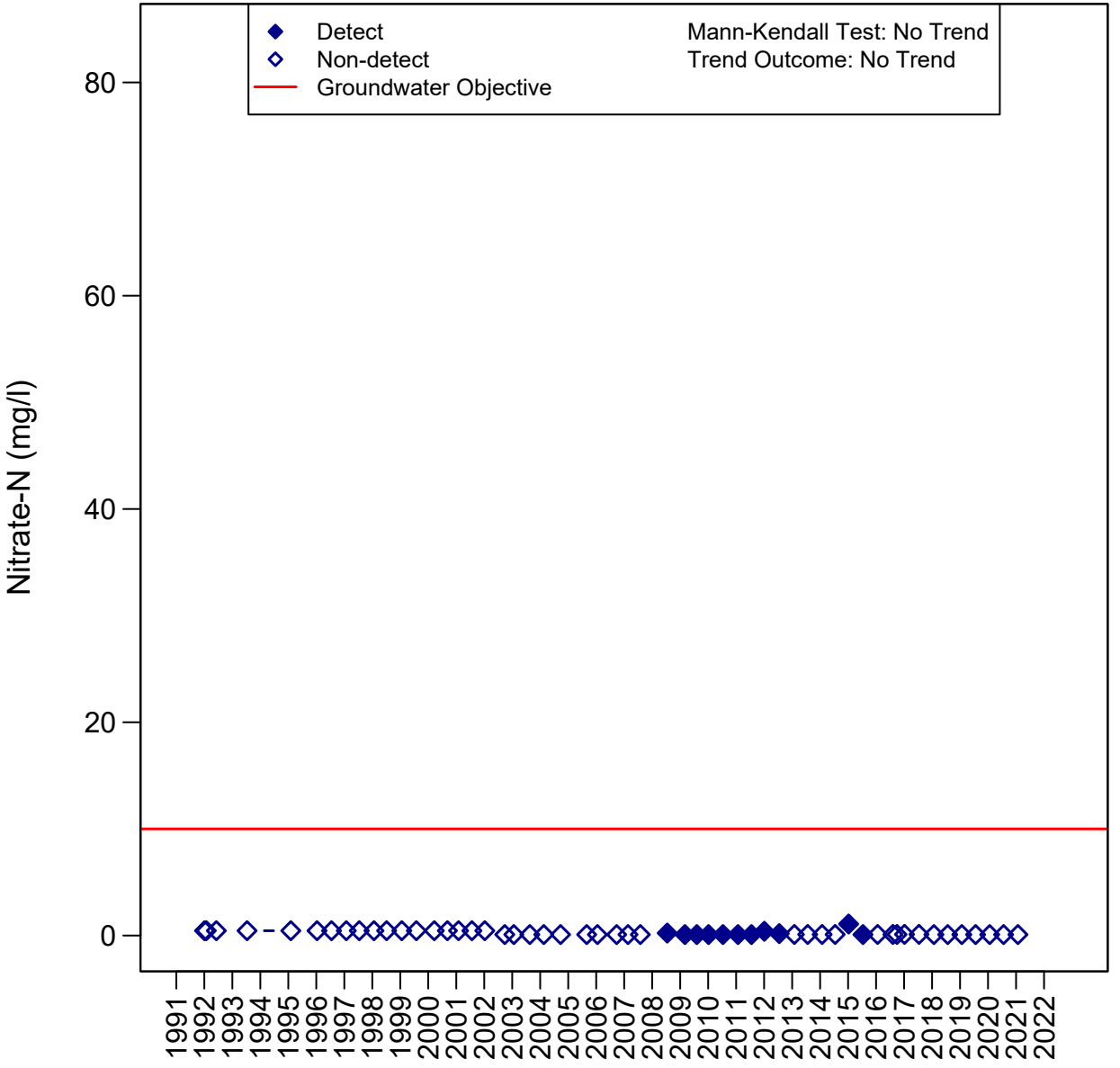
Oxnard Basin
01N22W12N03S - N03S



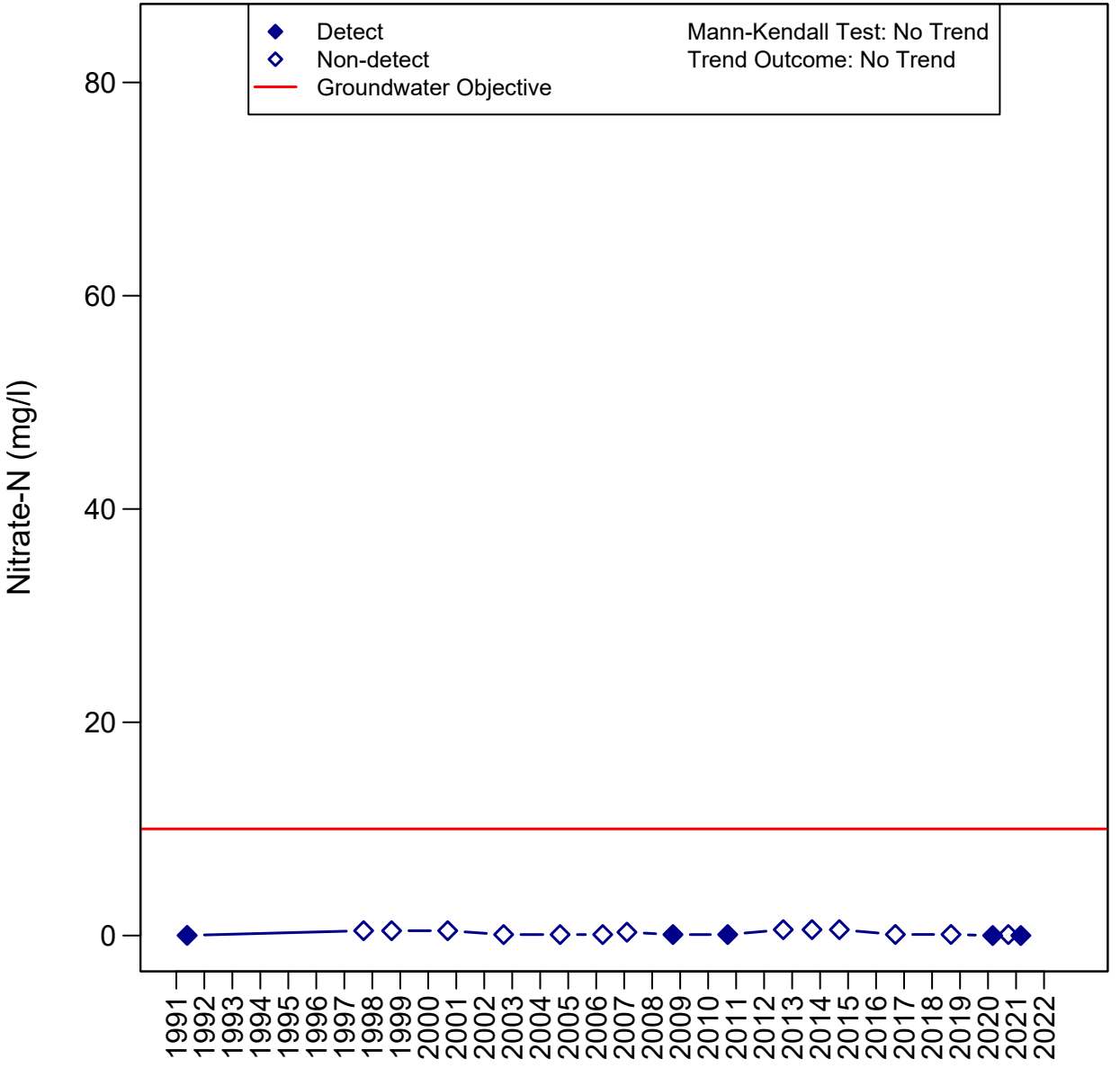
Oxnard Basin
02N22W12J02S - J02S

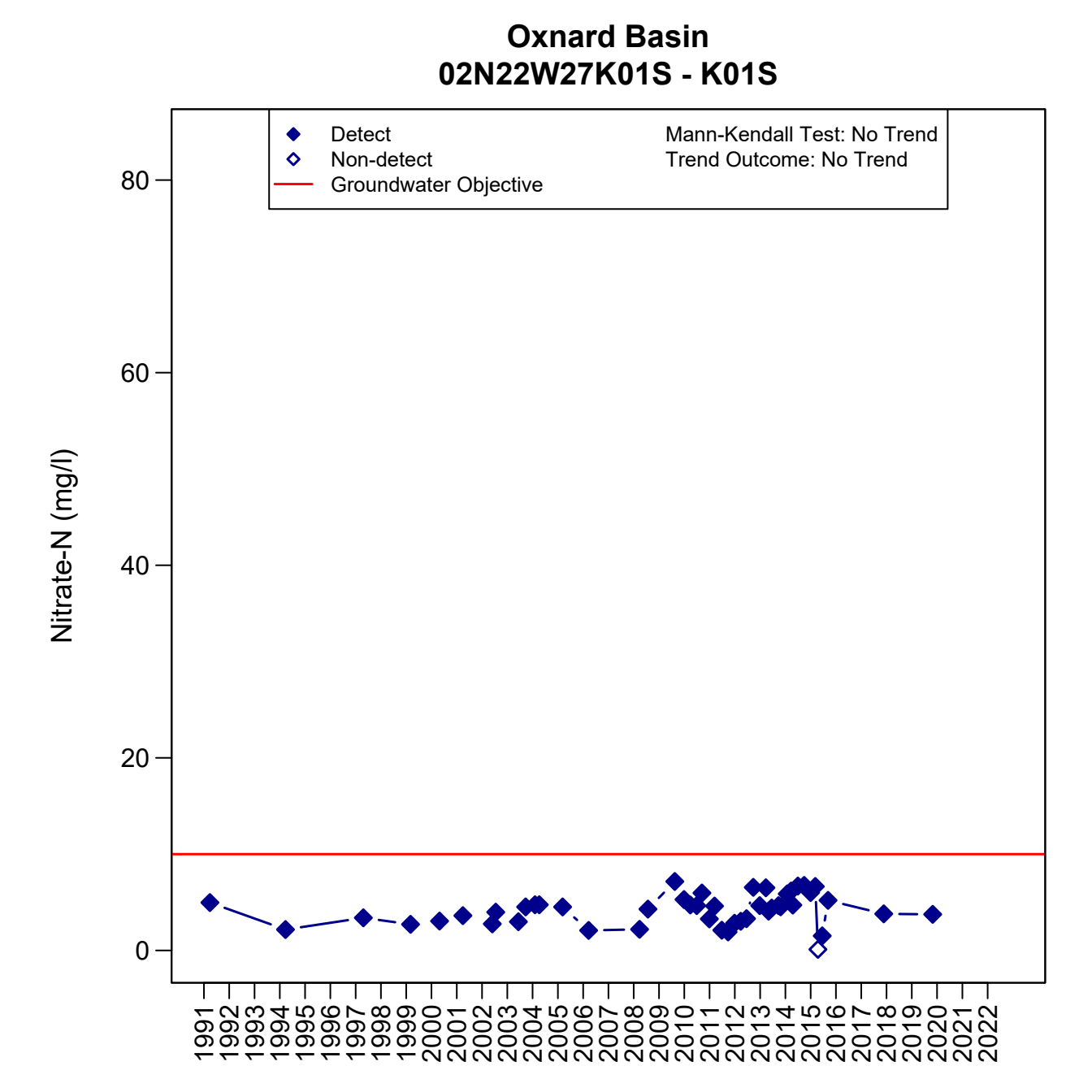


Oxnard Basin
01N22W13D03S - D03S



Oxnard Basin
01N22W36K07S - K07S




Oxnard Basin
02N22W27K01S - K01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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1991
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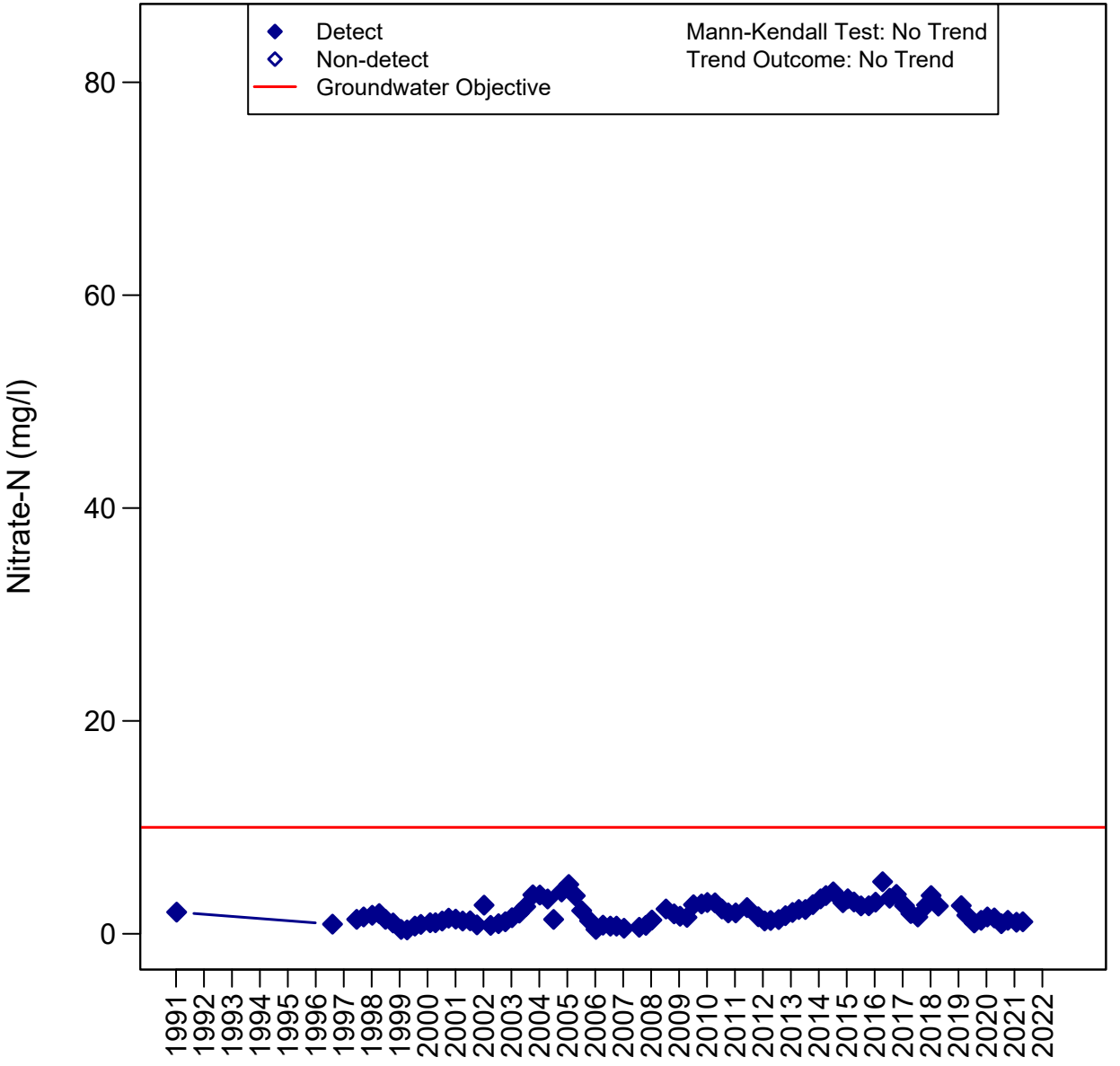
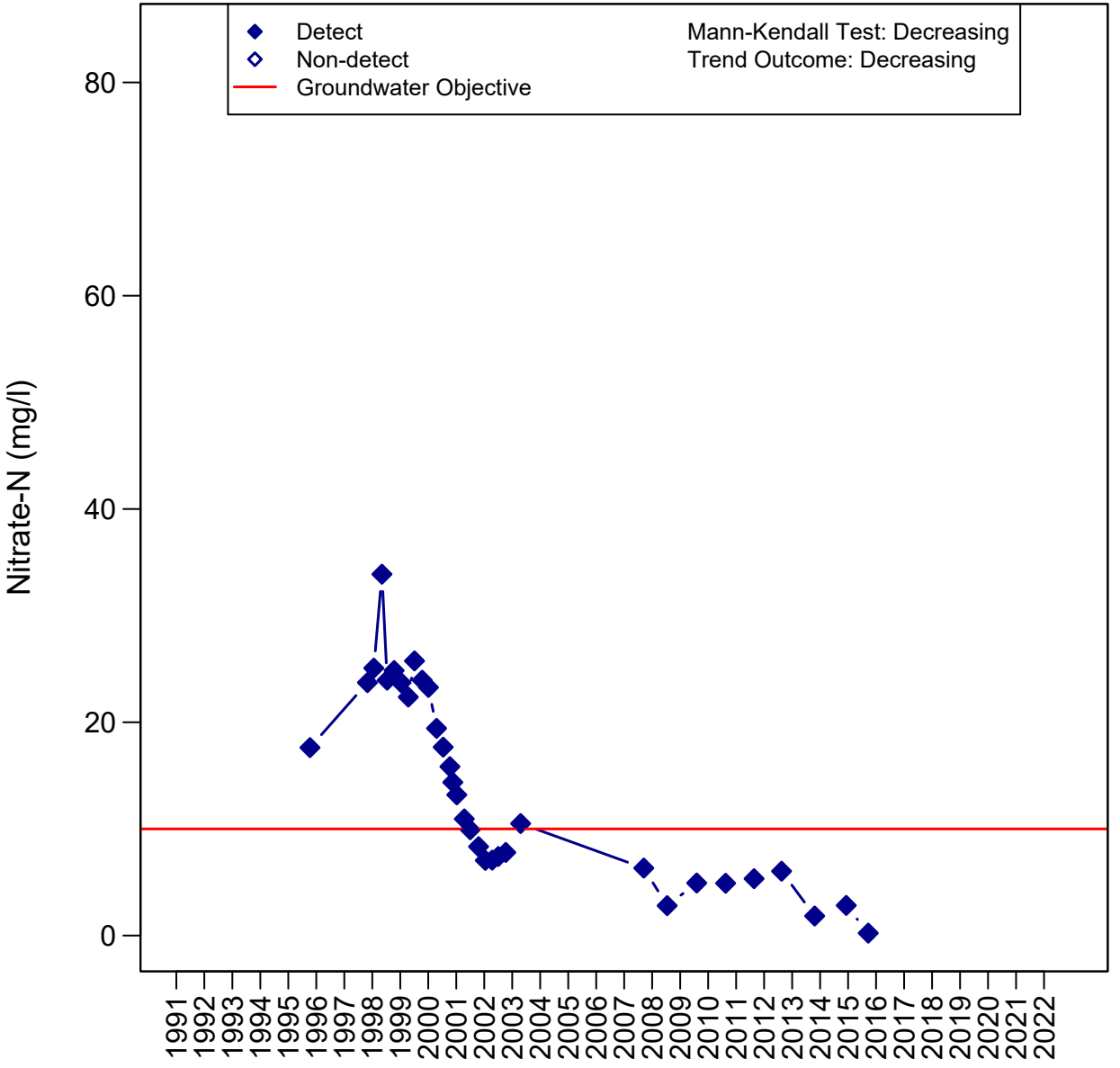
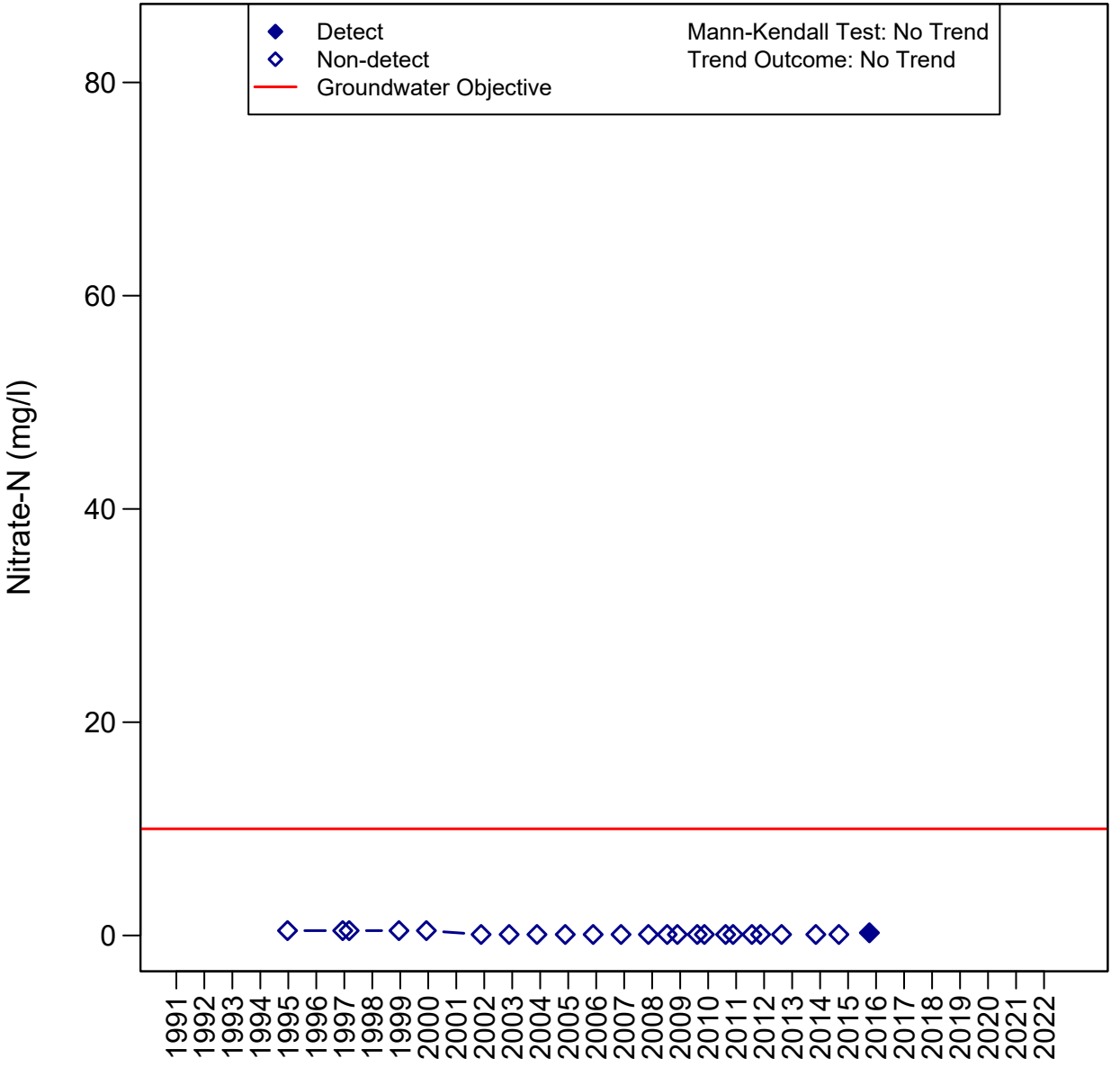
Oxnard Basin
02N22W14G06S - G06S



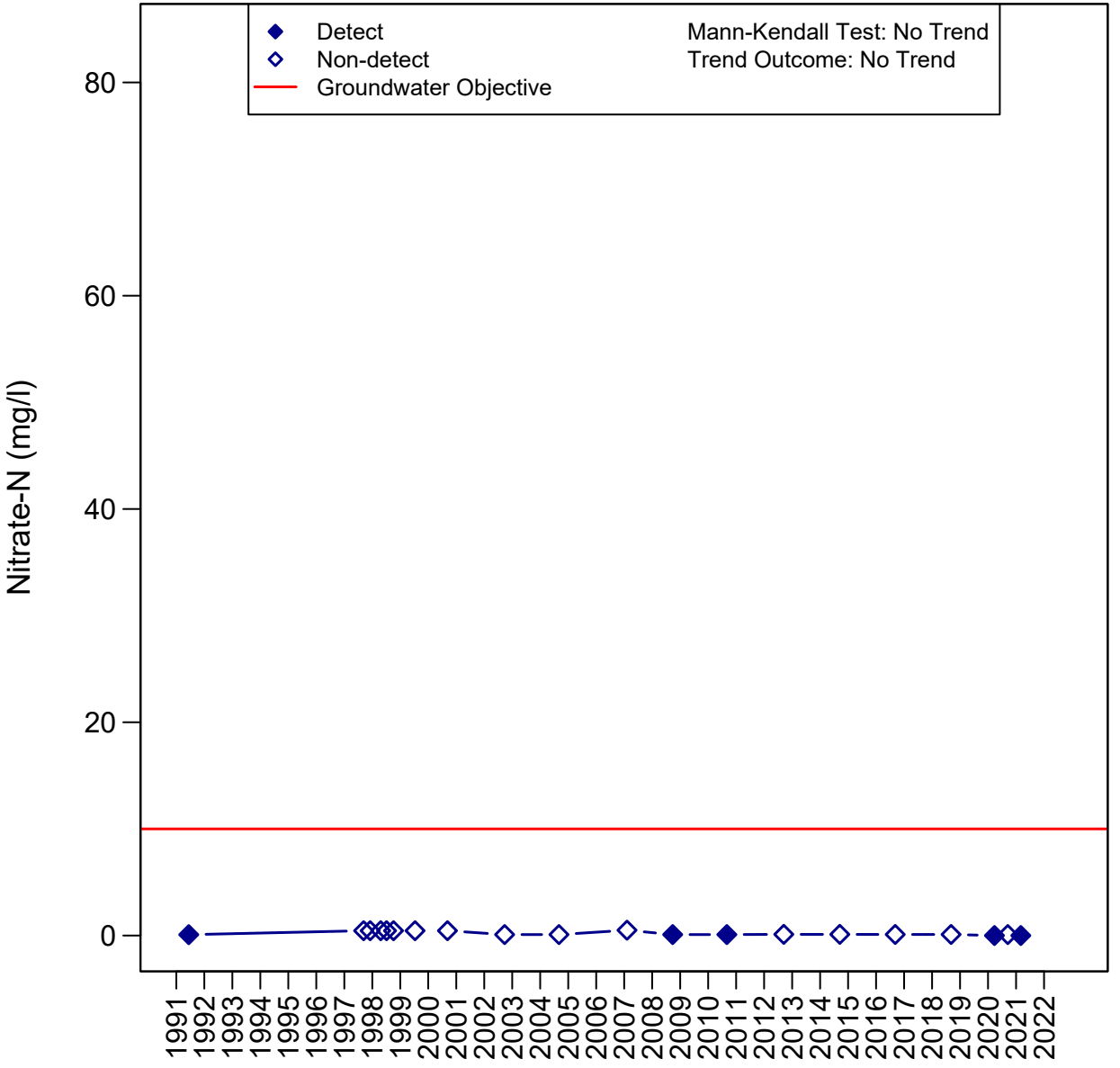
Oxnard Basin
02N22W25F01S - F01S



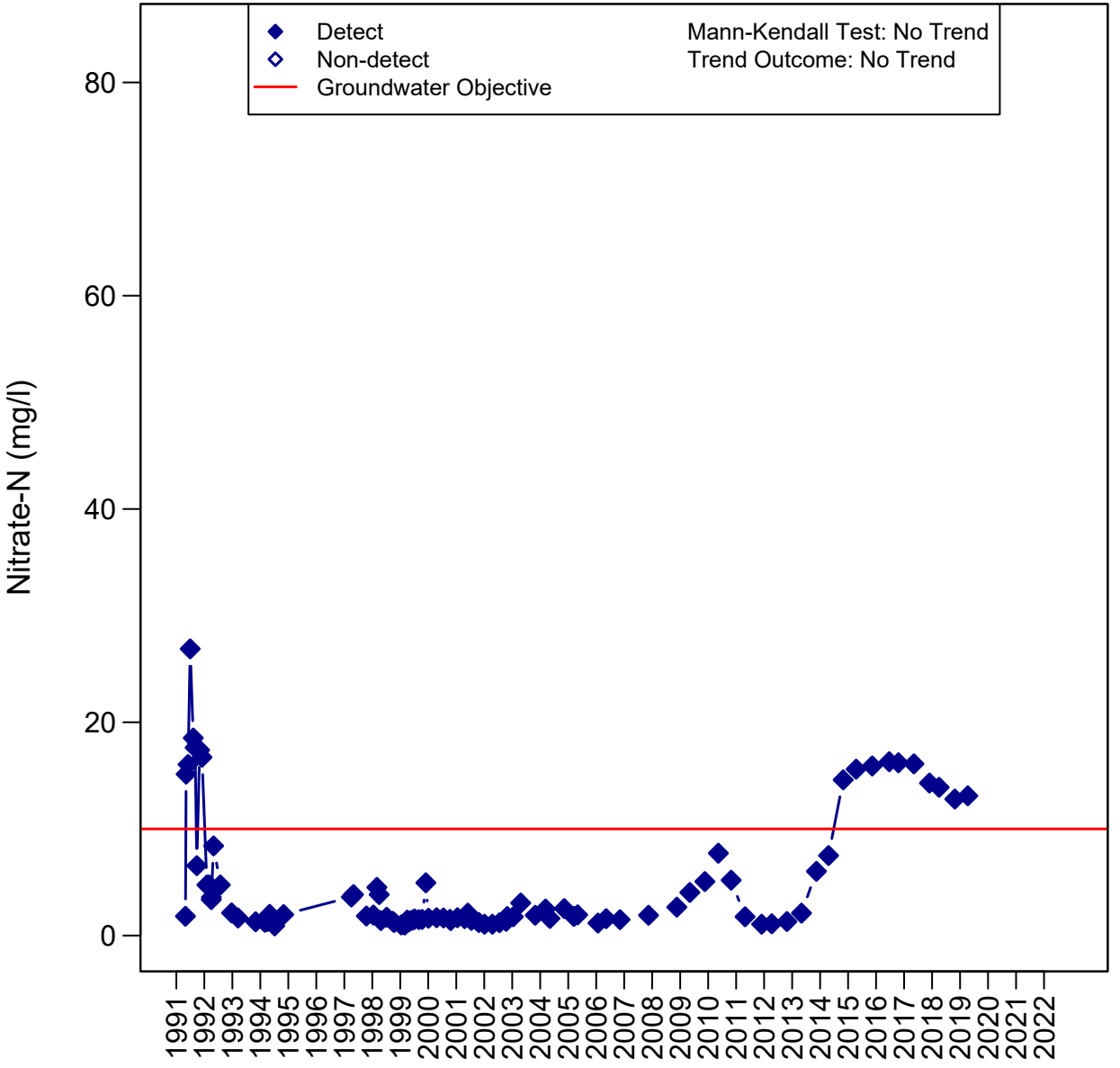
Oxnard Basin
01N21W06L05S - L05S



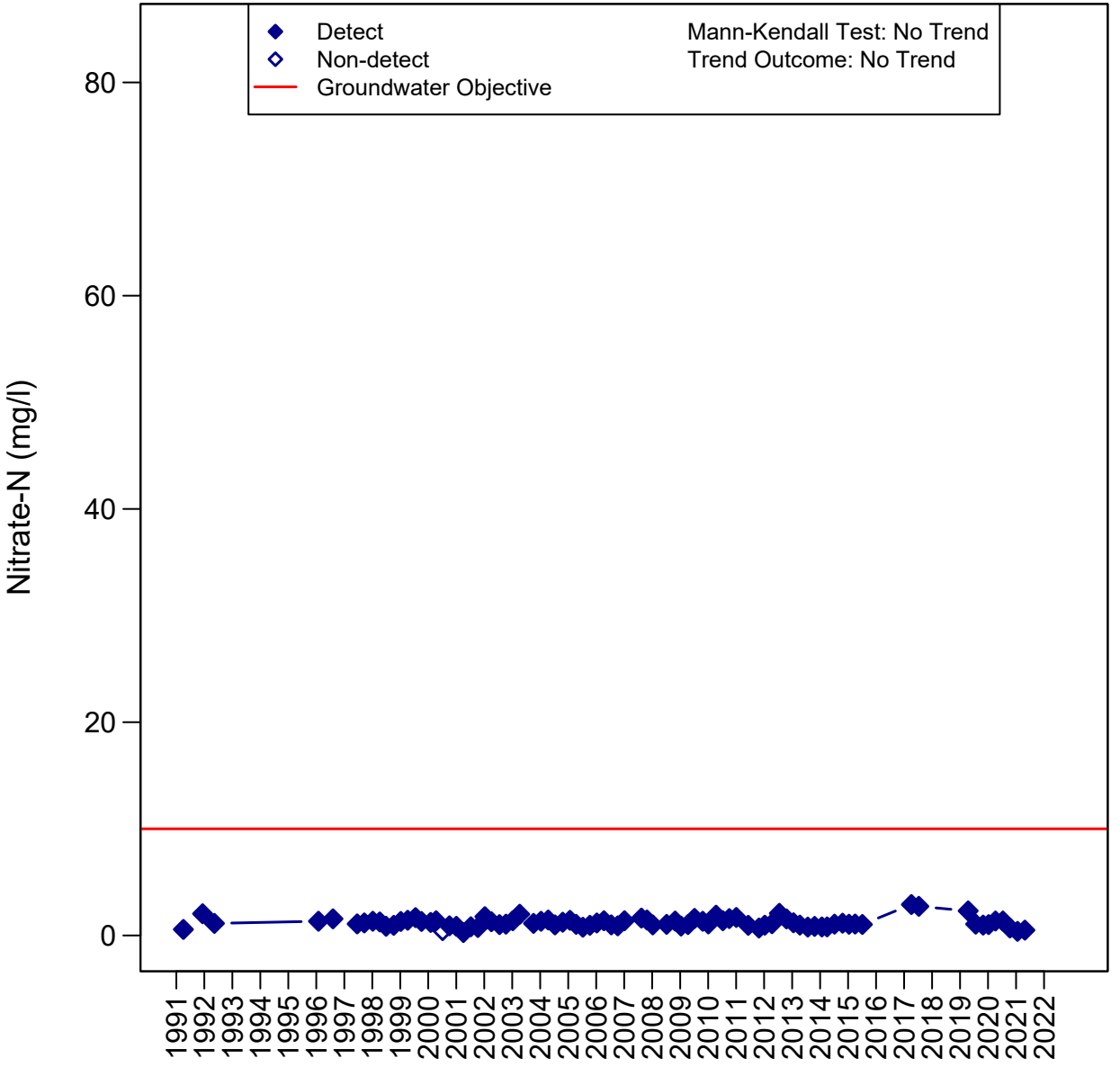
Oxnard Basin
01N21W19L11S - L11S



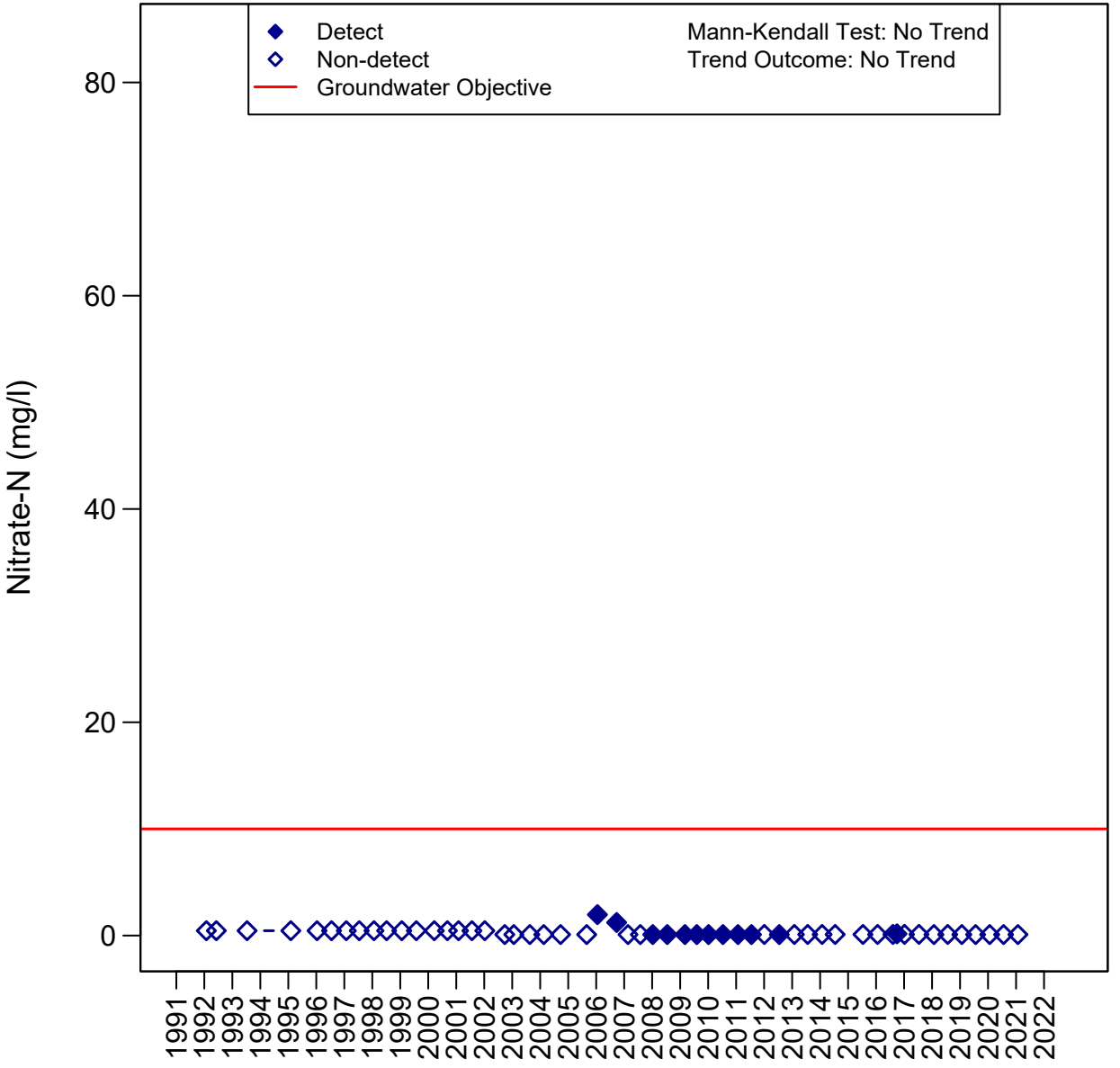
Oxnard Basin
02N22W26E01S - E01S



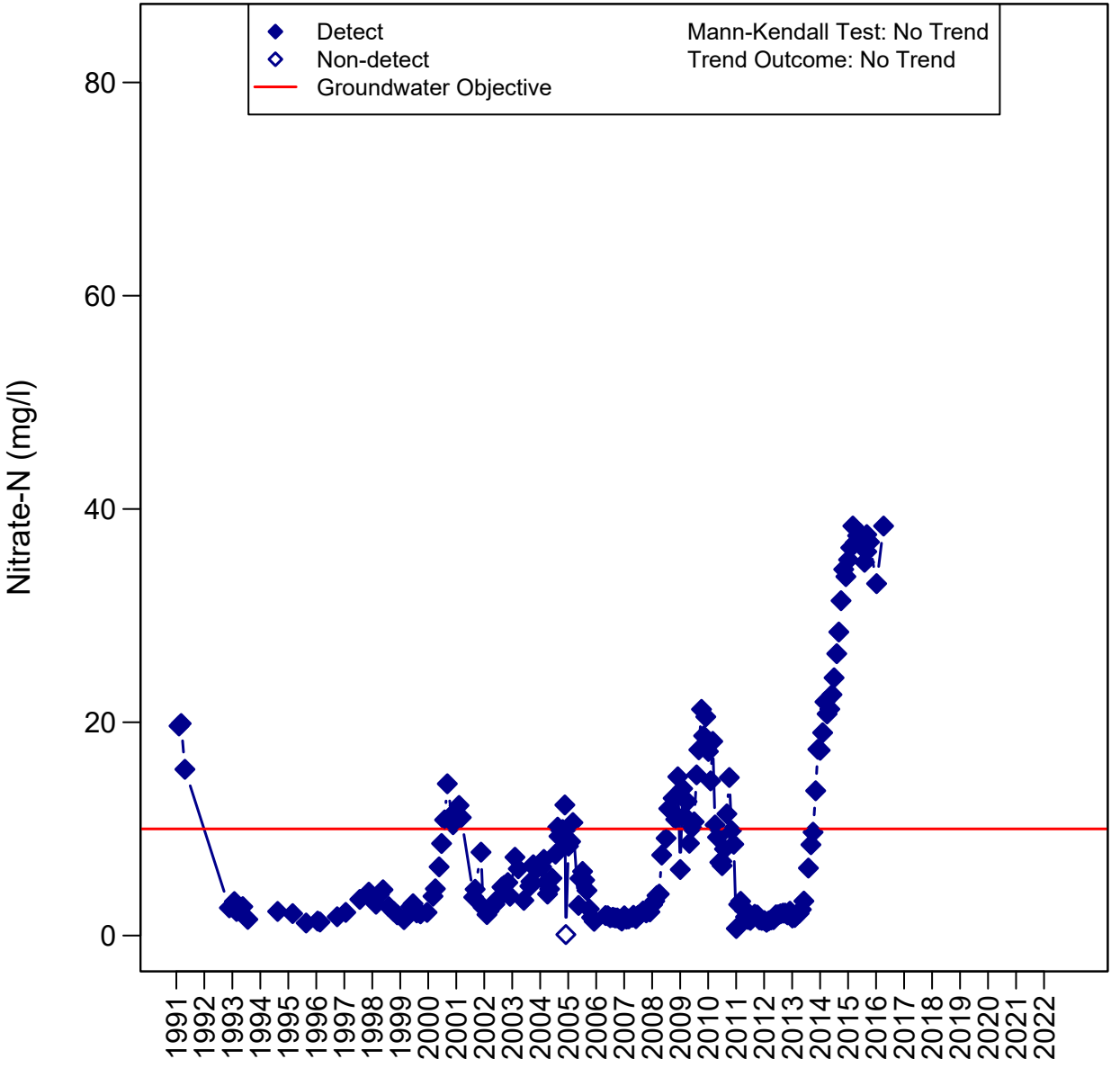
Oxnard Basin
02N21W07L06S - L06S

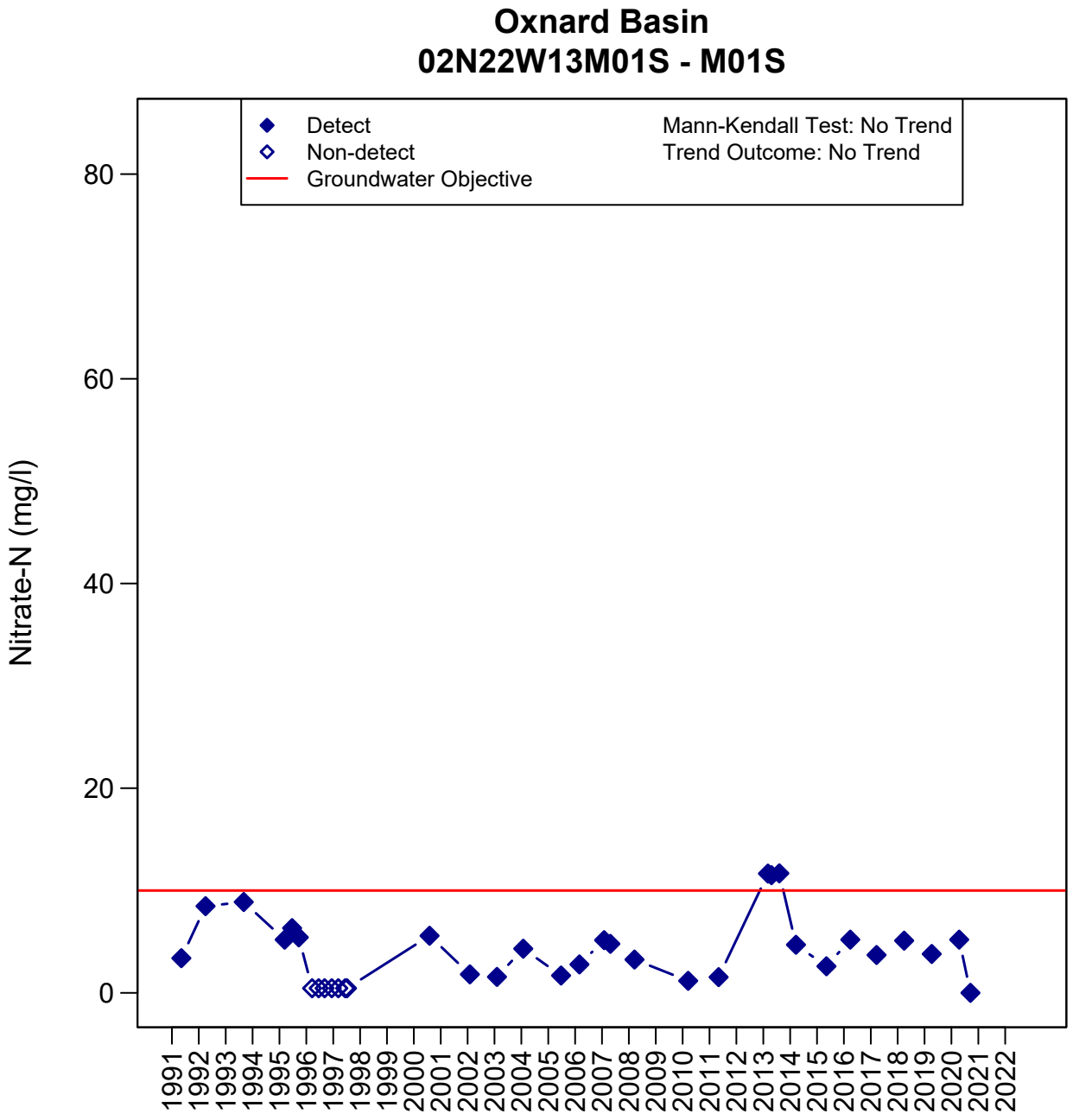


Oxnard Basin
01N21W06J05S - J05S



Oxnard Basin
02N22W26C05S - C05S




Oxnard Basin
02N22W13M01S - M01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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1991
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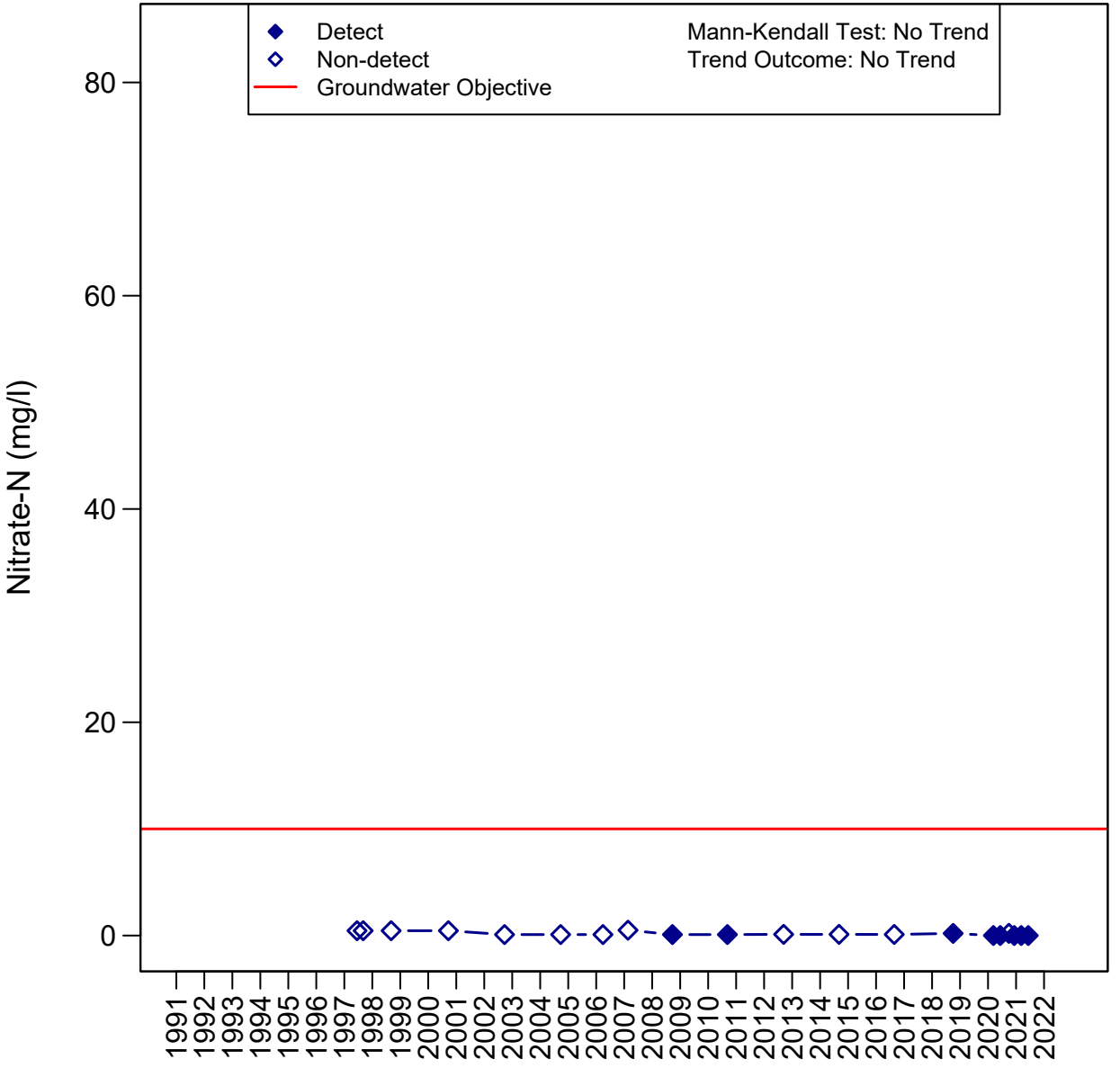
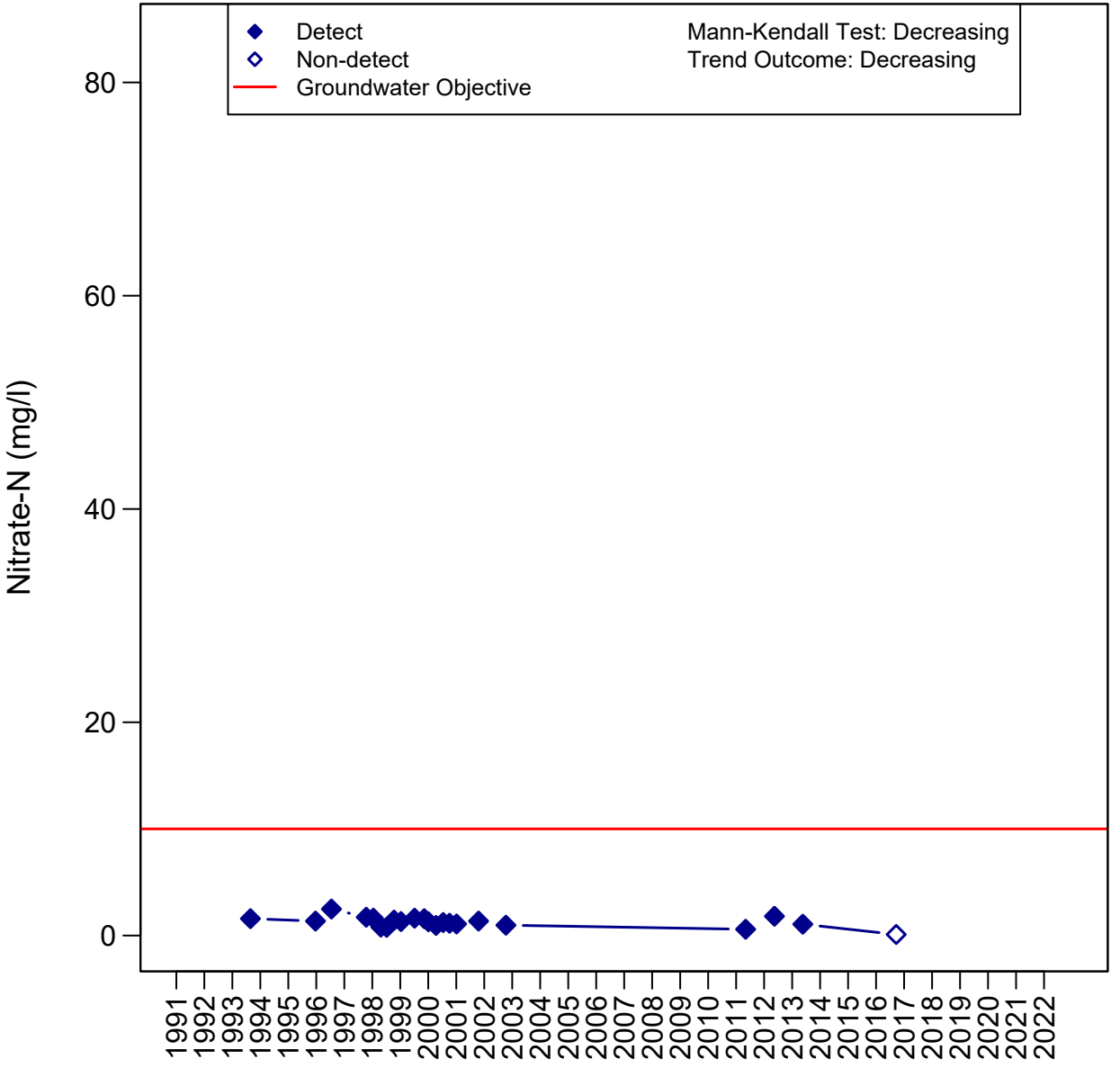
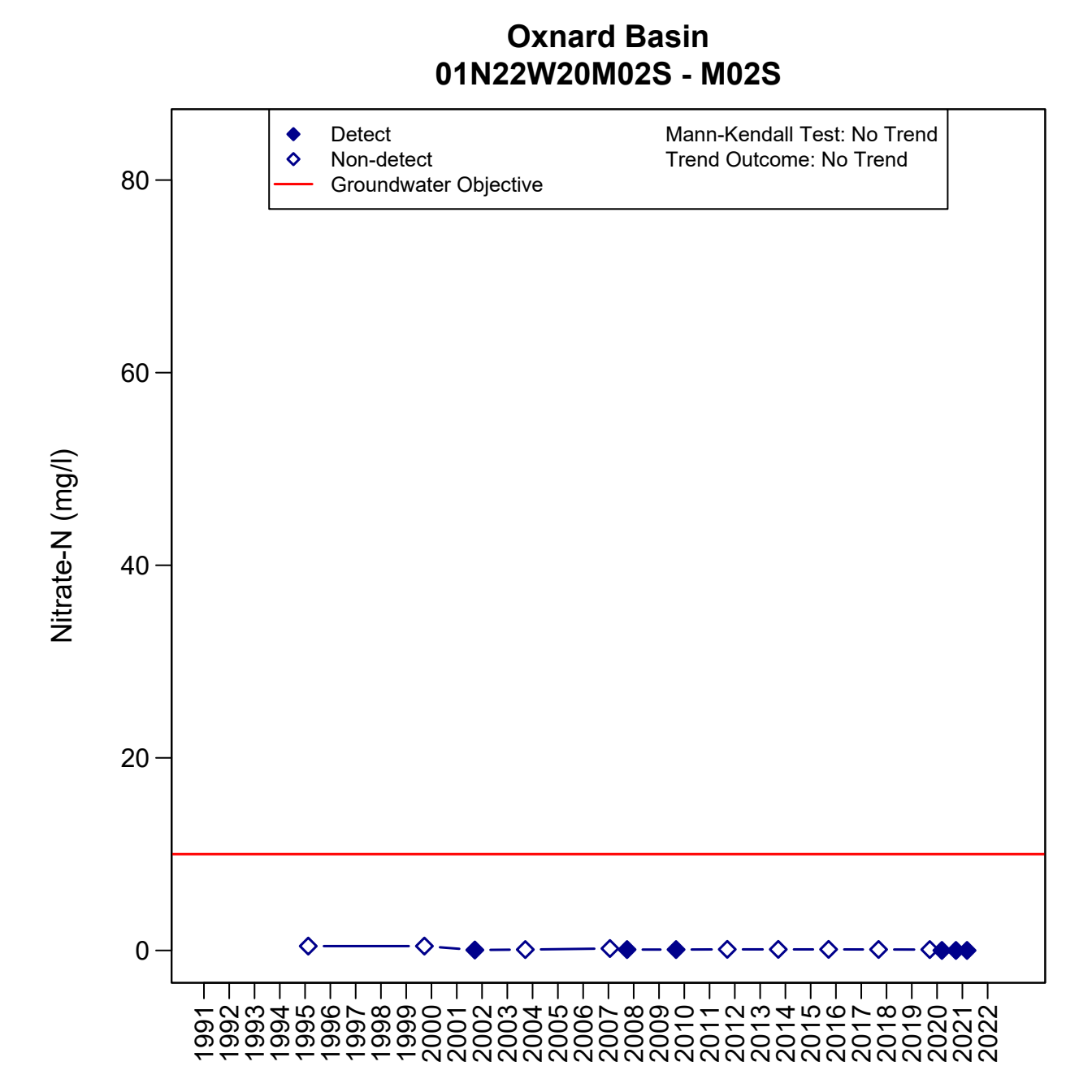
Oxnard Basin
01N22W29D03S - D03S



Oxnard Basin
02N21W07F01S - F01S




Oxnard Basin
01N22W20M02S - M02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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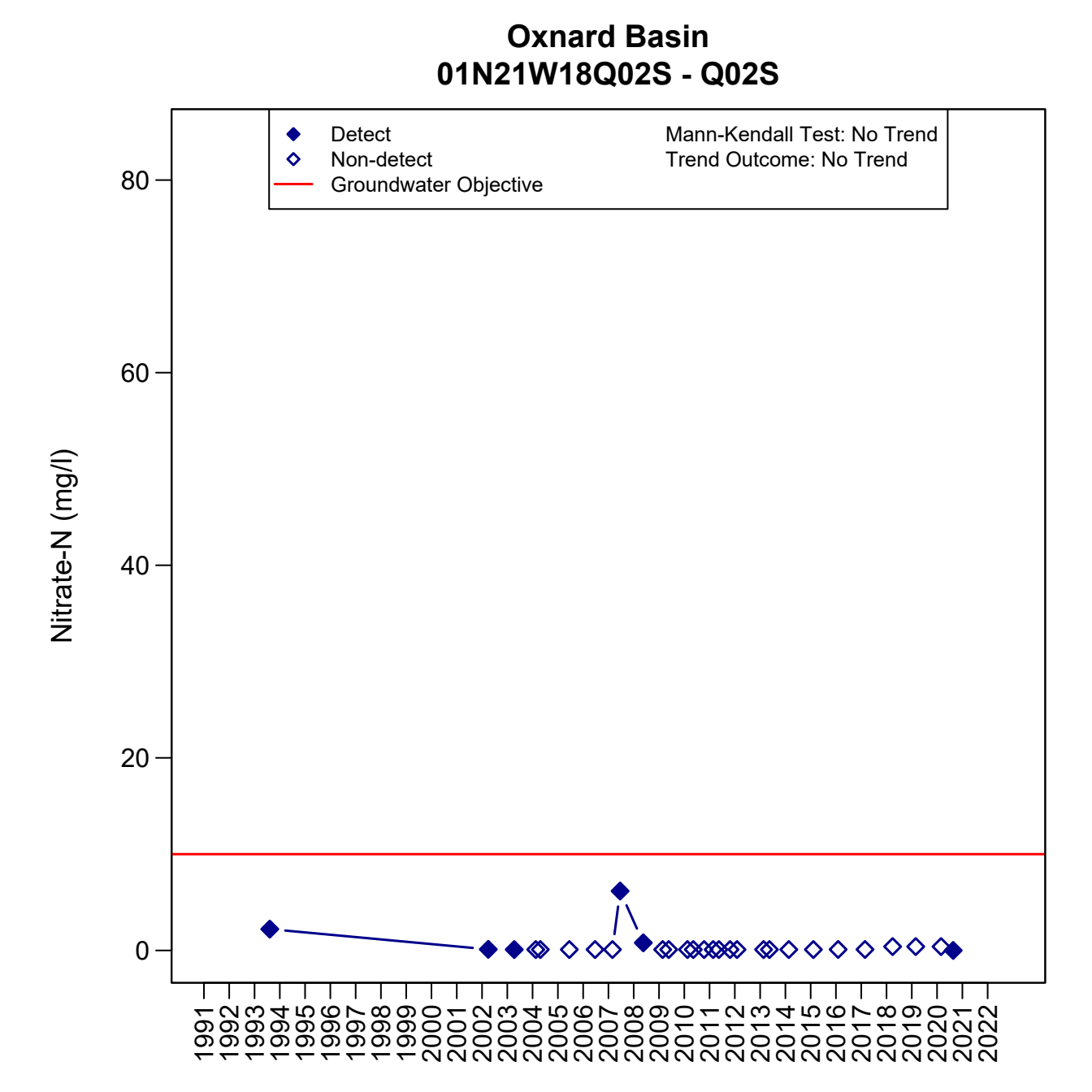
Oxnard Basin
01N21W18Q02S - Q02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
80
60
40
20
0
1991
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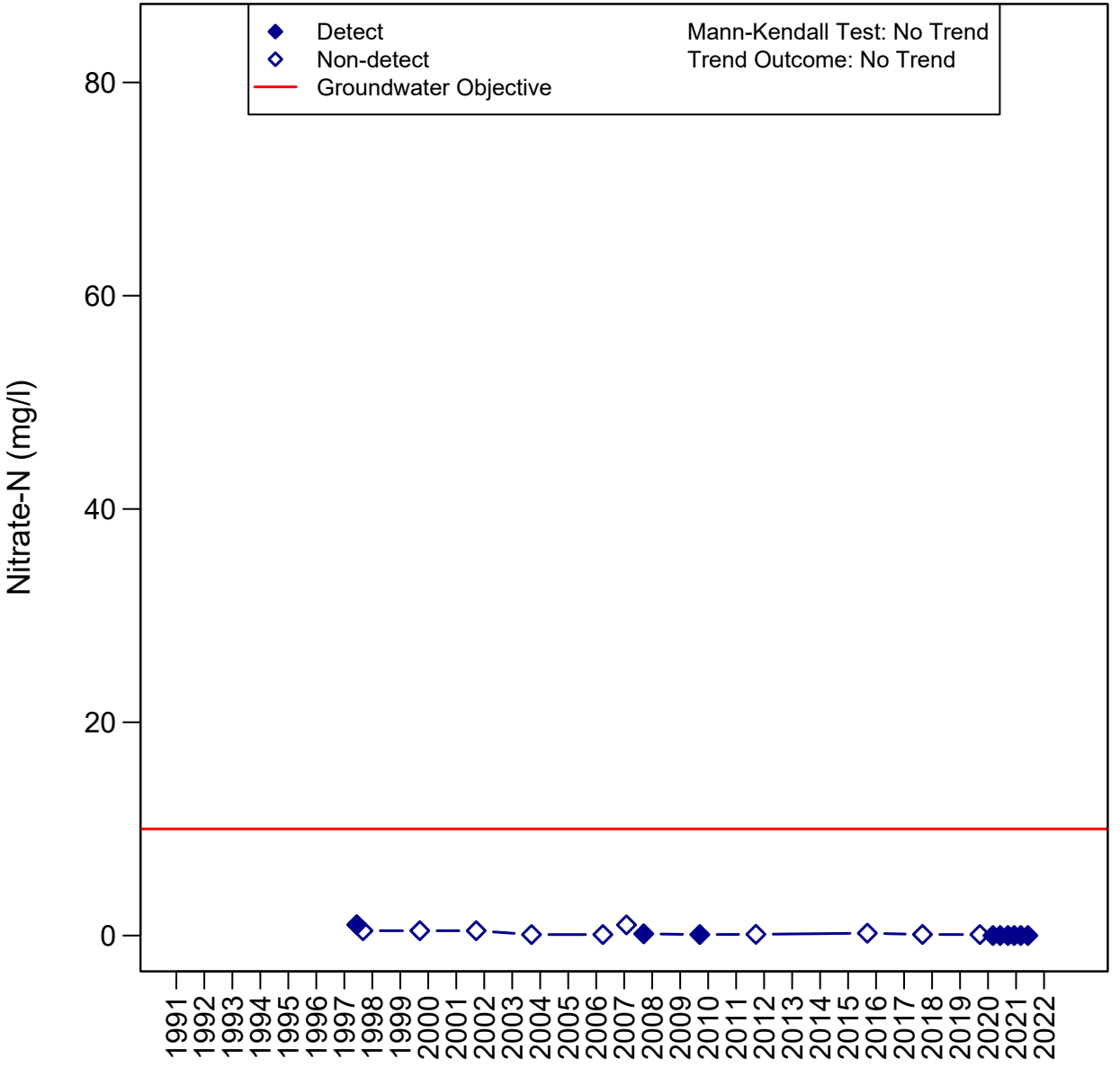
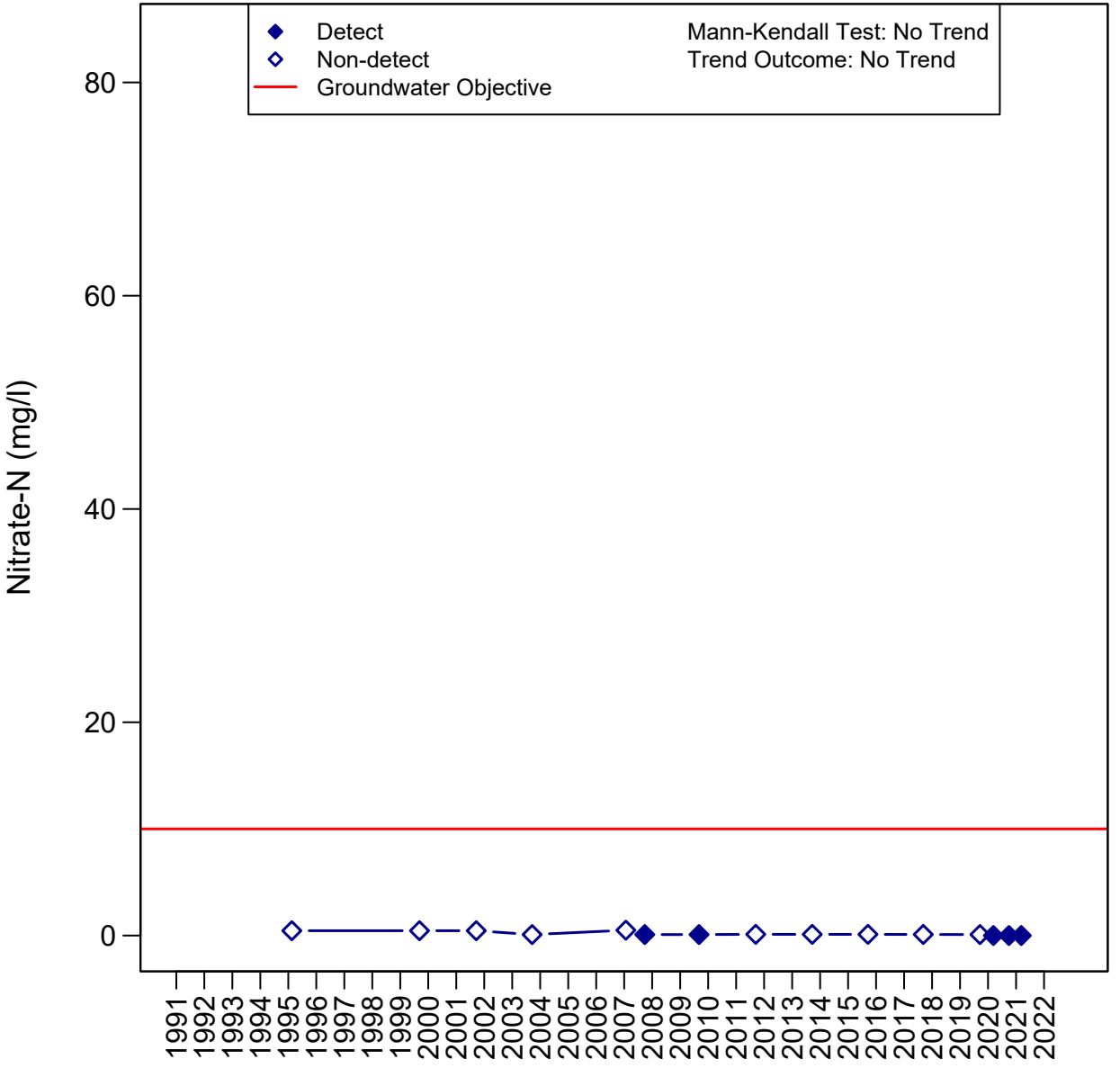
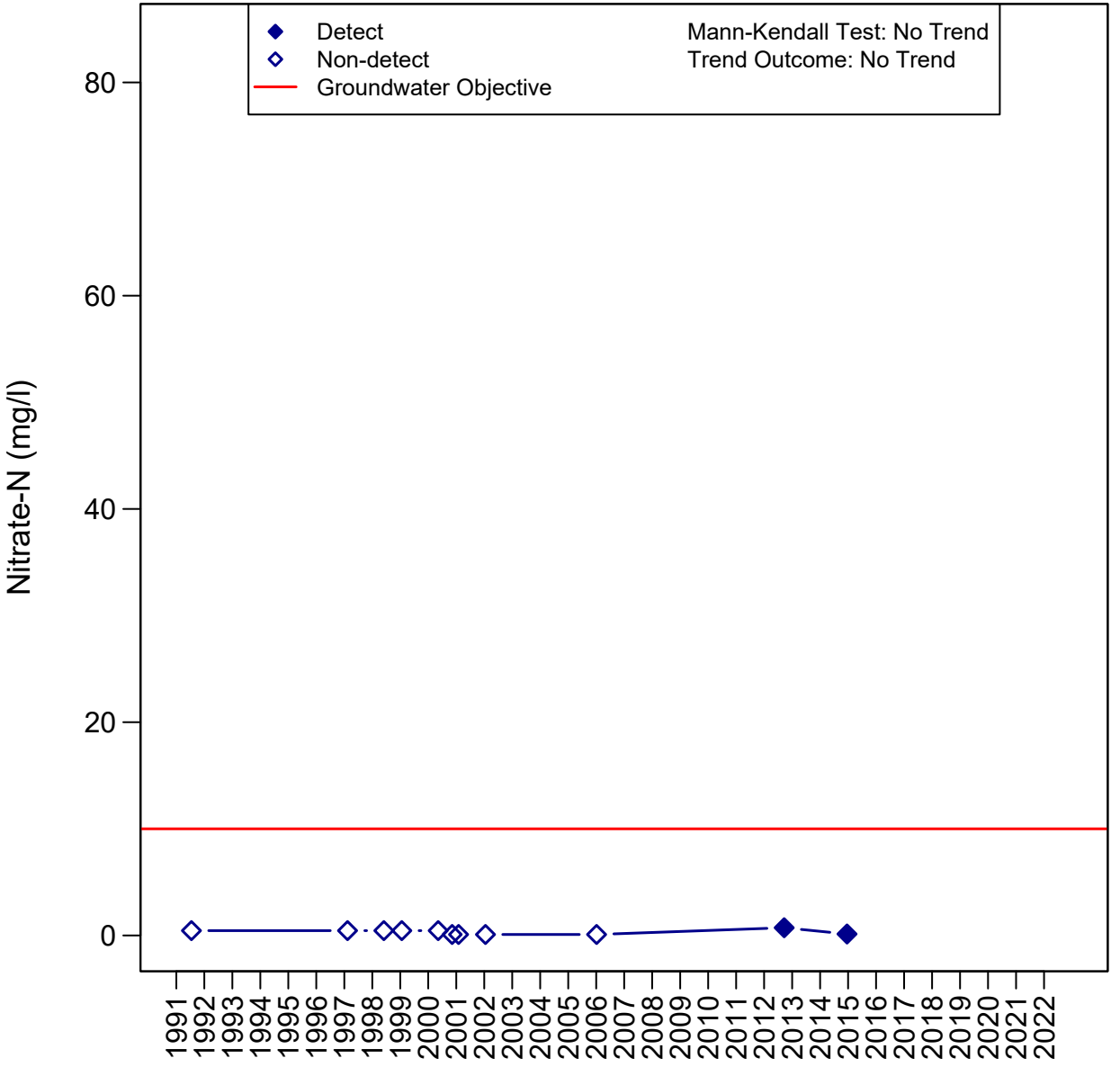
Oxnard Basin
01N22W27C03S - C03S

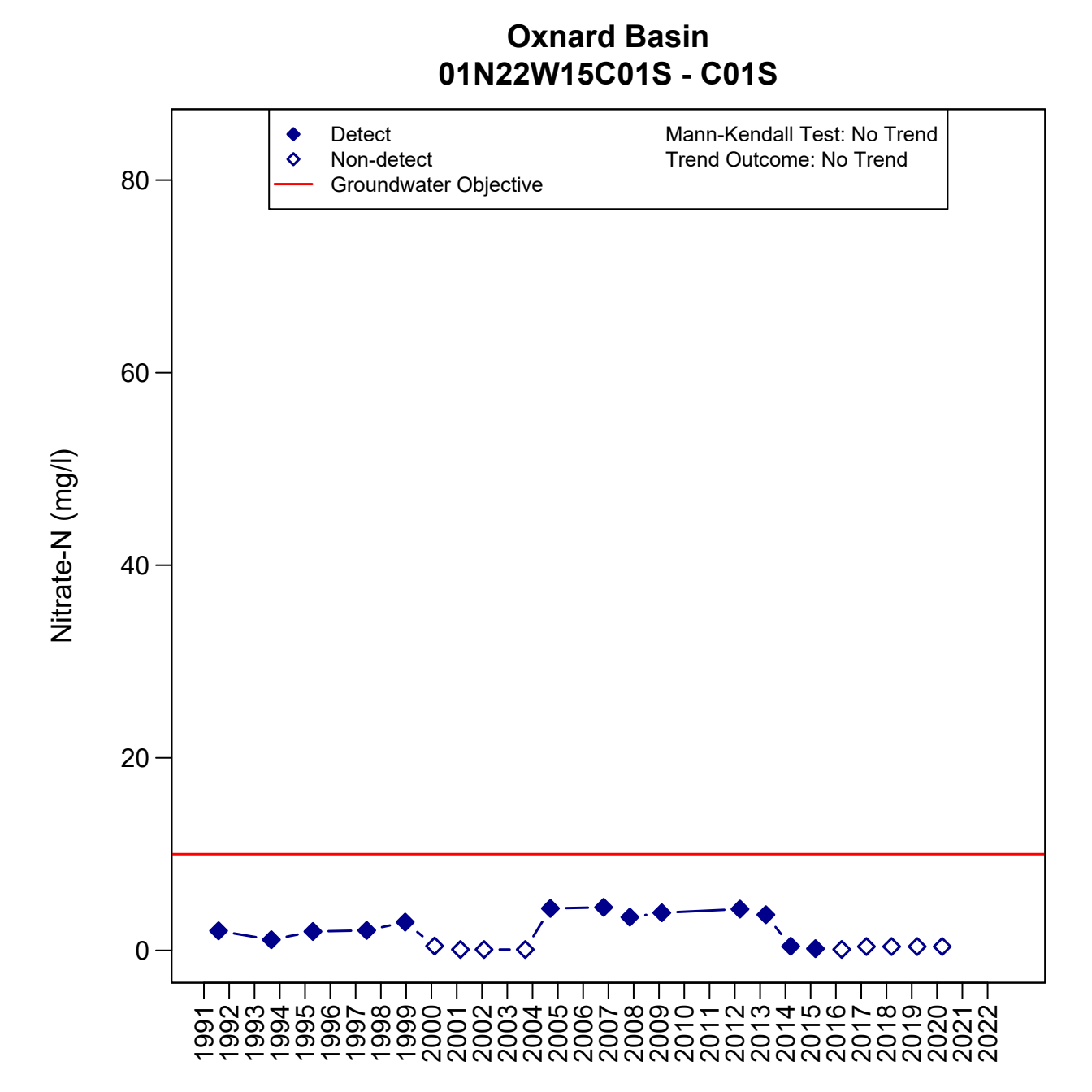


Oxnard Basin
01N22W20M03S - M03S



Oxnard Basin
01N22W21B03S - B03S




Oxnard Basin
01N22W15C01S - C01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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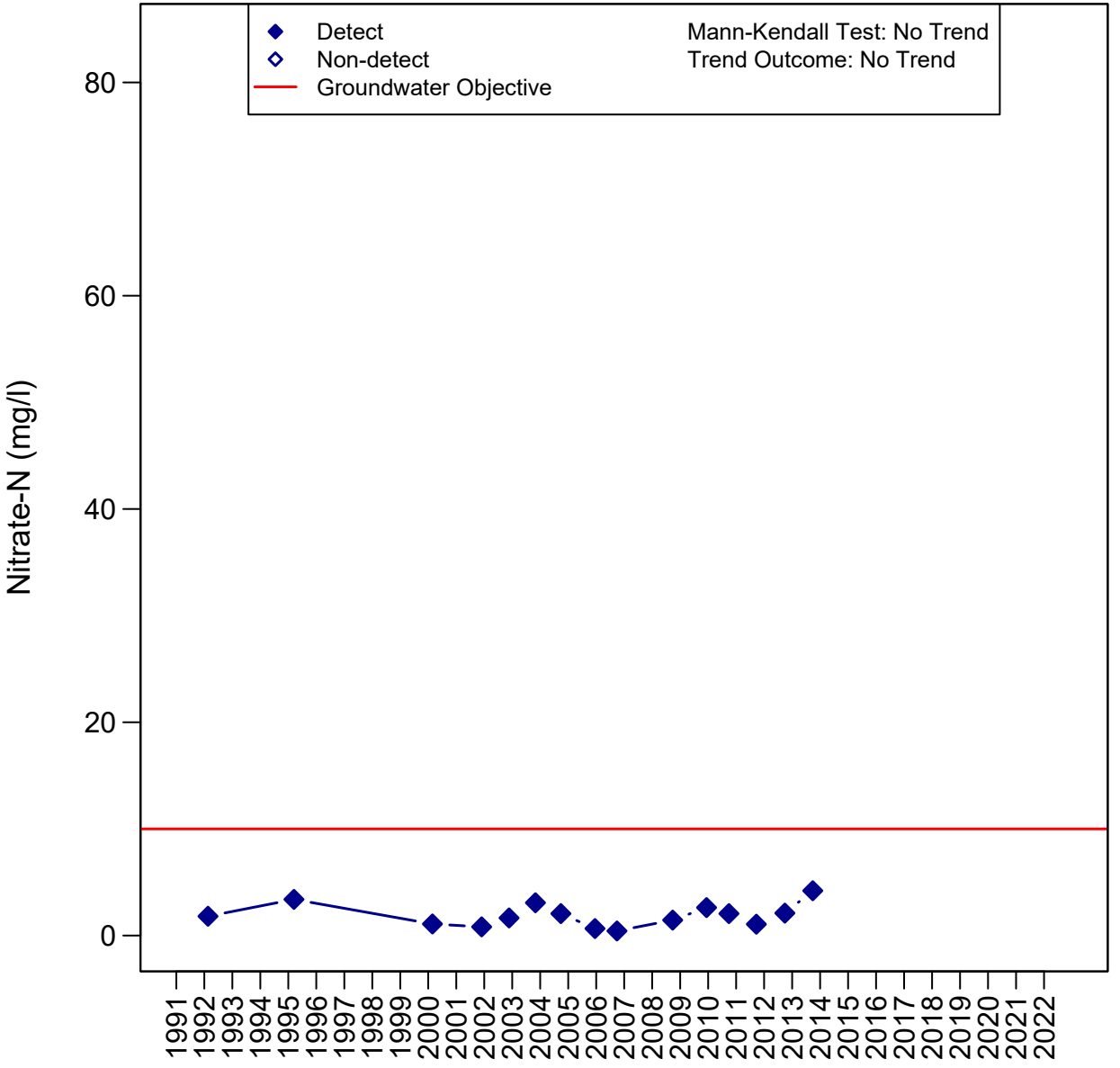
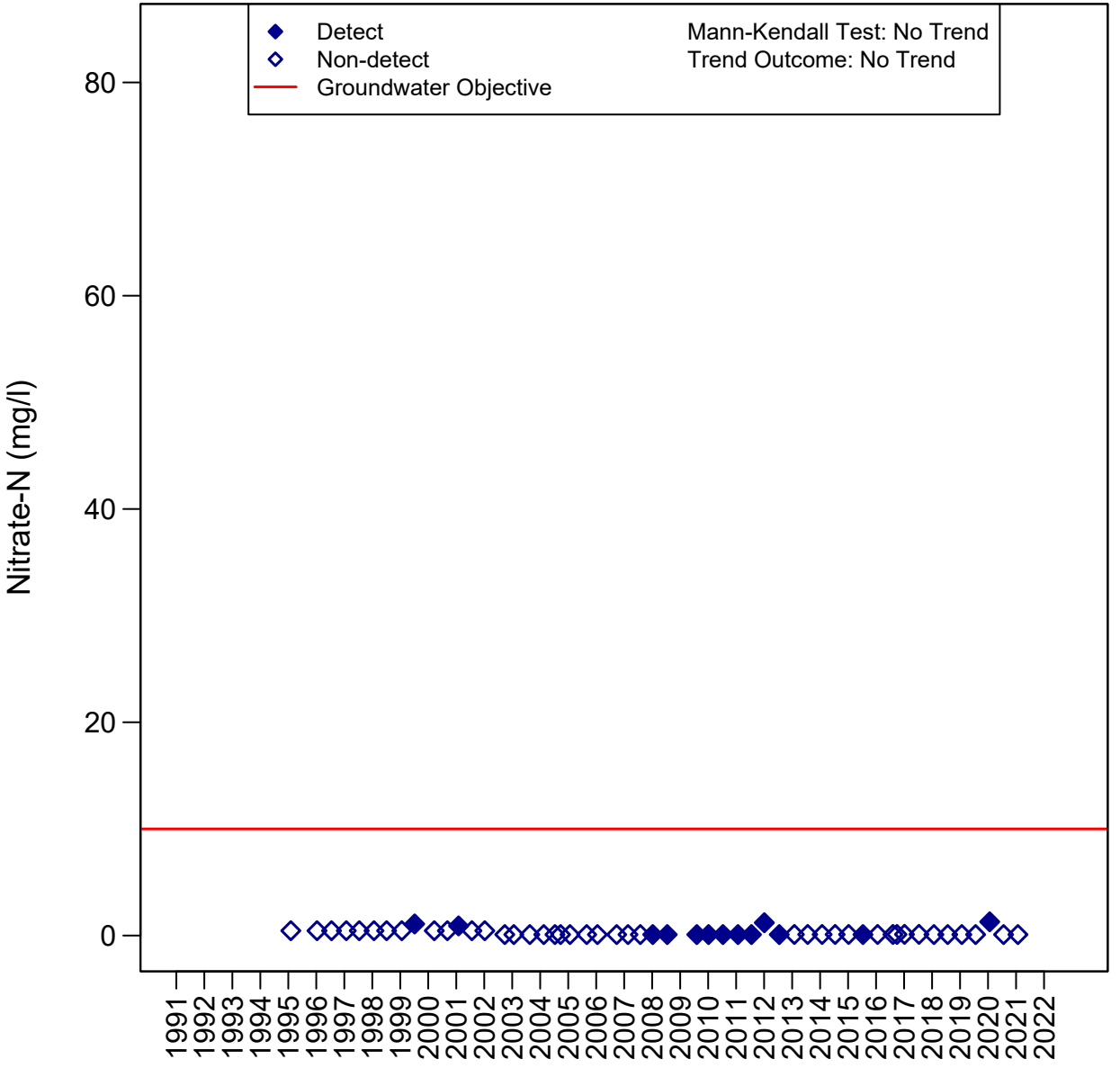
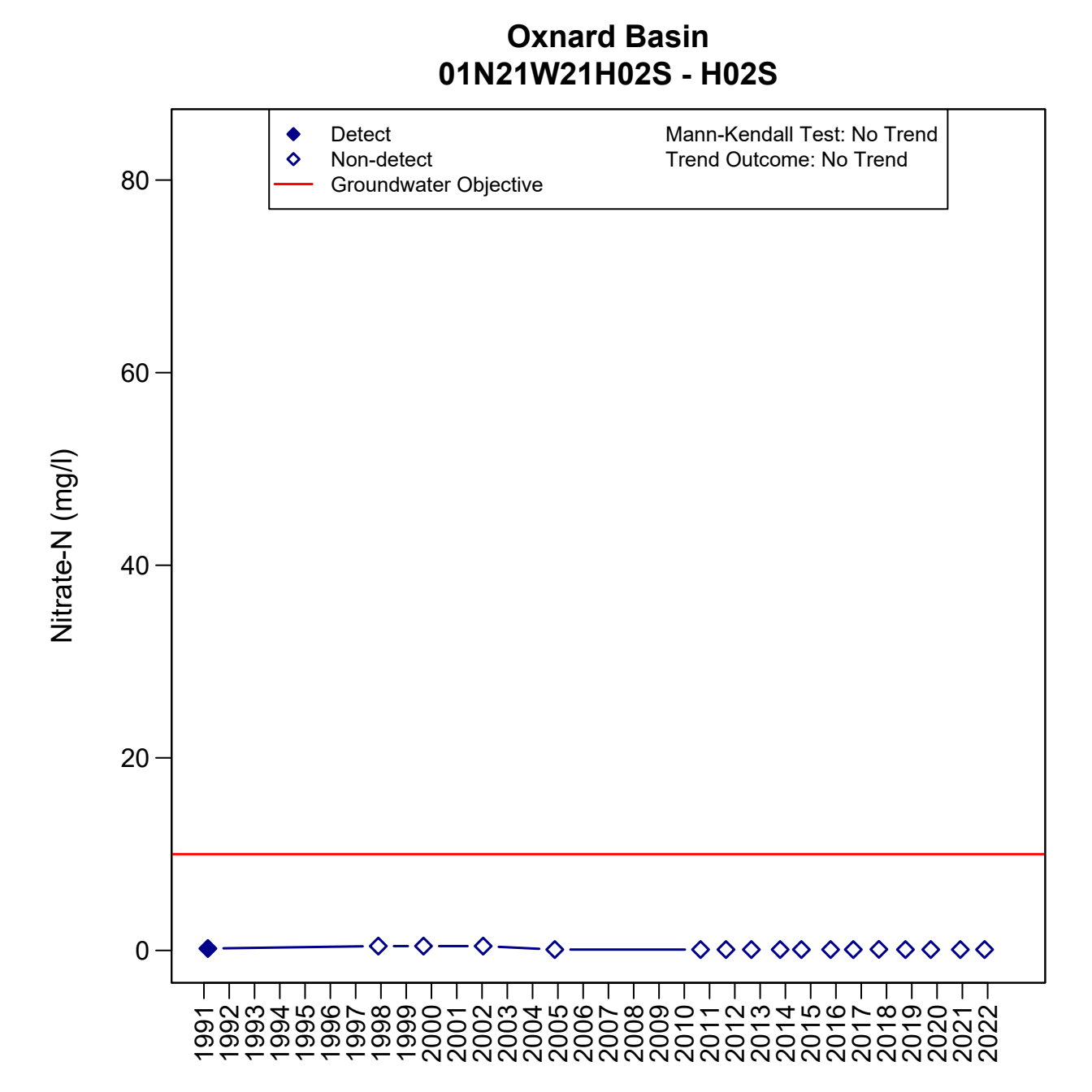
Oxnard Basin
02N22W14H03S - H03S



Oxnard Basin
02N21W32E01S - E01S




Oxnard Basin
01N21W21H02S - H02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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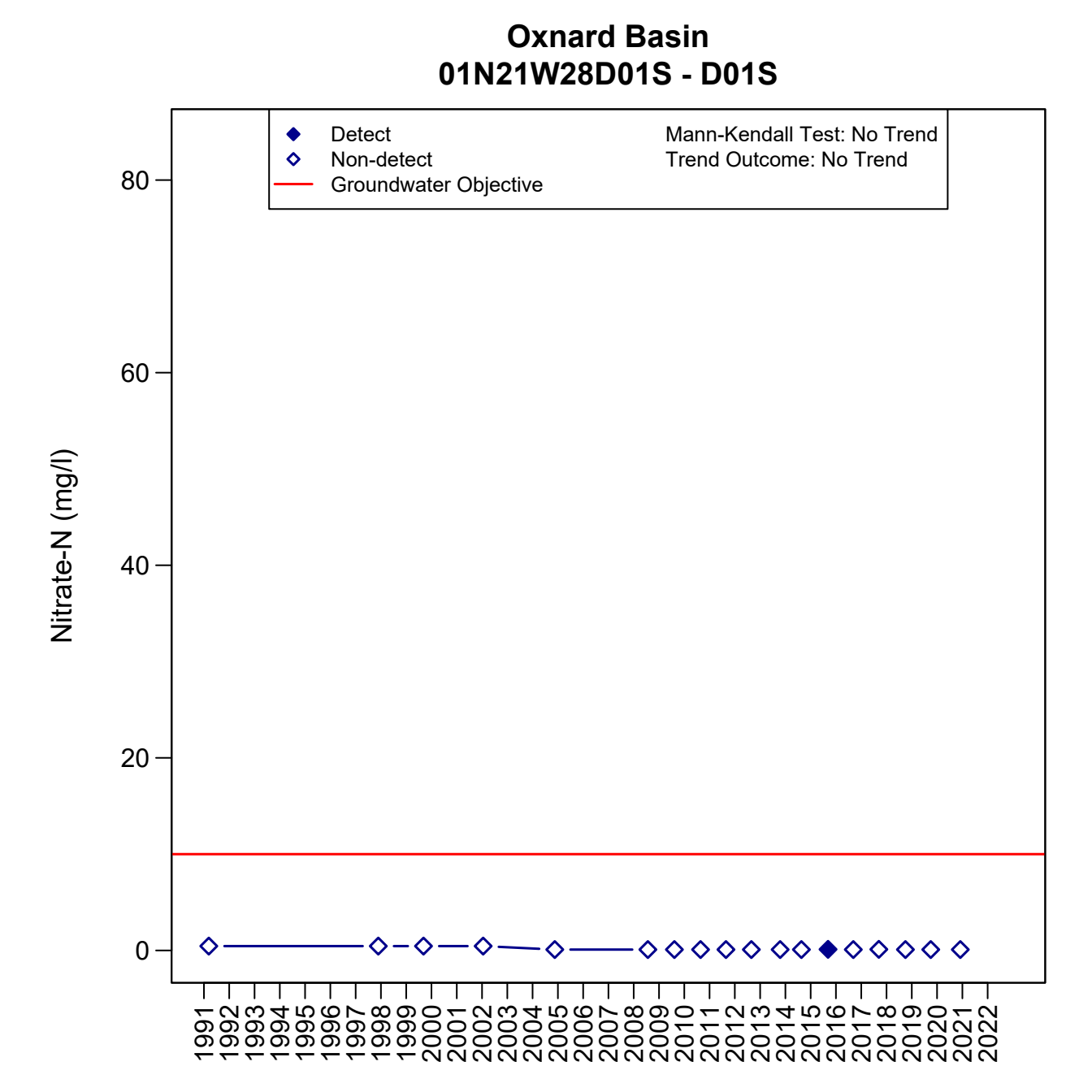
Oxnard Basin
01N21W28D01S - D01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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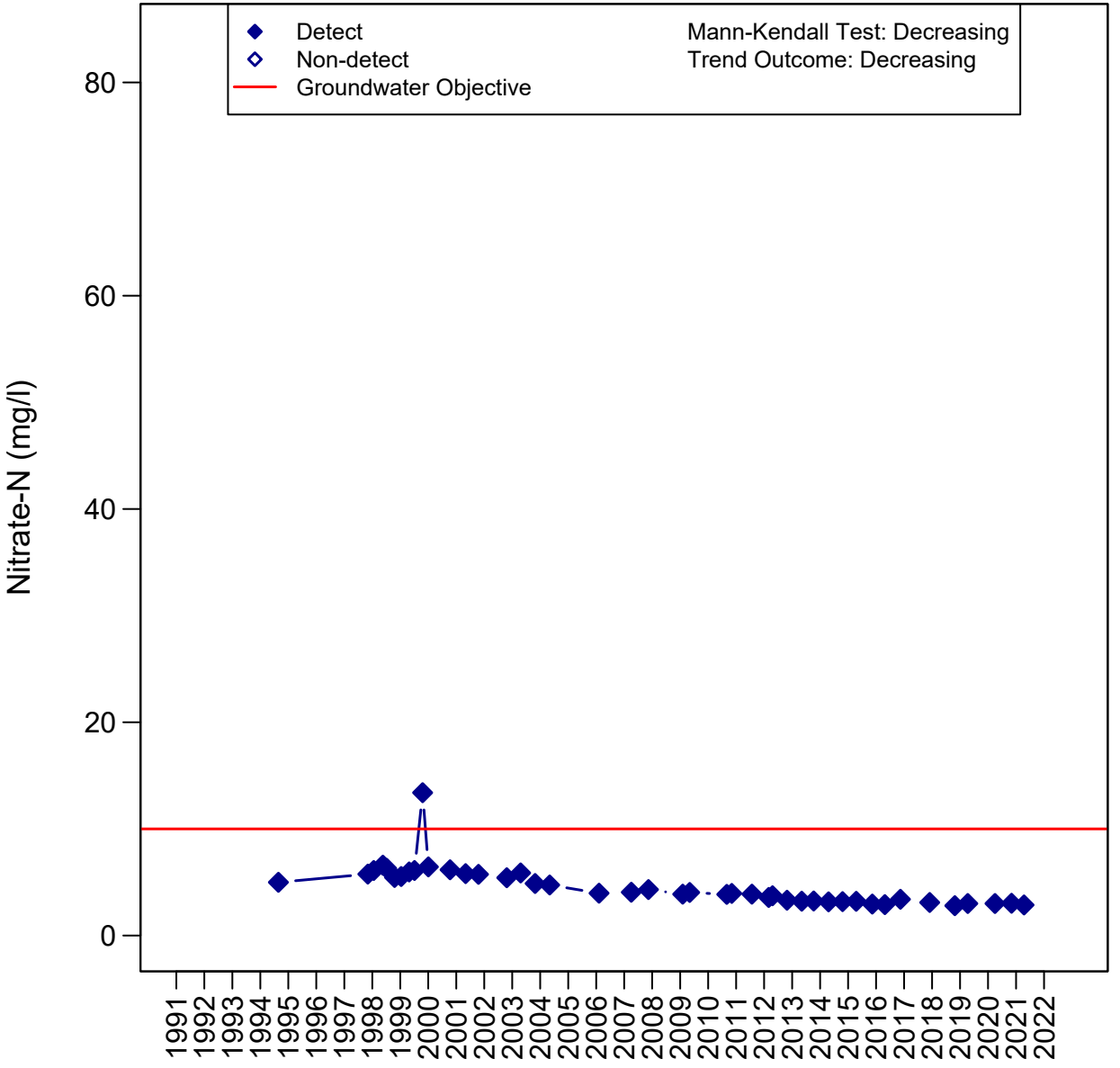
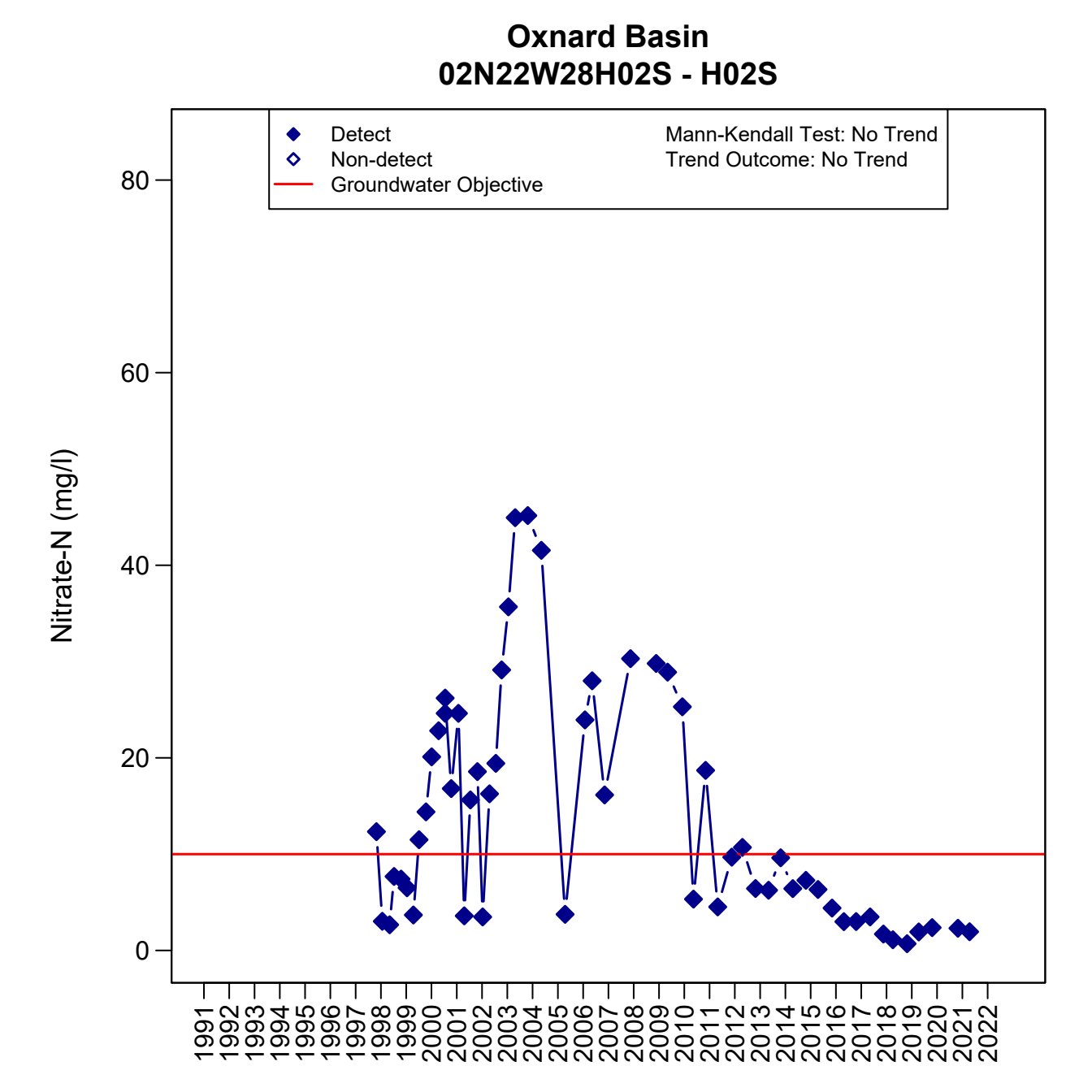
Oxnard Basin
02N22W21M01S - M01S




Oxnard Basin
02N22W28H02S - H02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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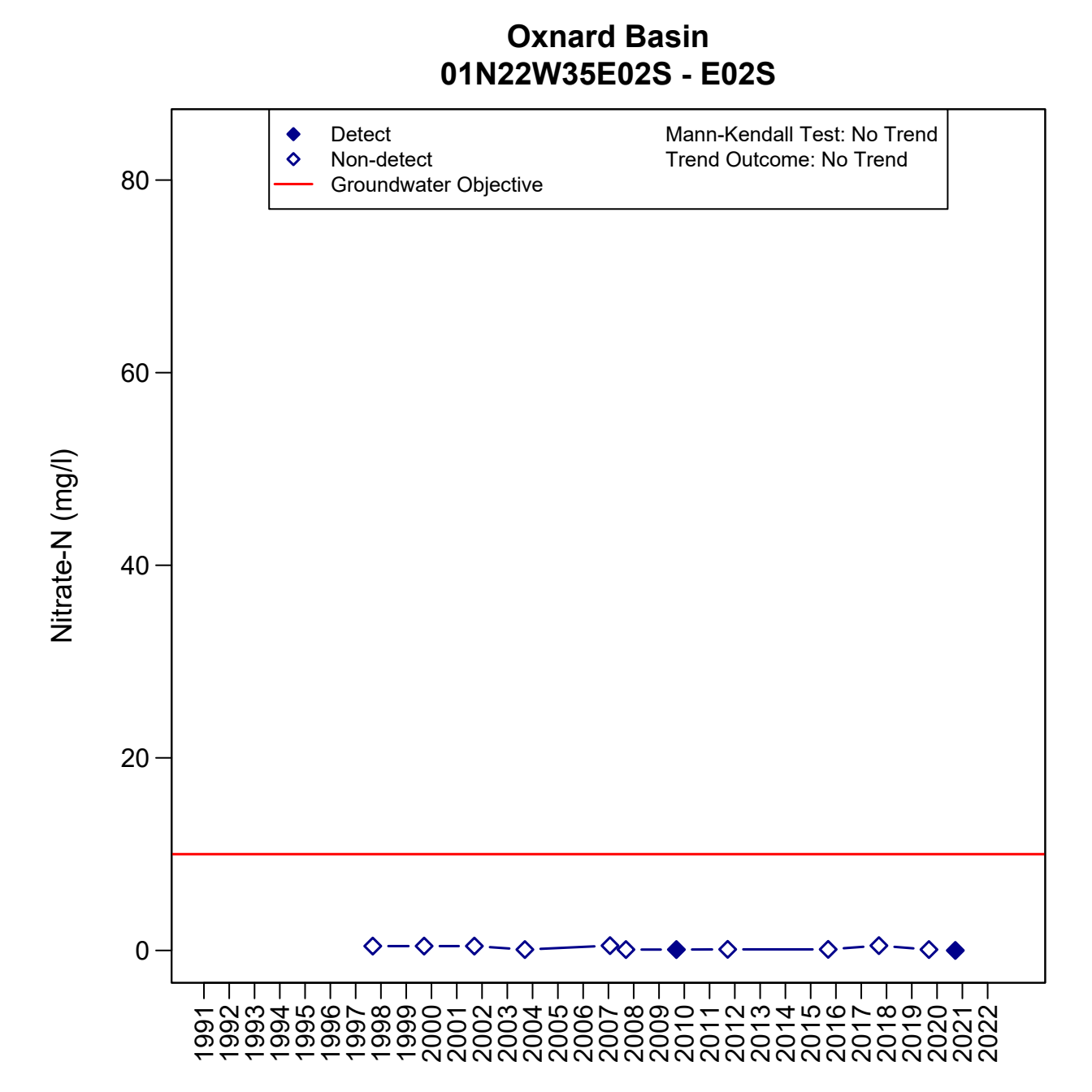
Oxnard Basin
01N22W35E02S - E02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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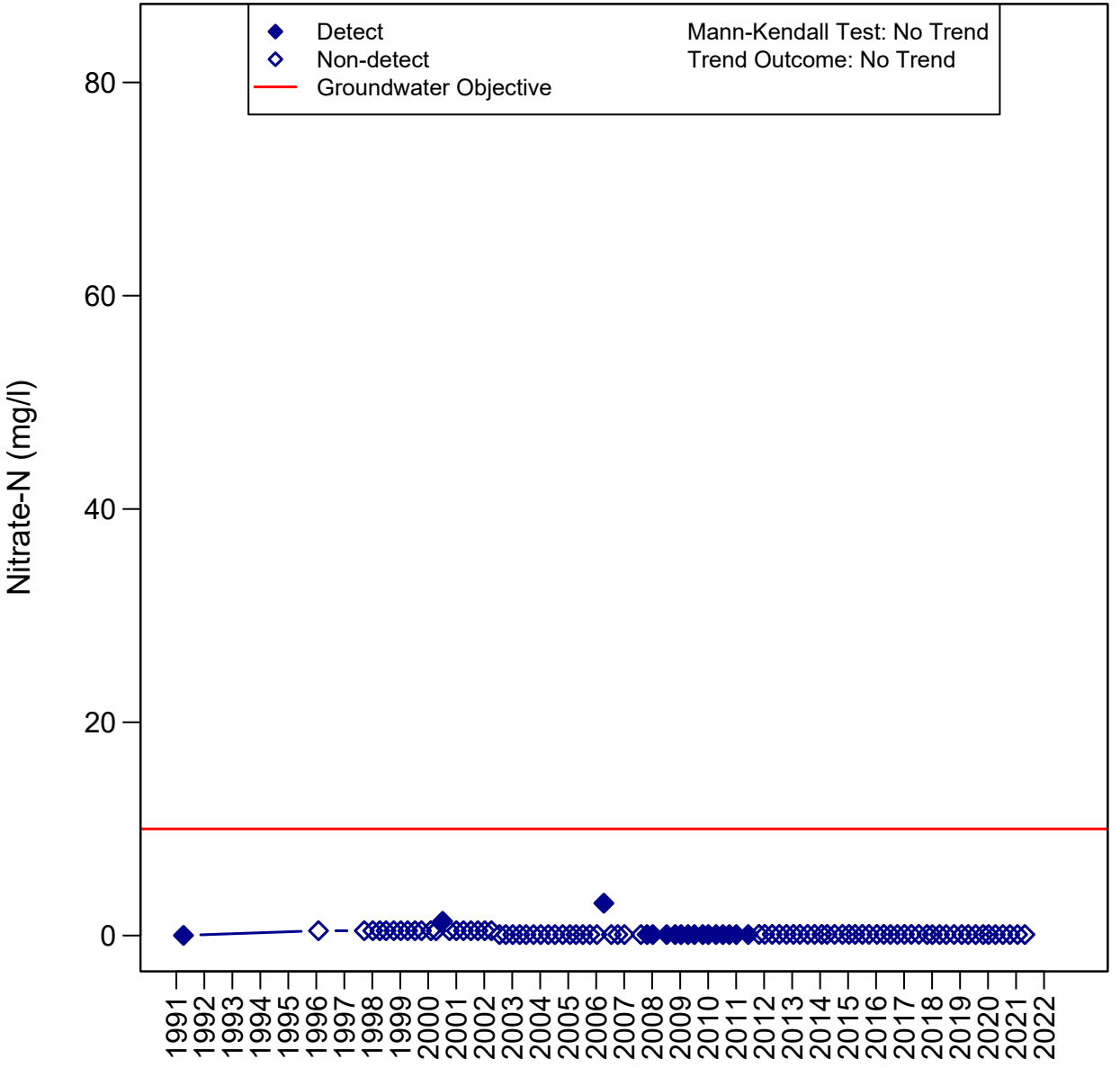
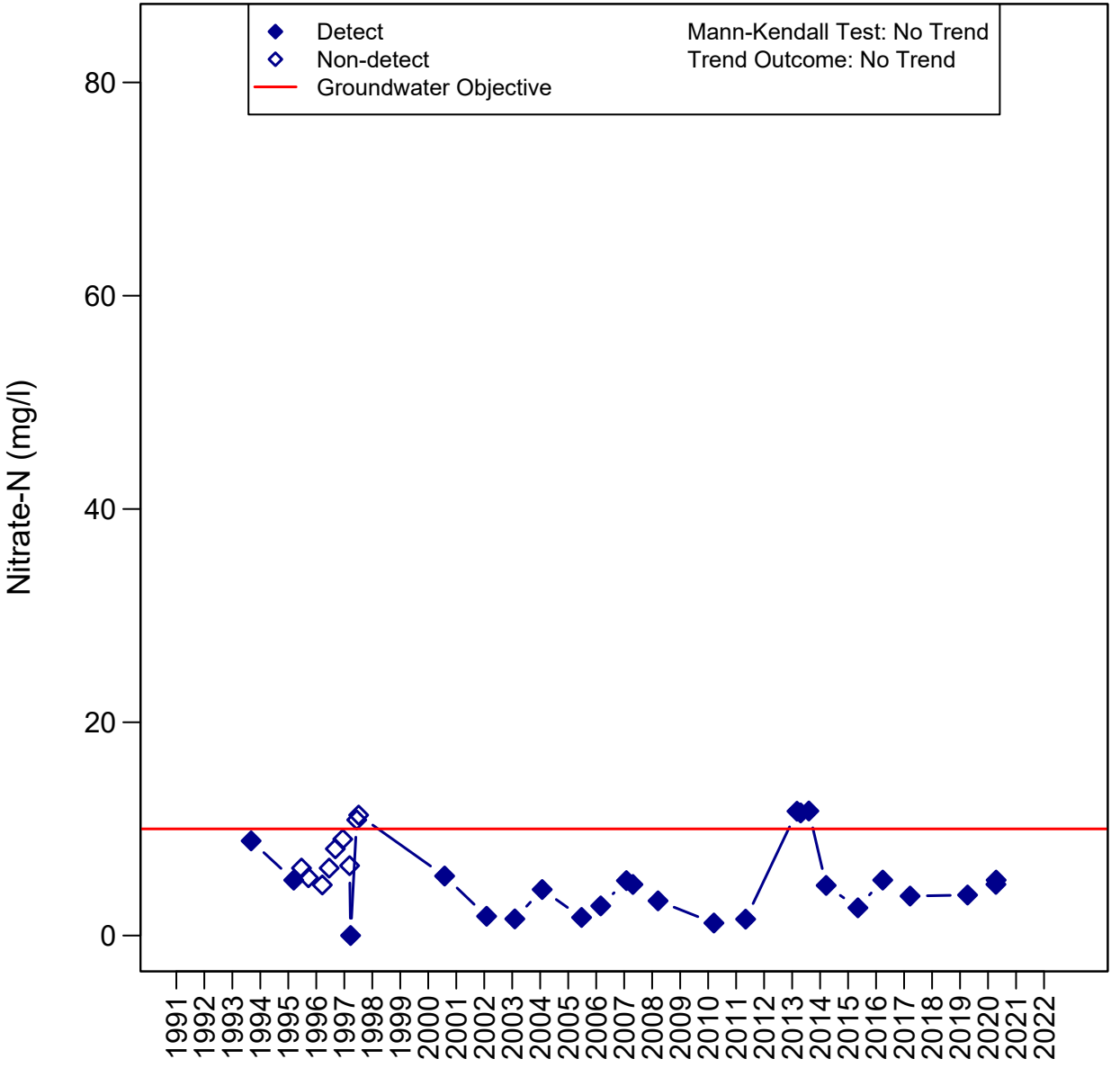
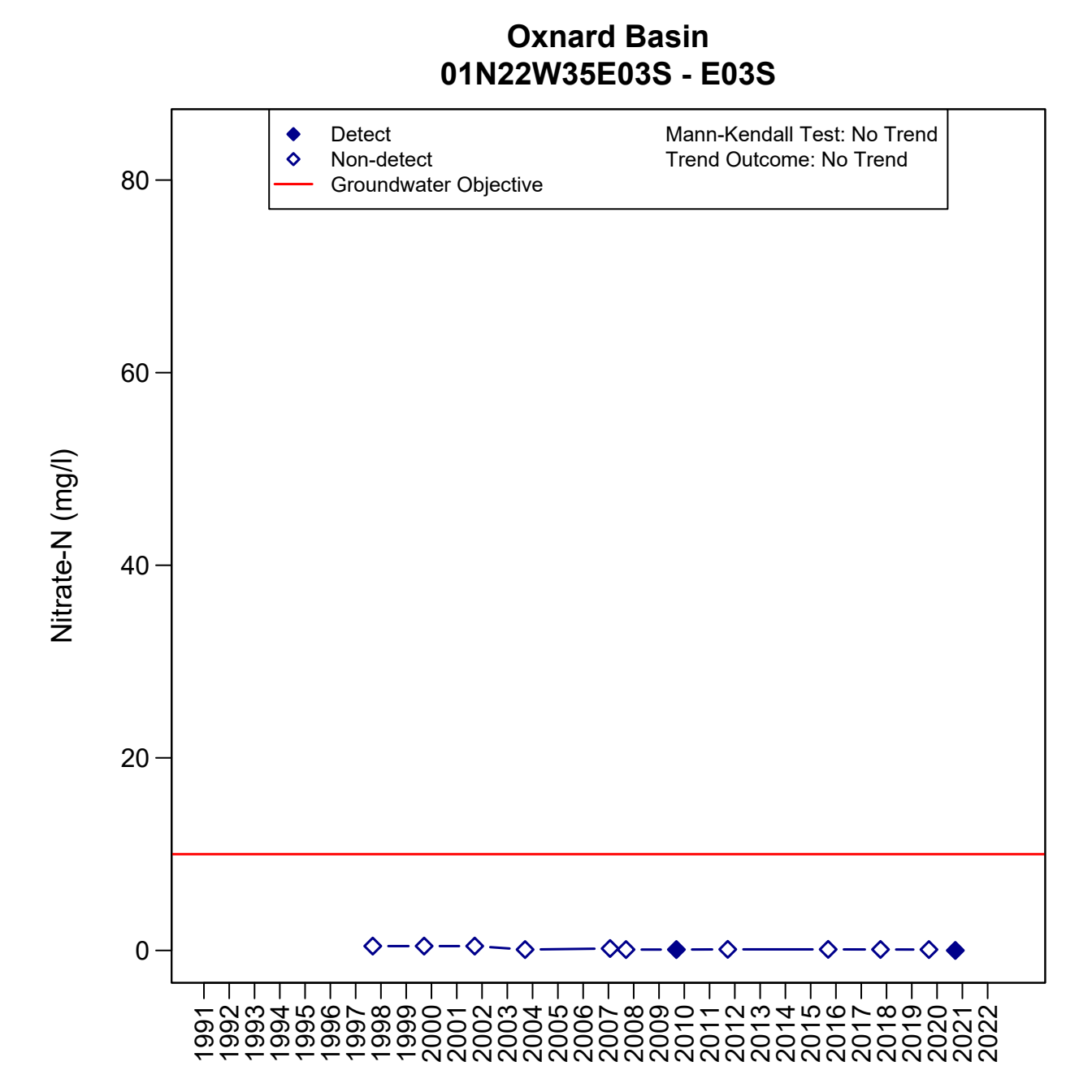
Oxnard Basin
02N21W07L03S - L03S



Oxnard Basin
02N22W13N04S - N04S




Oxnard Basin
01N22W35E03S - E03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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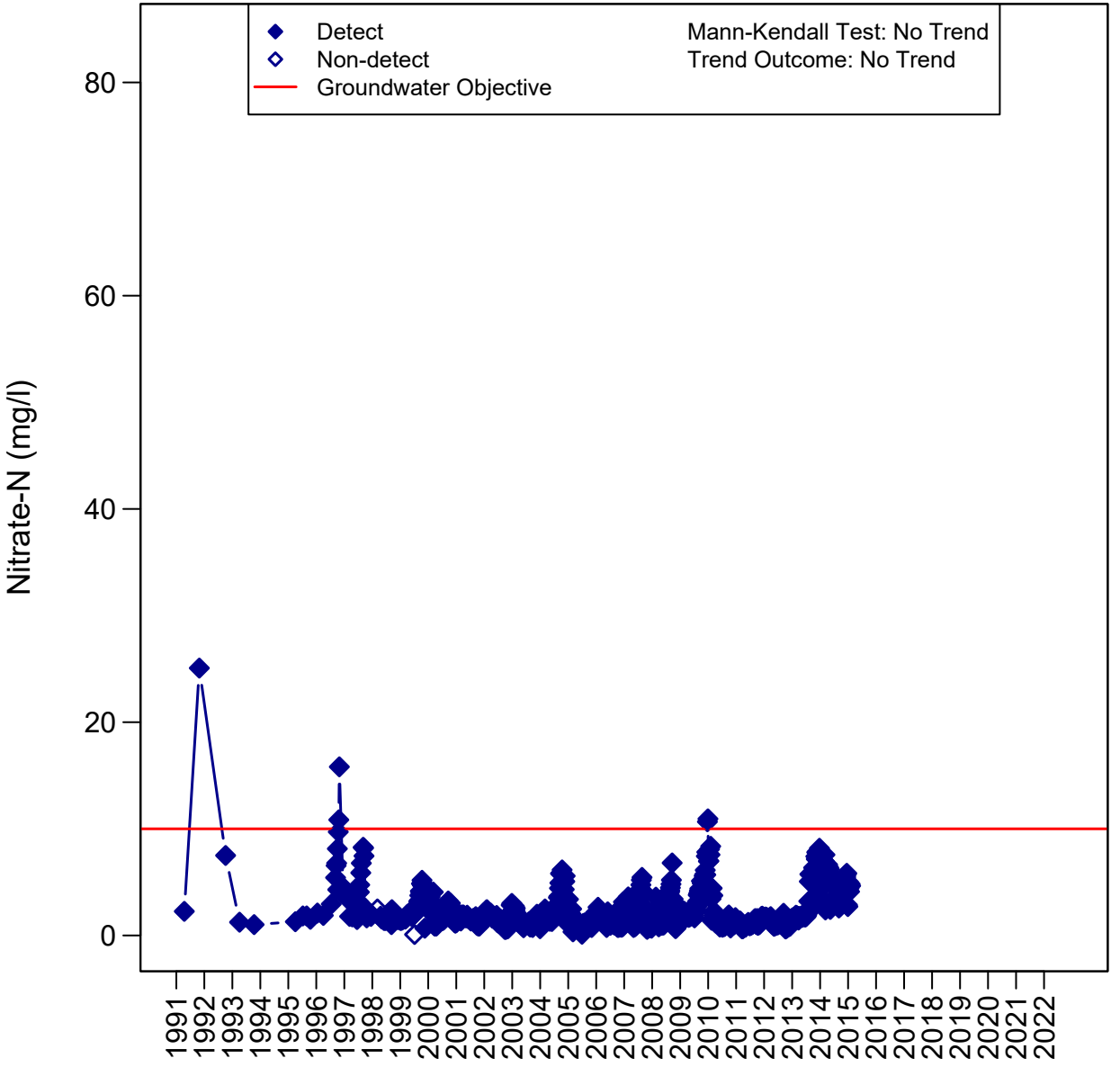
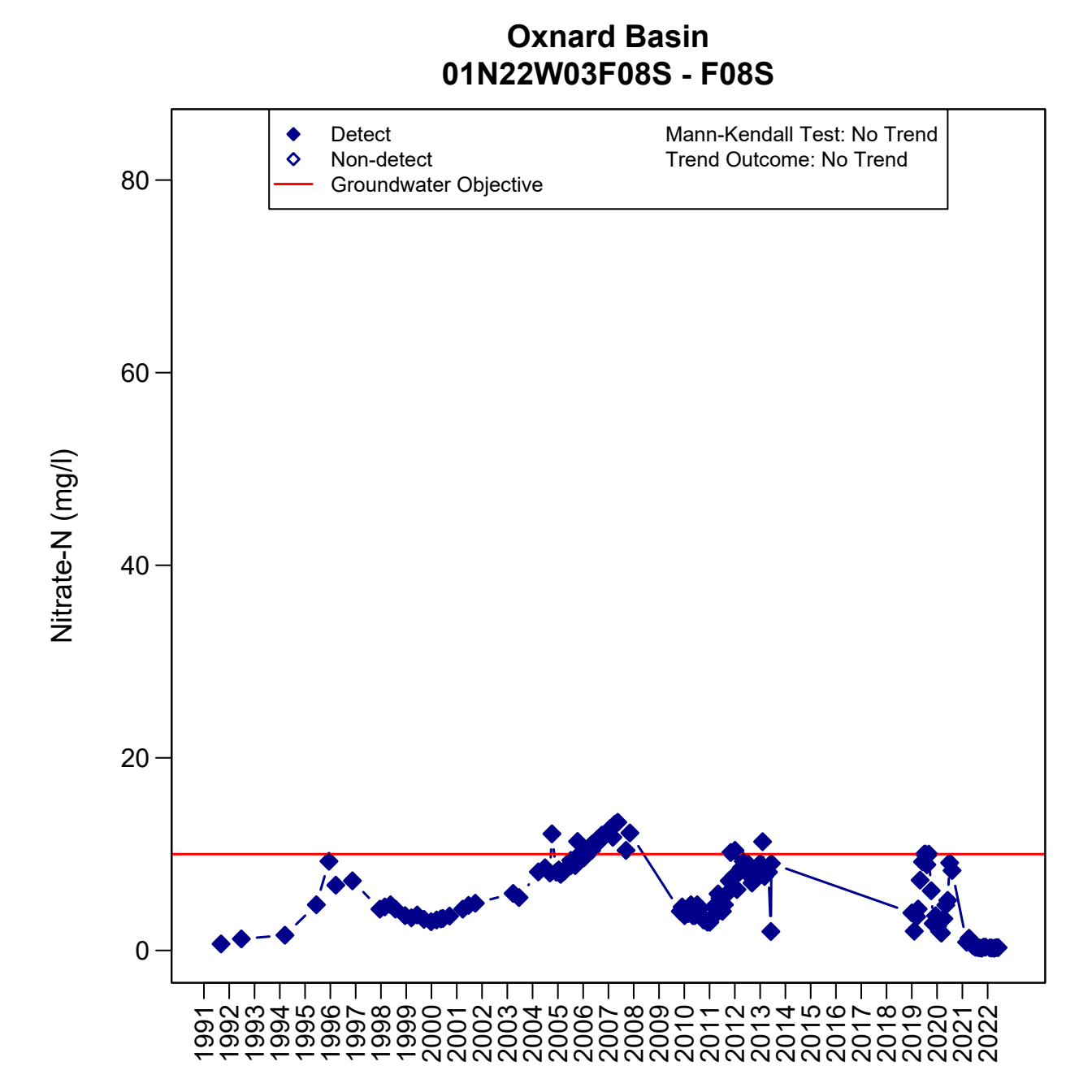
Oxnard Basin
02N22W23C01S - C01S




Oxnard Basin
01N22W03F08S - F08S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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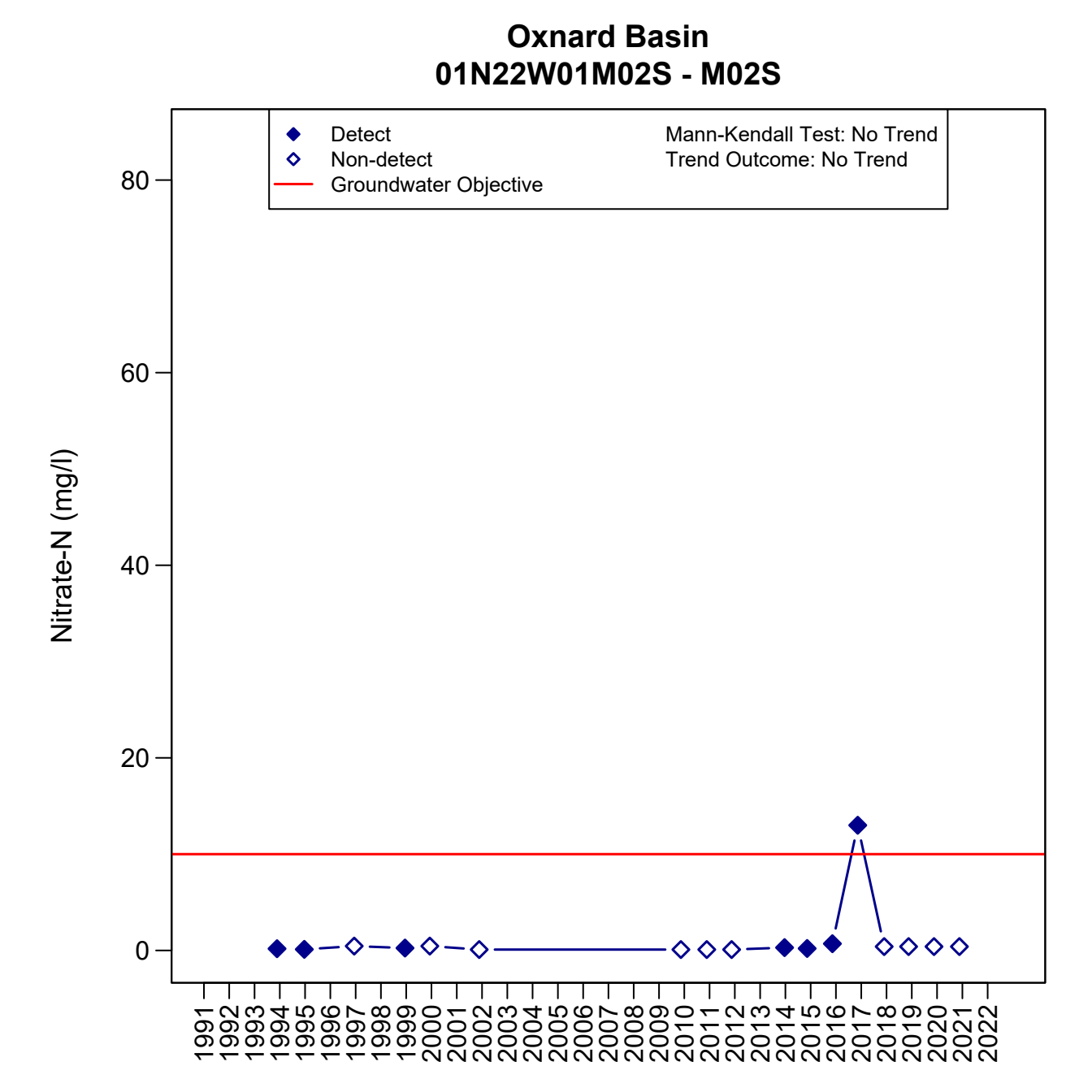
Oxnard Basin
01N22W01M02S - M02S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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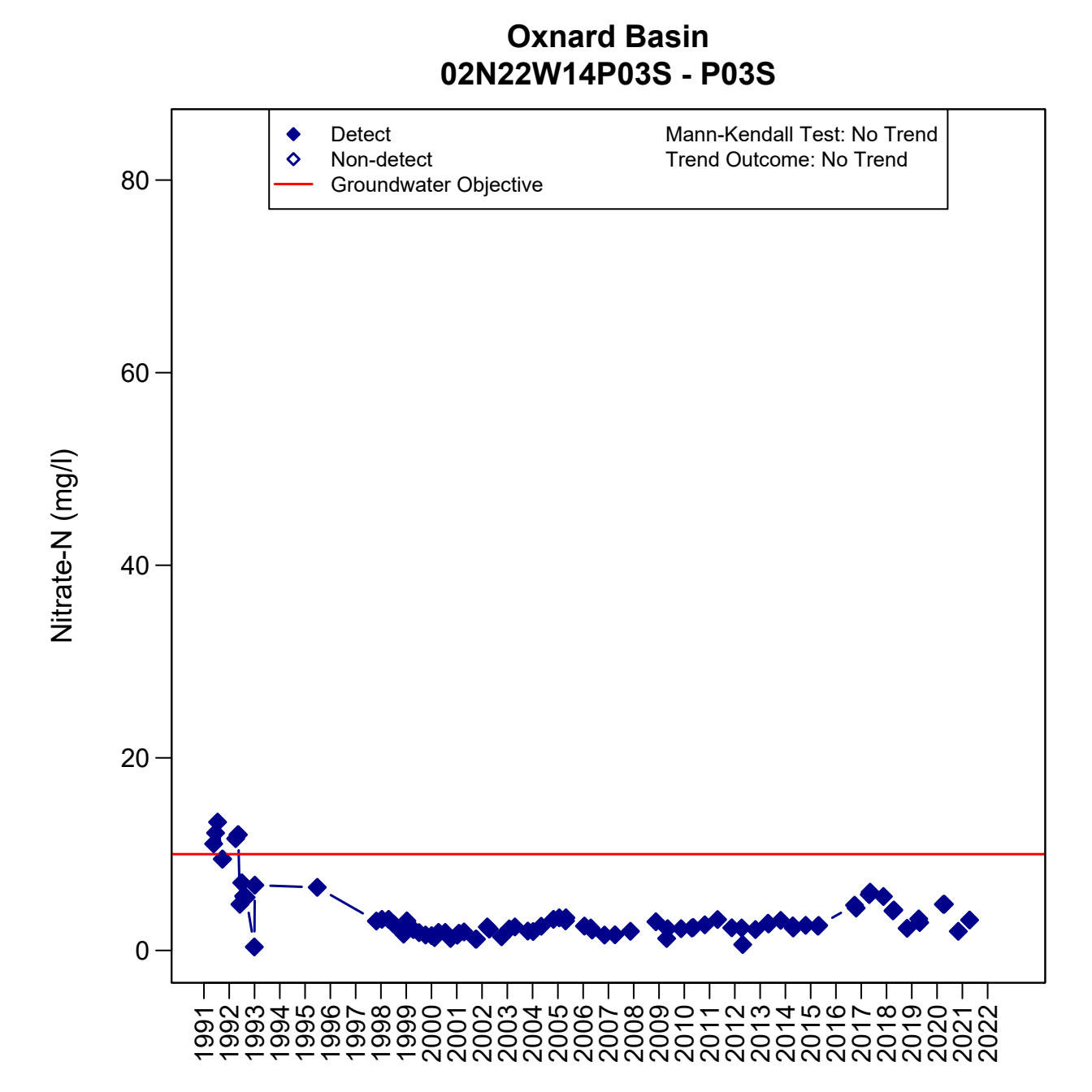
Oxnard Basin
02N22W14P03S - P03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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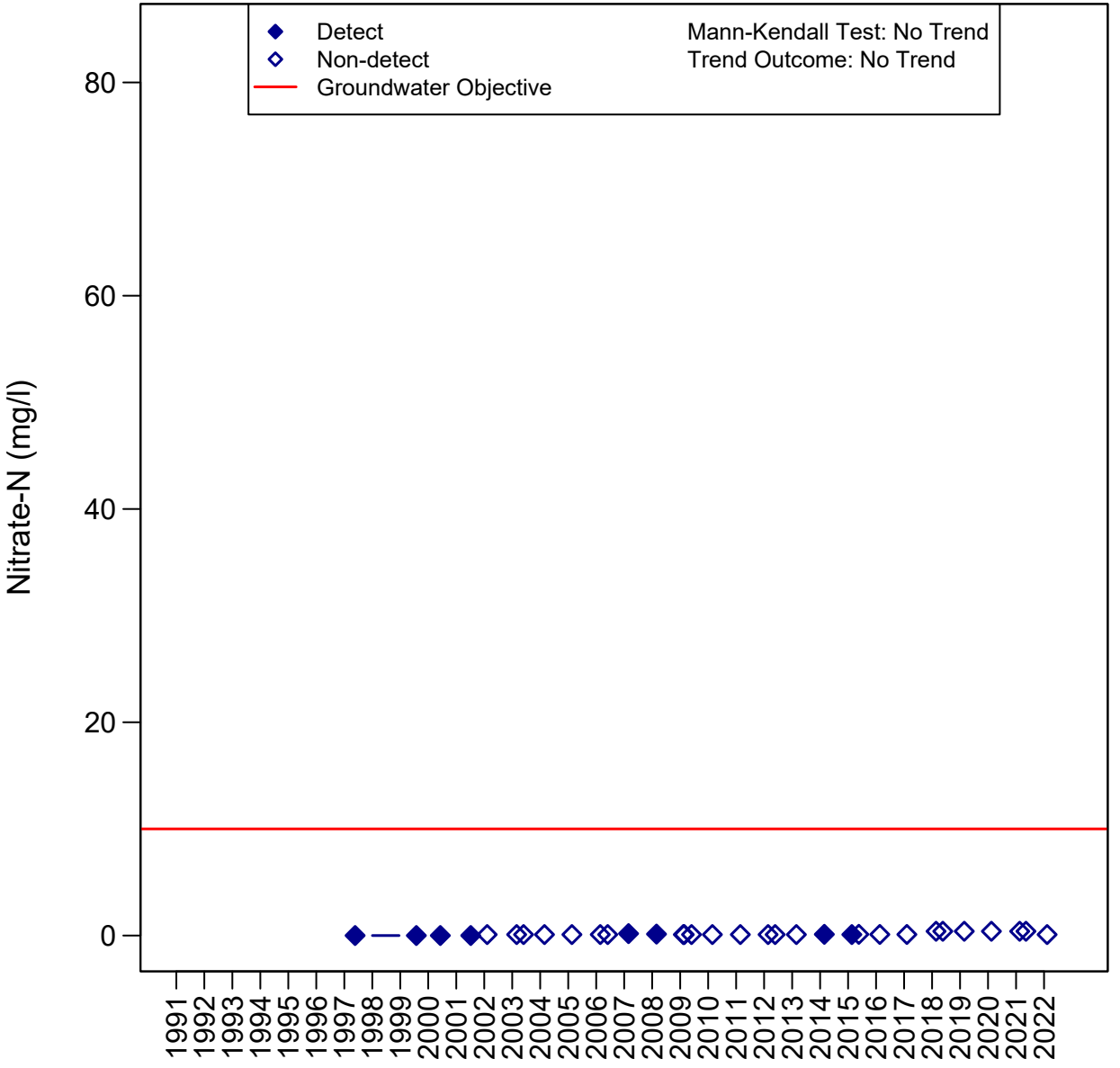
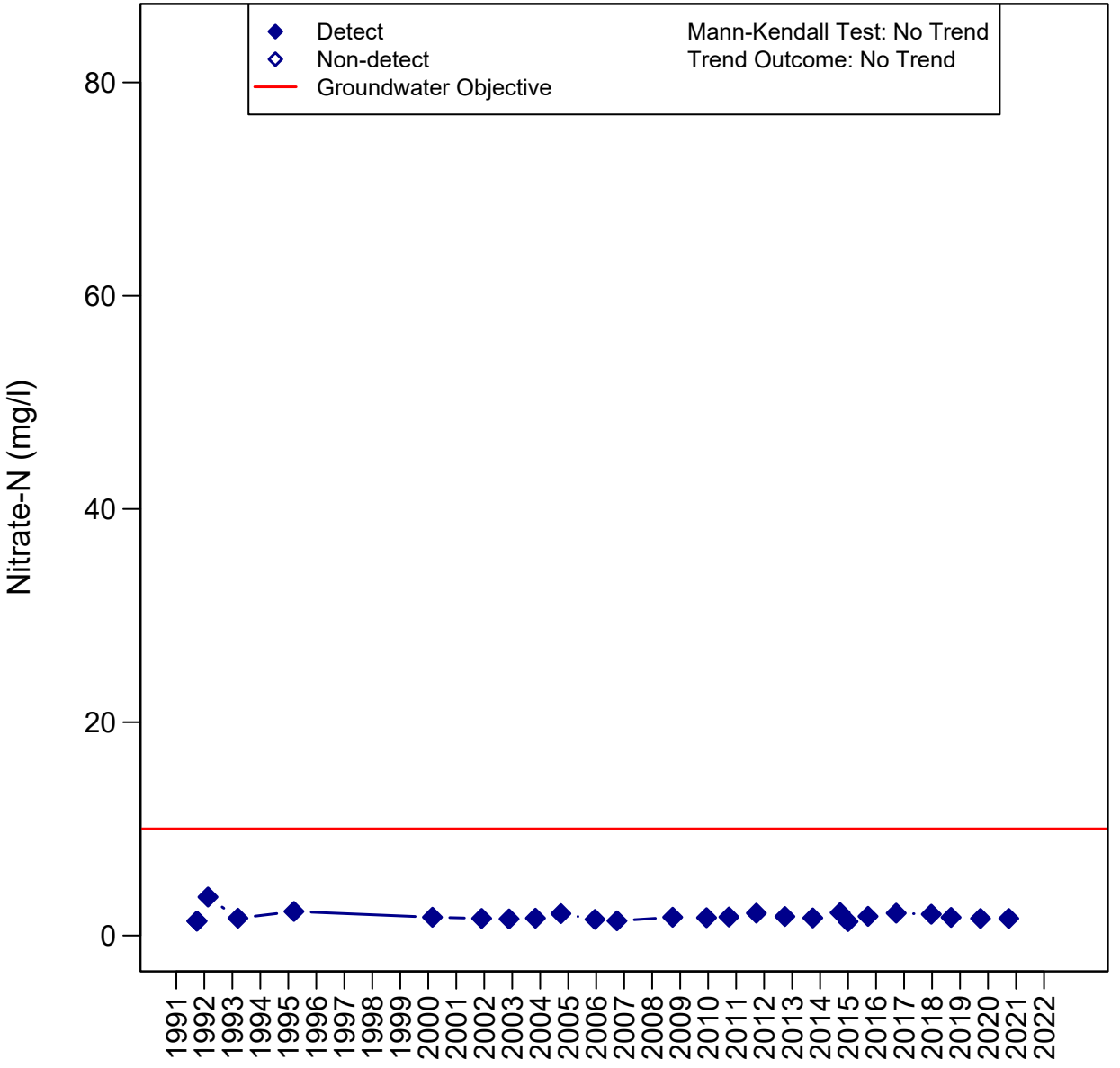
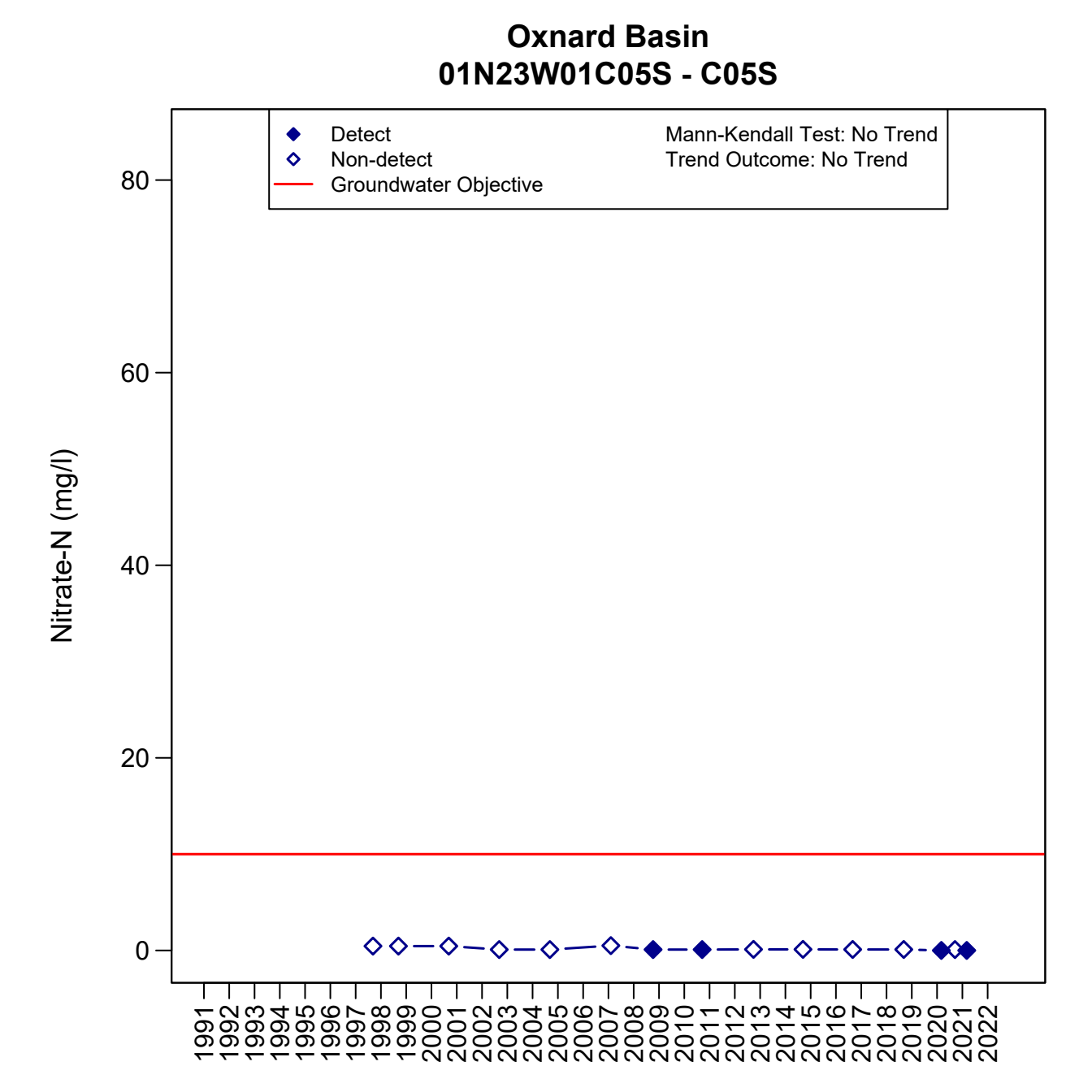
Oxnard Basin
01N21W21D03S - D03S



Oxnard Basin
02N22W14H04S - H04S




Oxnard Basin
01N23W01C05S - C05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
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1991
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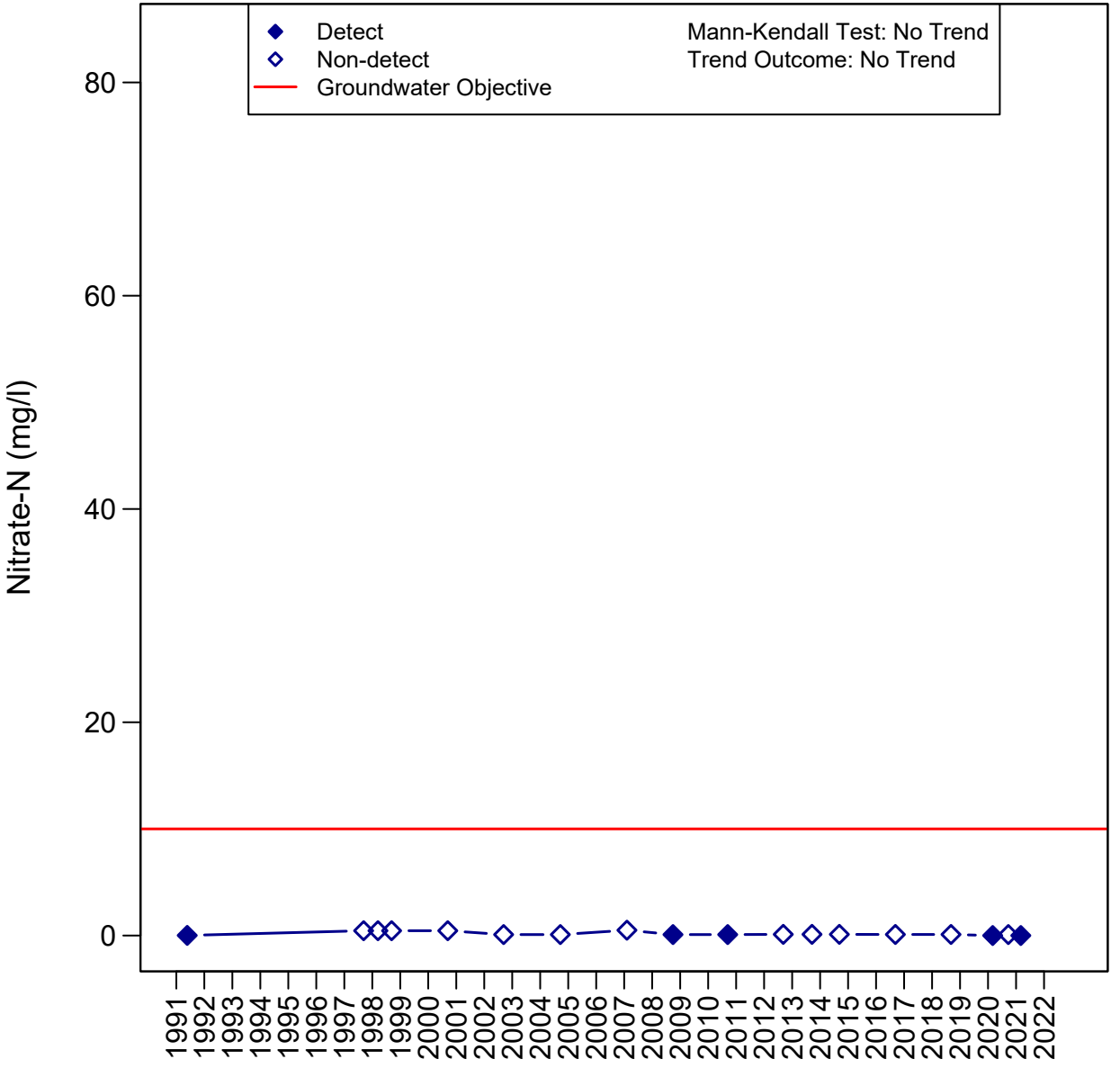
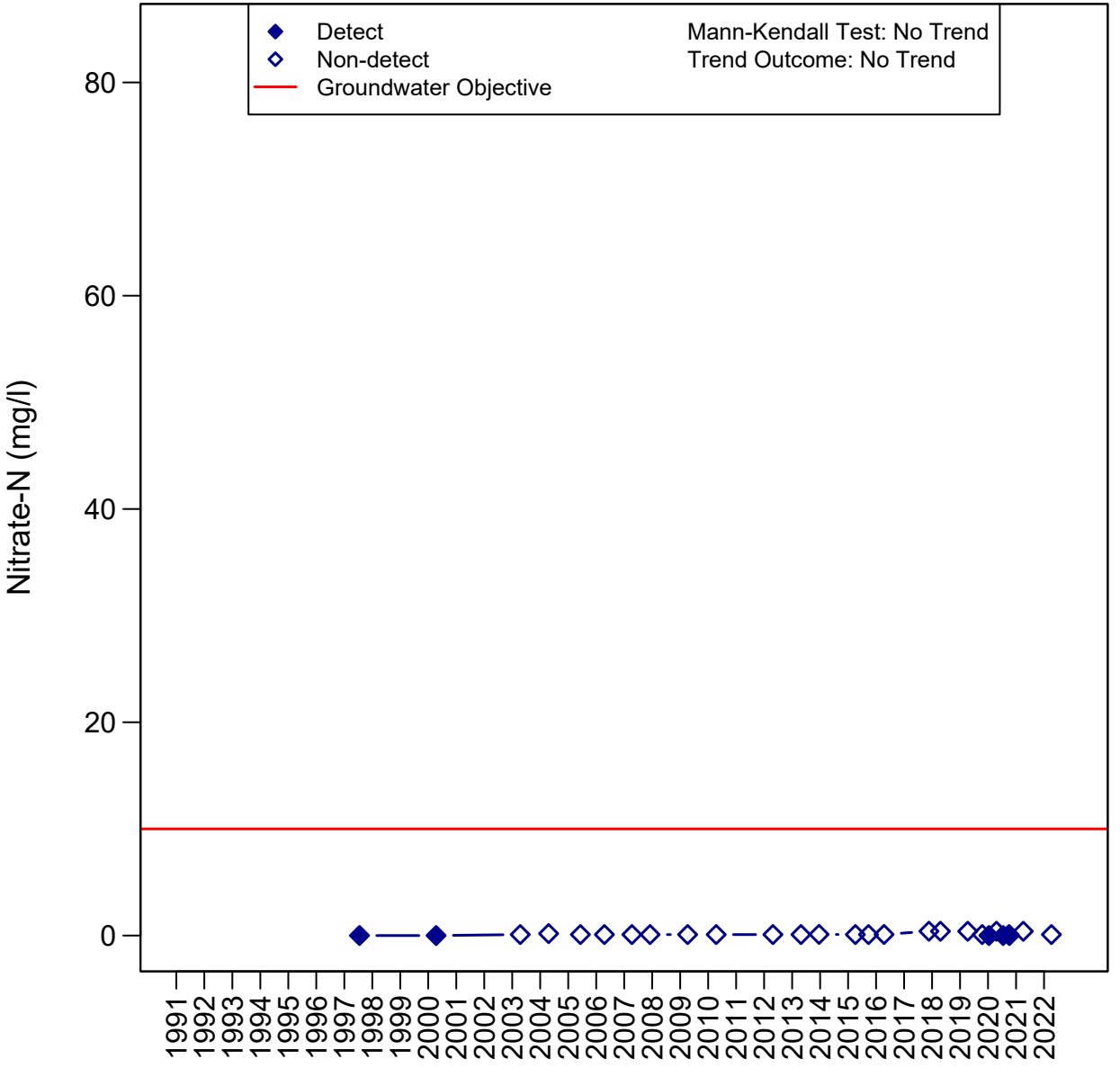
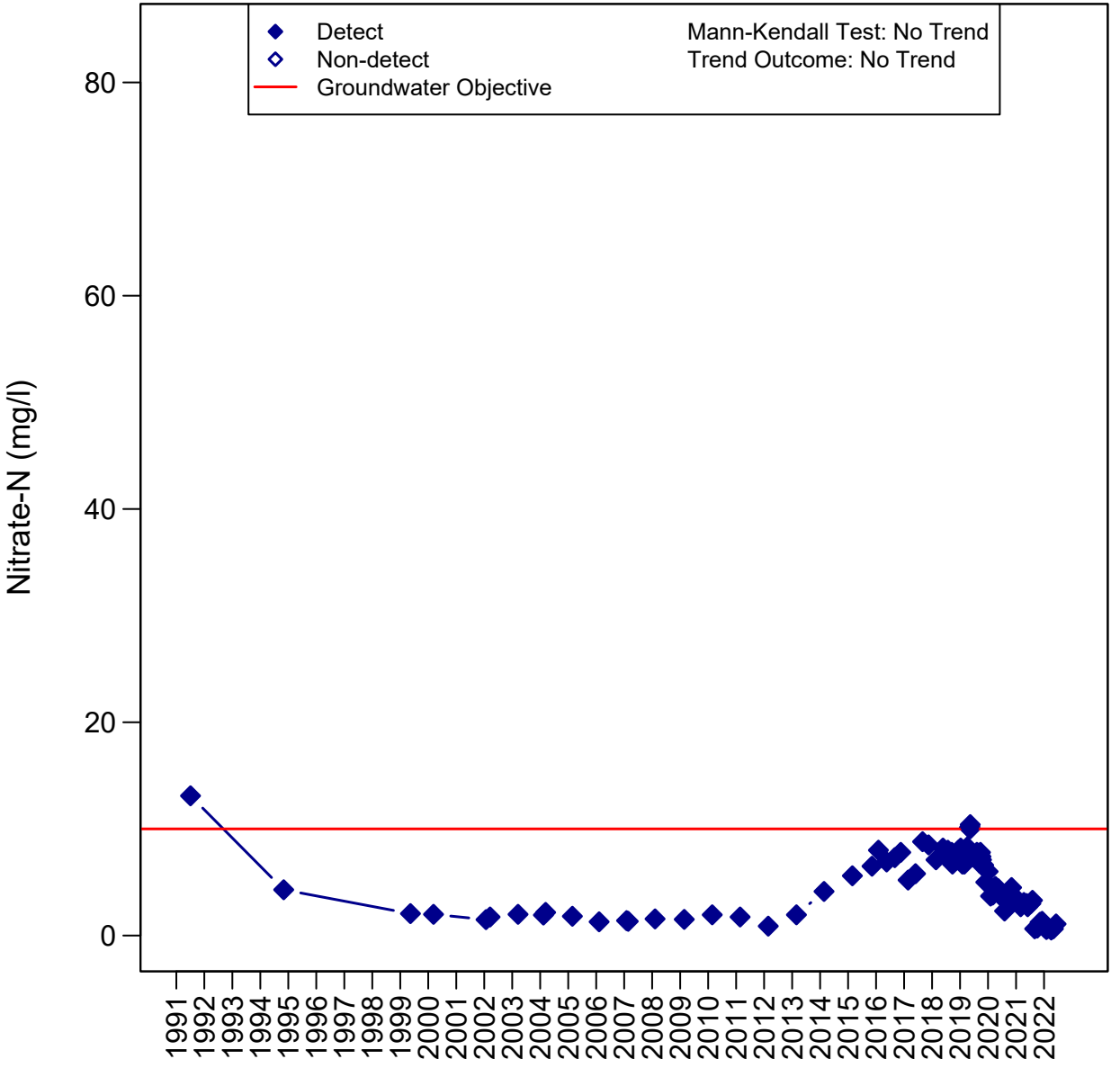
Oxnard Basin
01N22W36K08S - K08S



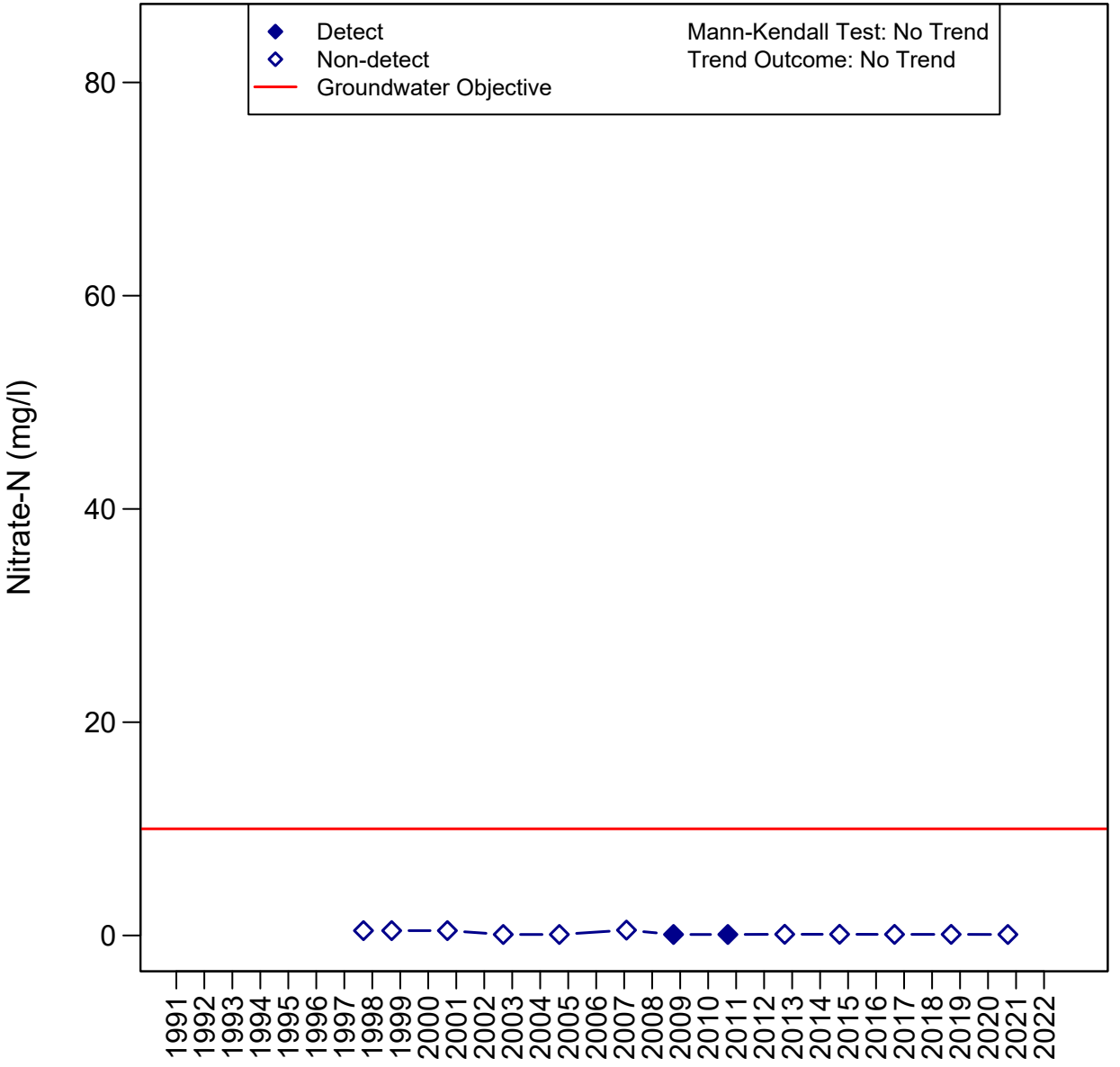
Oxnard Basin
01N21W29K02S - K02S



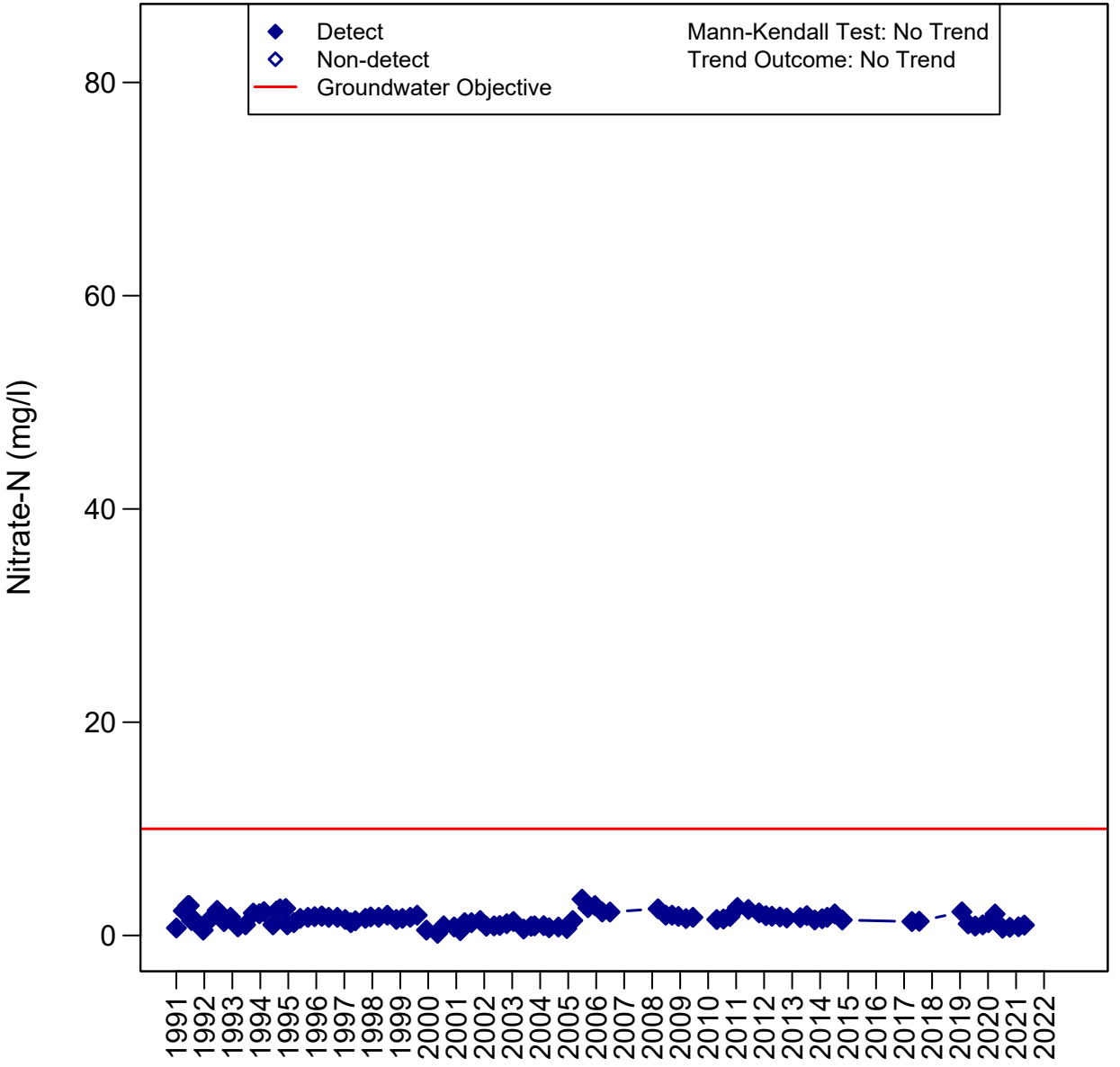
Oxnard Basin
02N22W22R04S - R04S

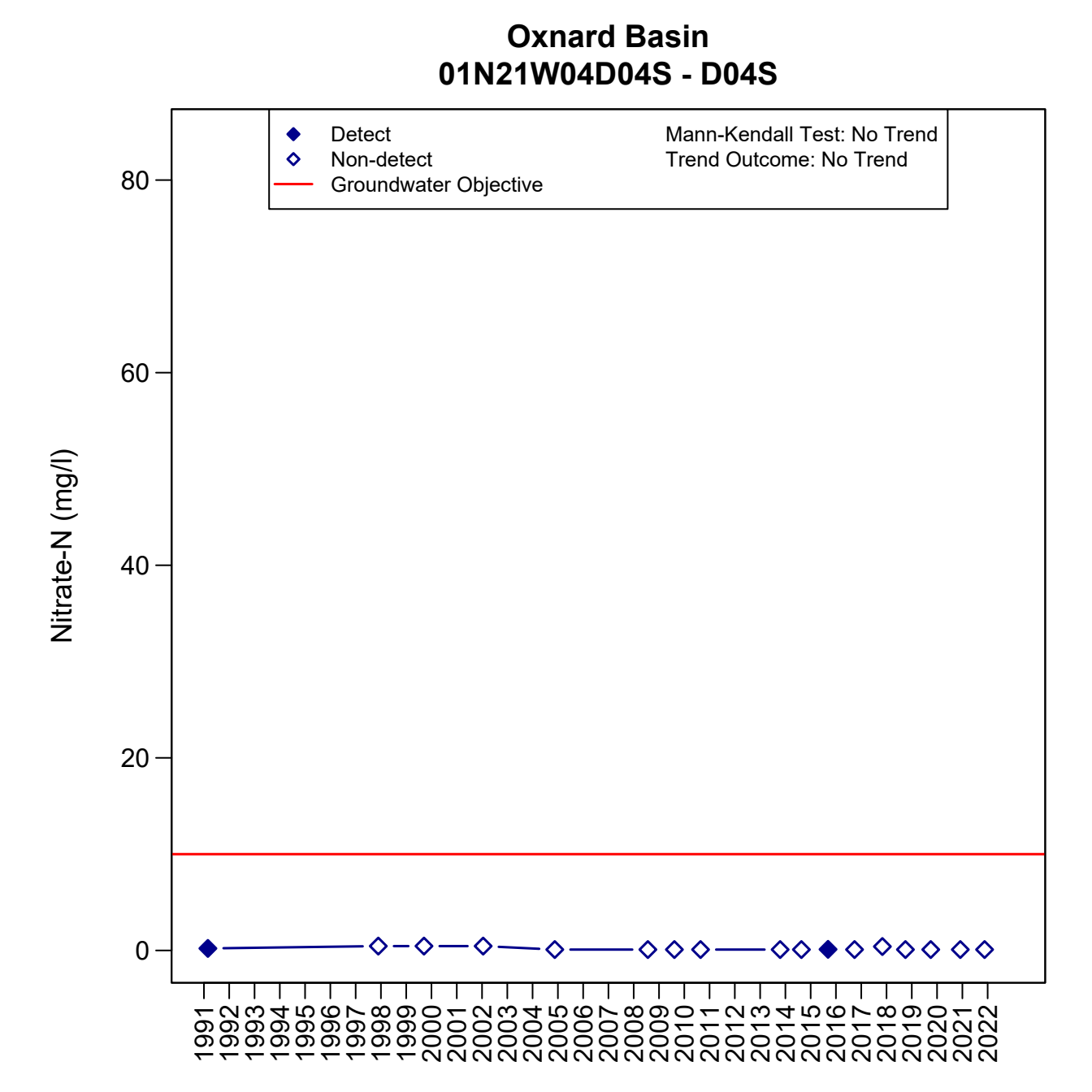


Oxnard Basin
01N23W01C02S - C02S



Oxnard Basin
02N22W11Q01S - Q01S




Oxnard Basin
01N21W04D04S - D04S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
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1991
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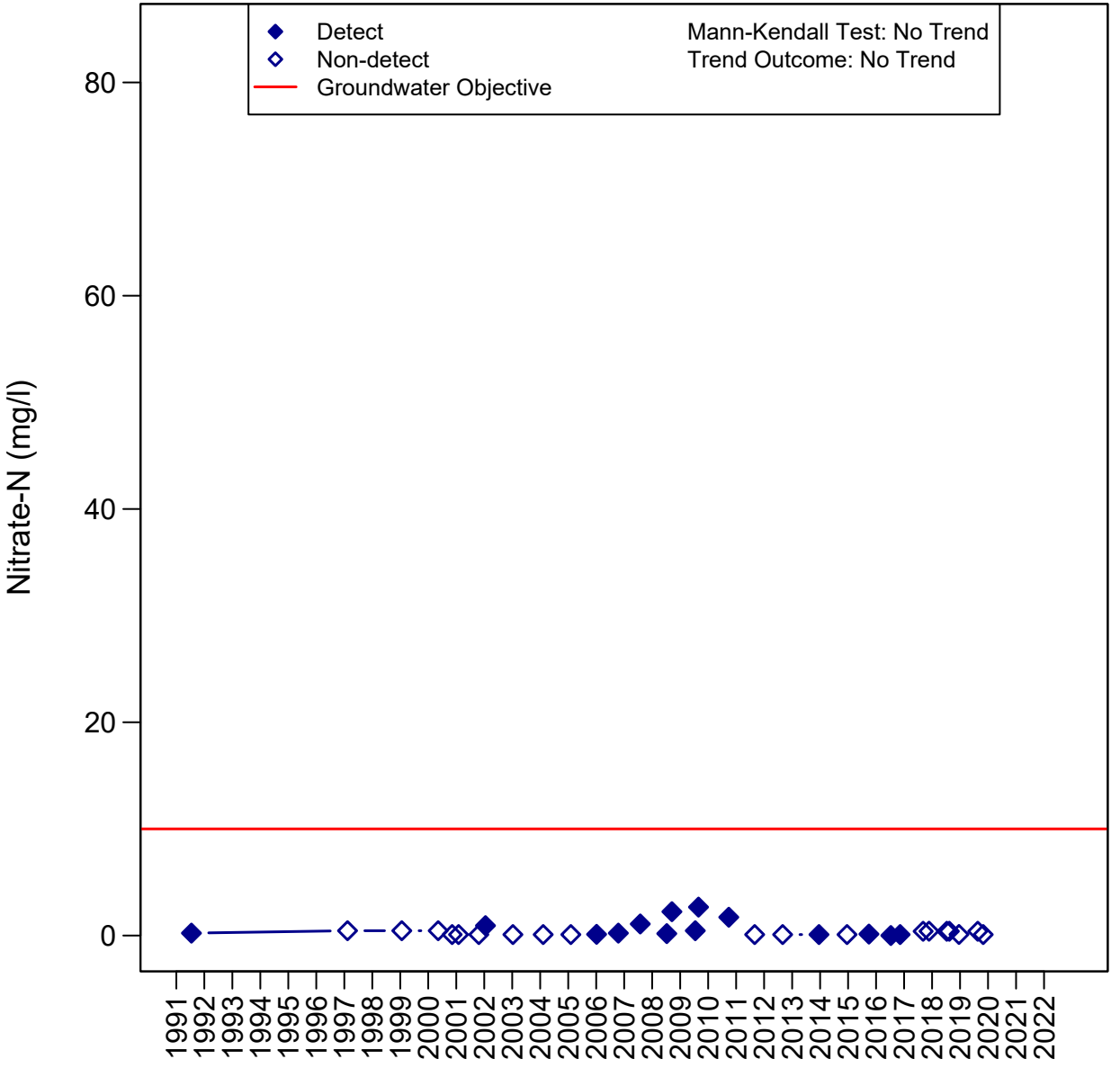
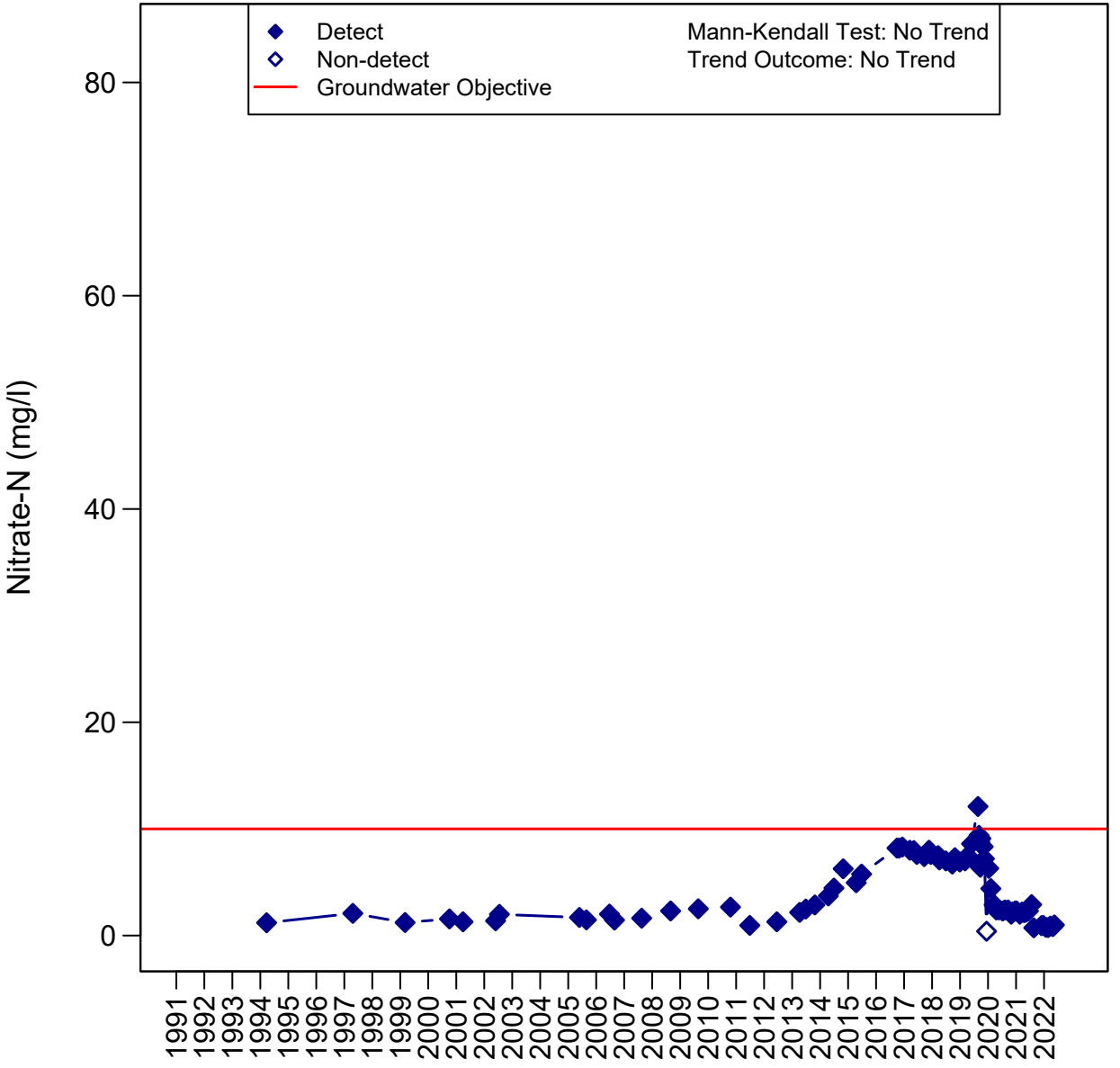
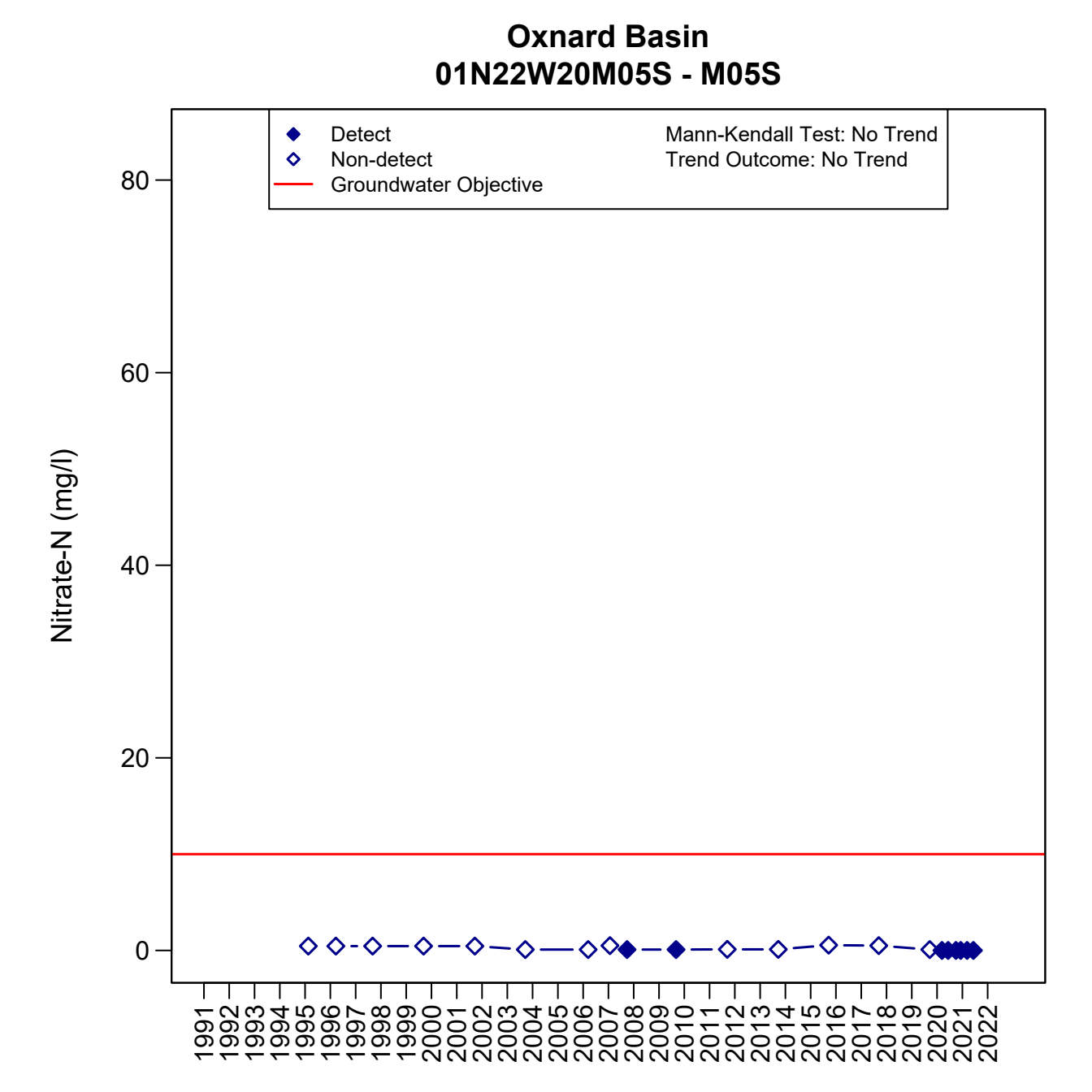
Oxnard Basin
01N22W16D04S - D04S



Oxnard Basin
02N22W27A03S - A03S




Oxnard Basin
01N22W20M05S - M05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
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1991
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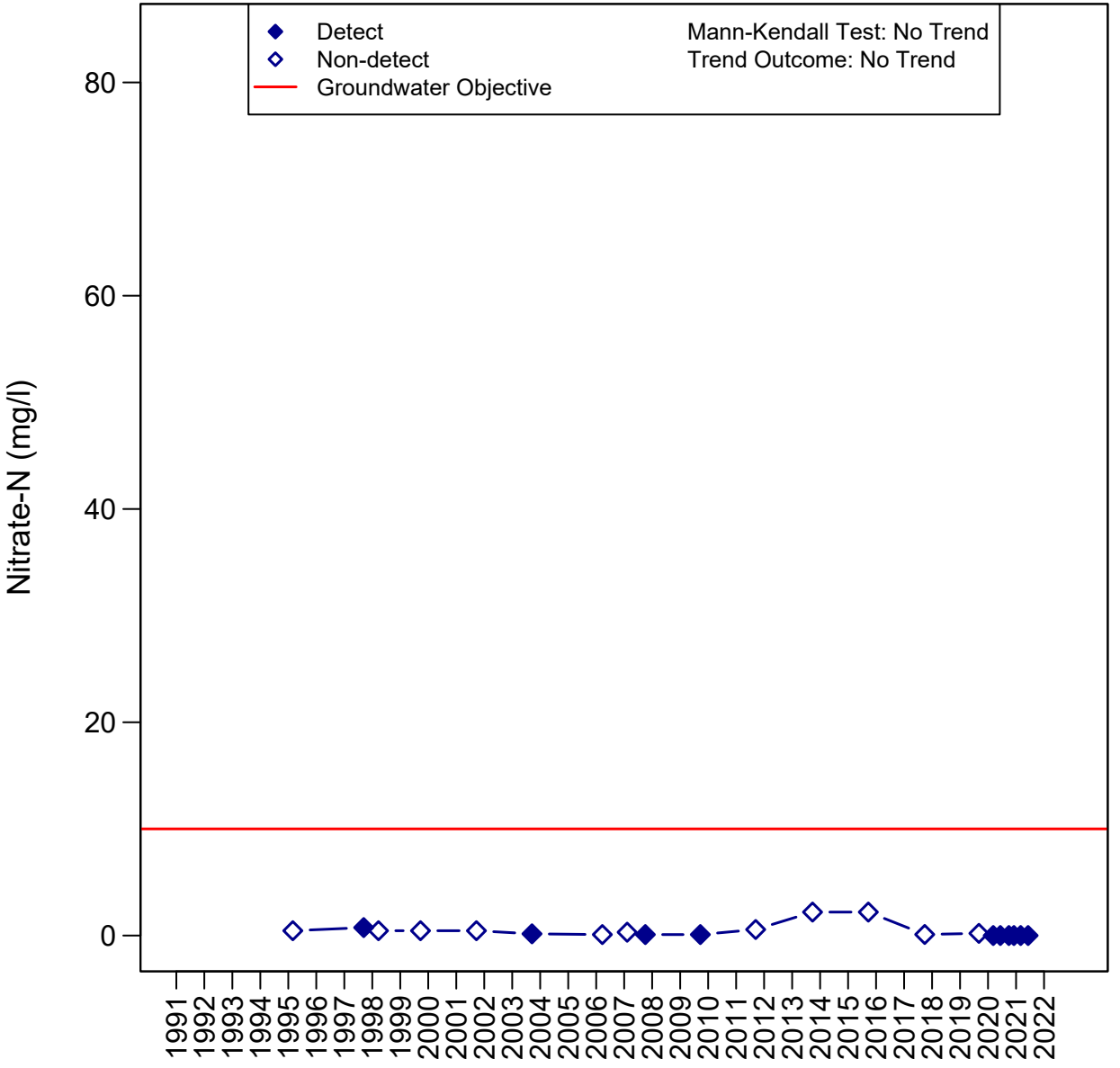
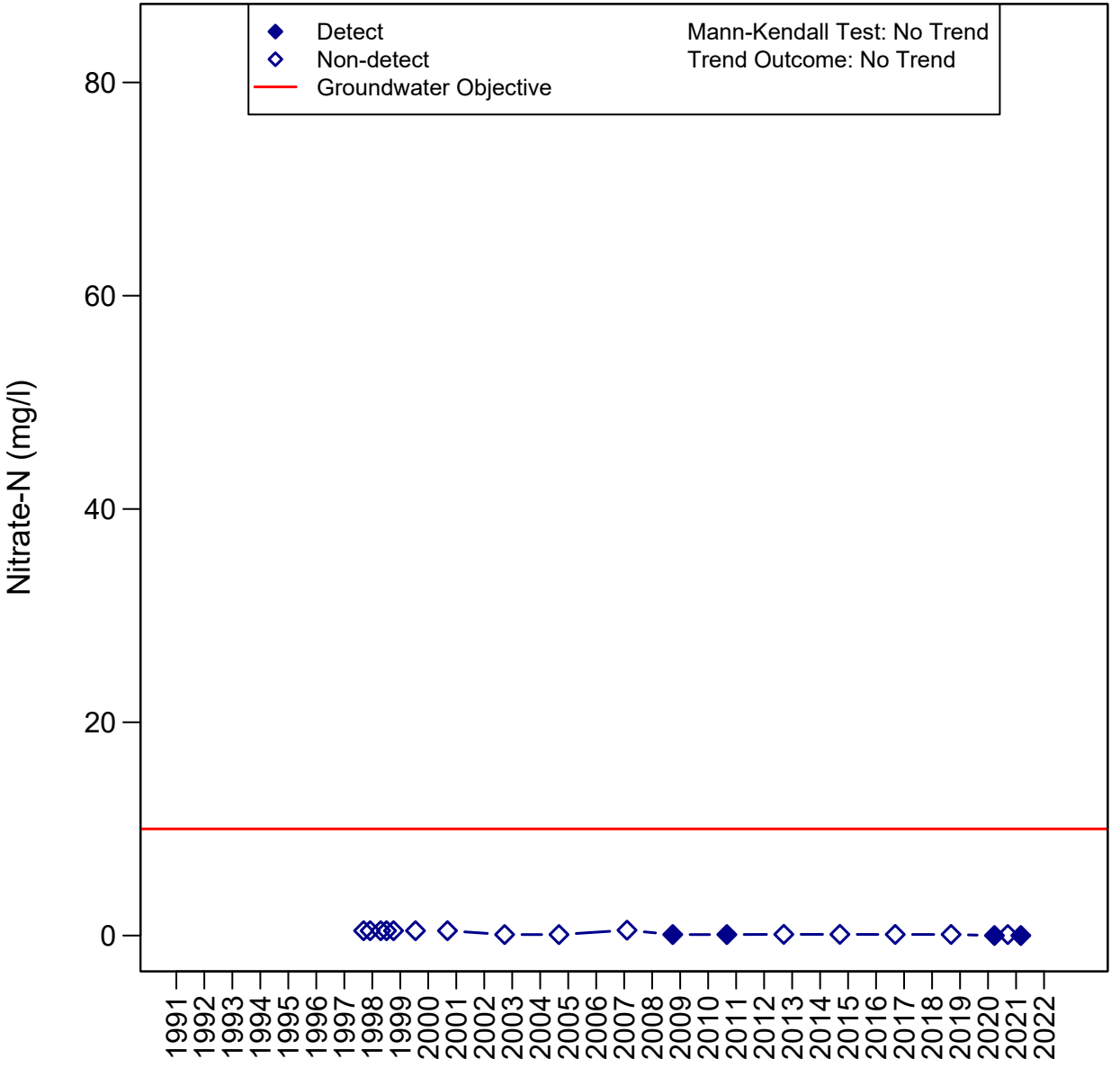
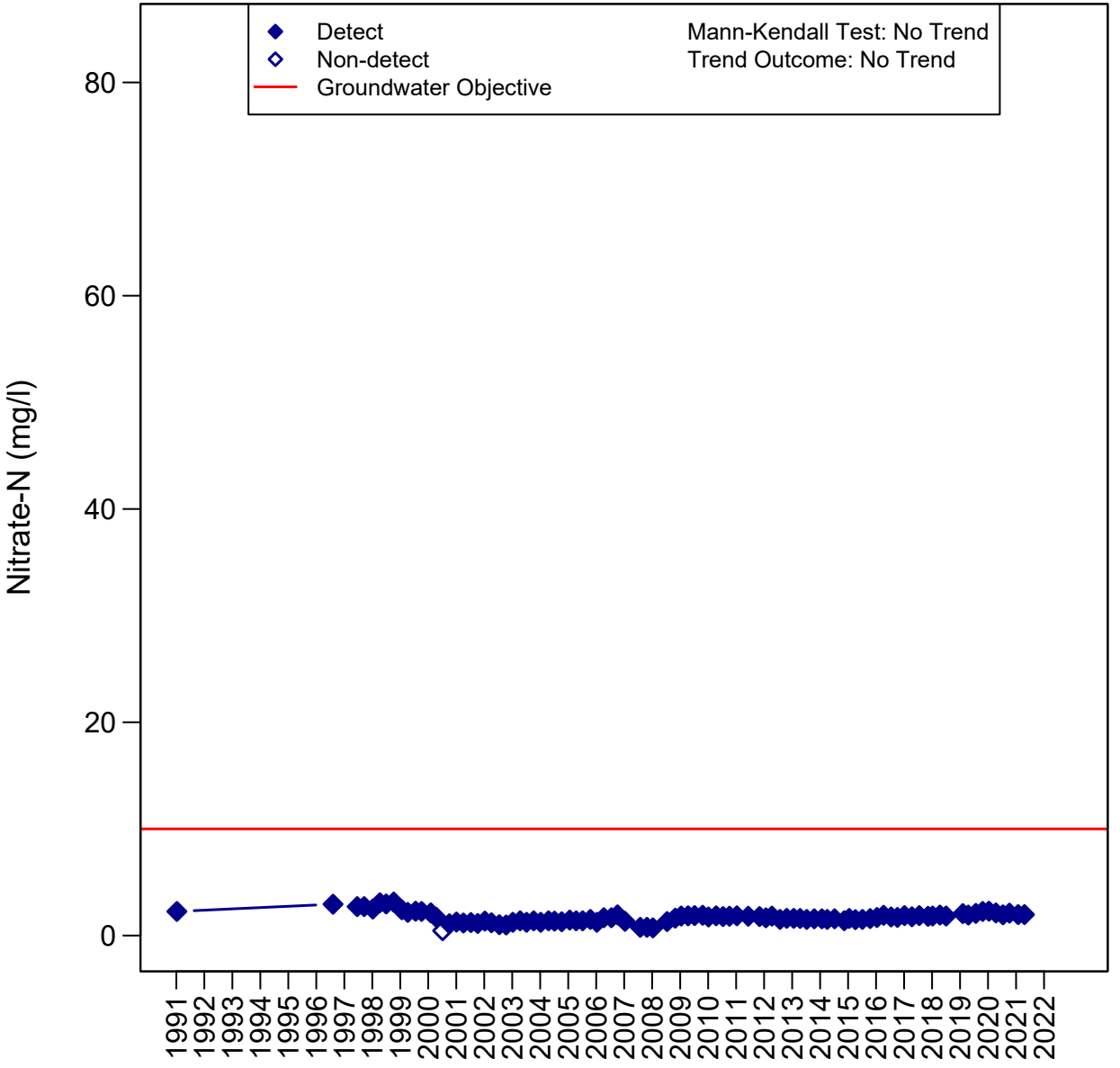
Oxnard Basin
01N21W32Q05S - Q05S

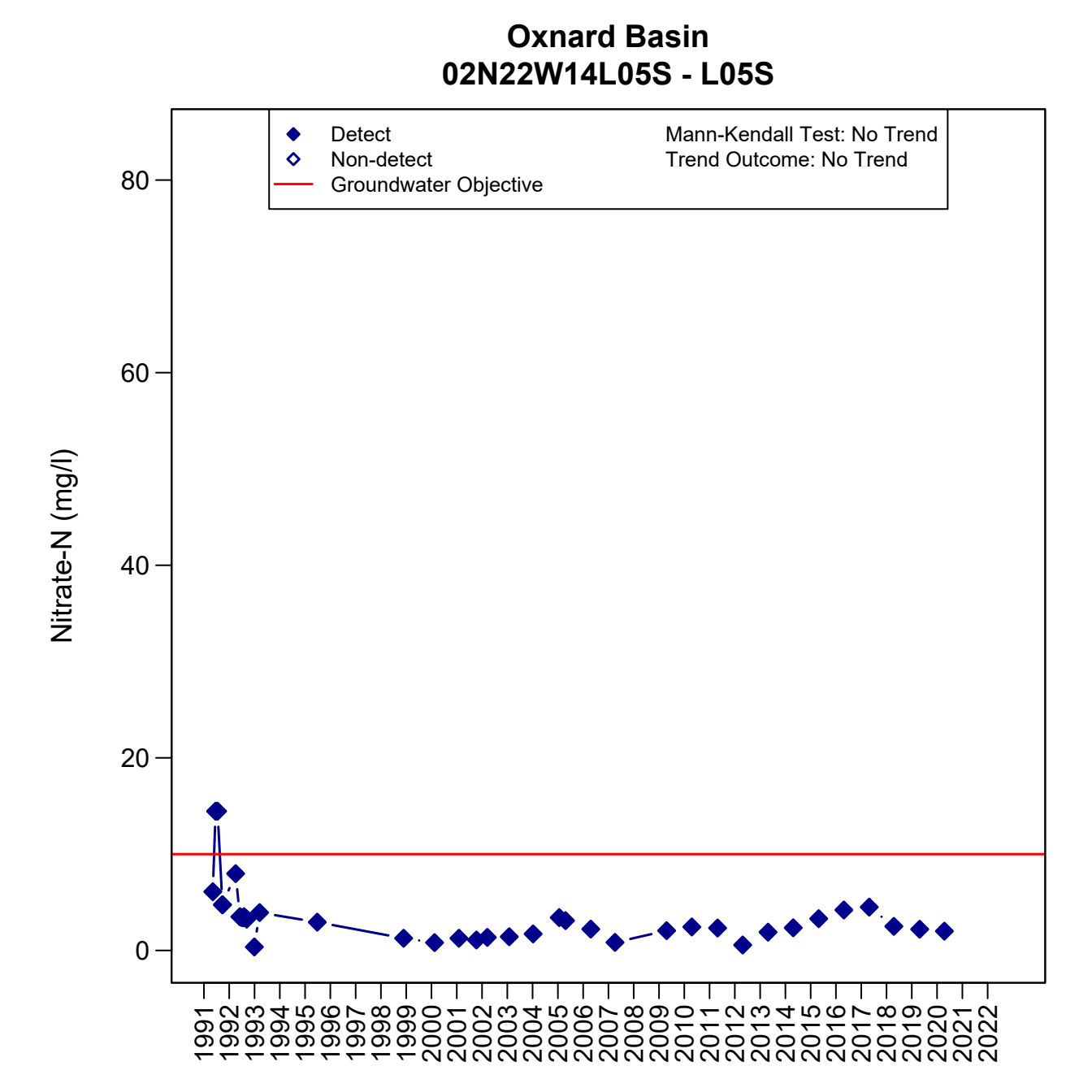


Oxnard Basin
01N21W19L13S - L13S



Oxnard Basin
02N22W14G04S - G04S




Oxnard Basin
02N22W14L05S - L05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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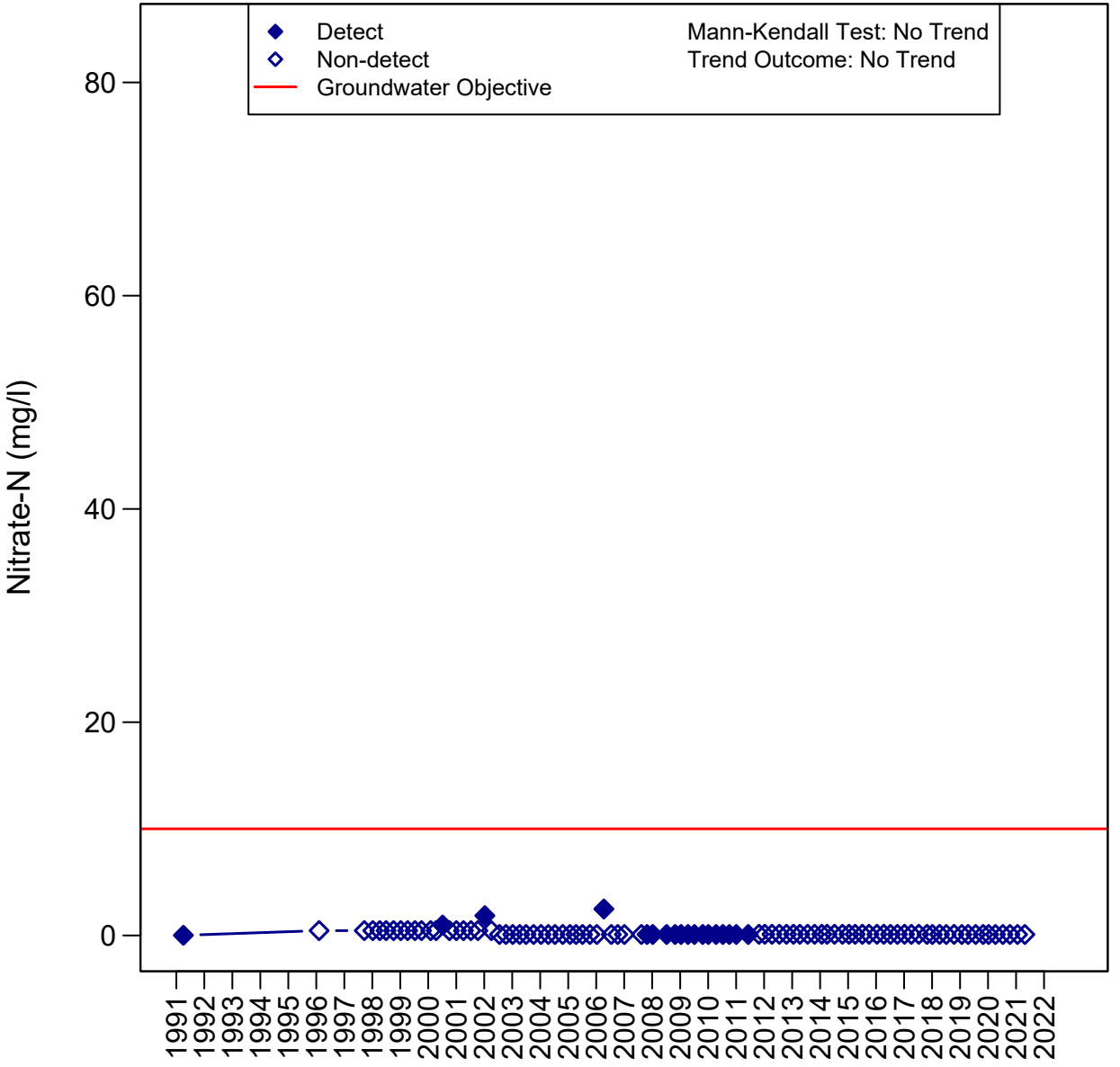
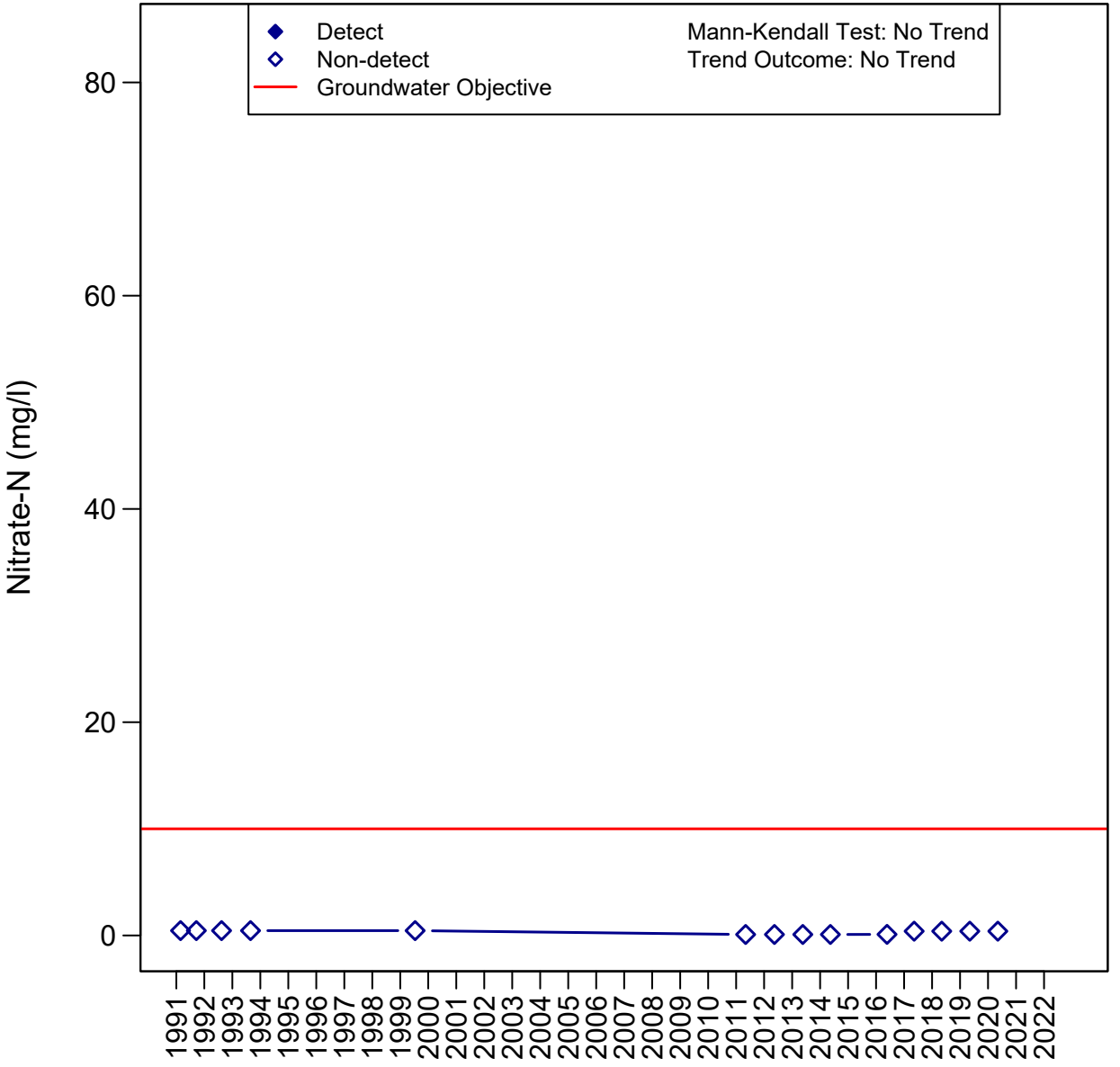
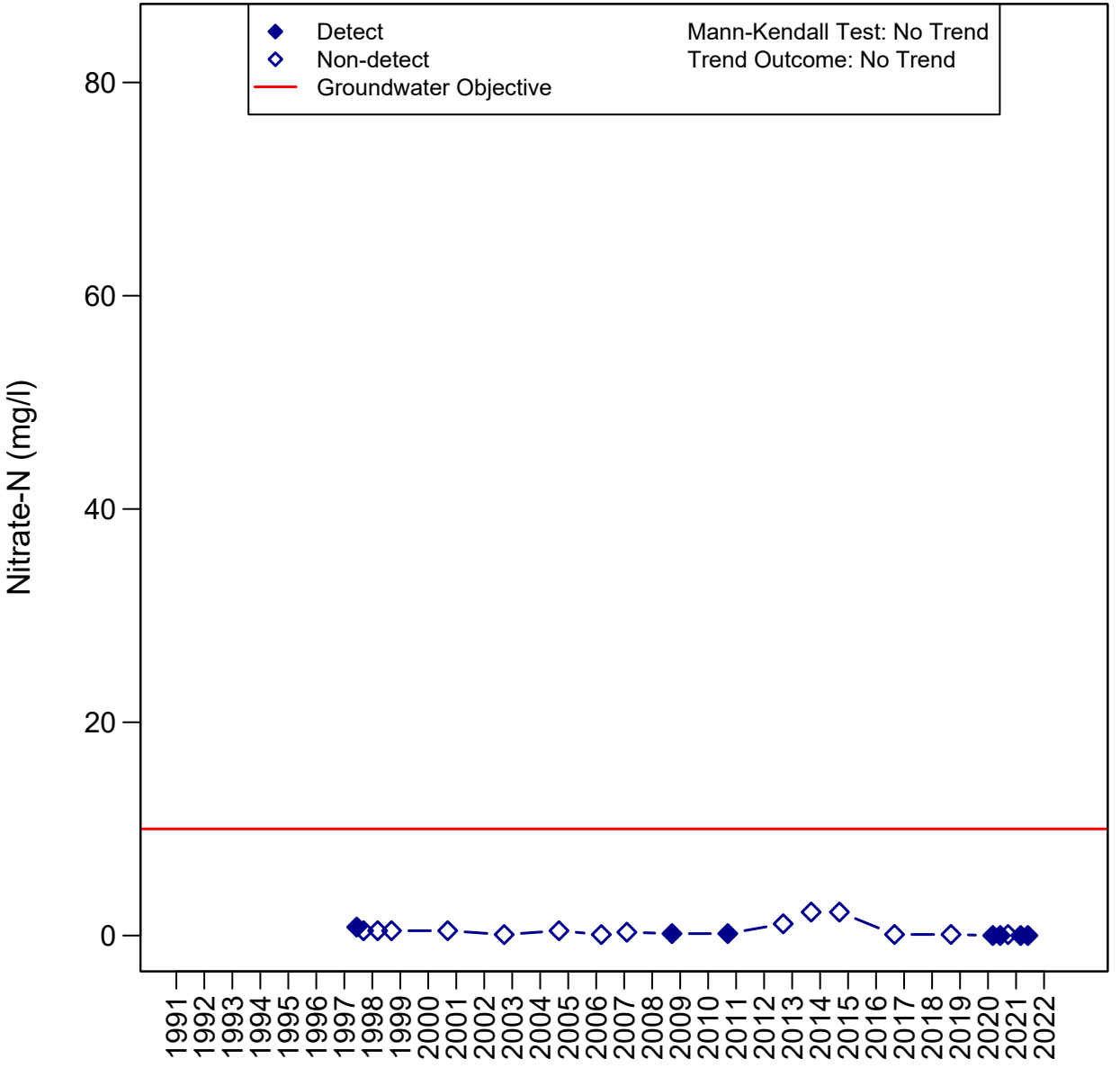
Oxnard Basin
02N21W07L04S - L04S

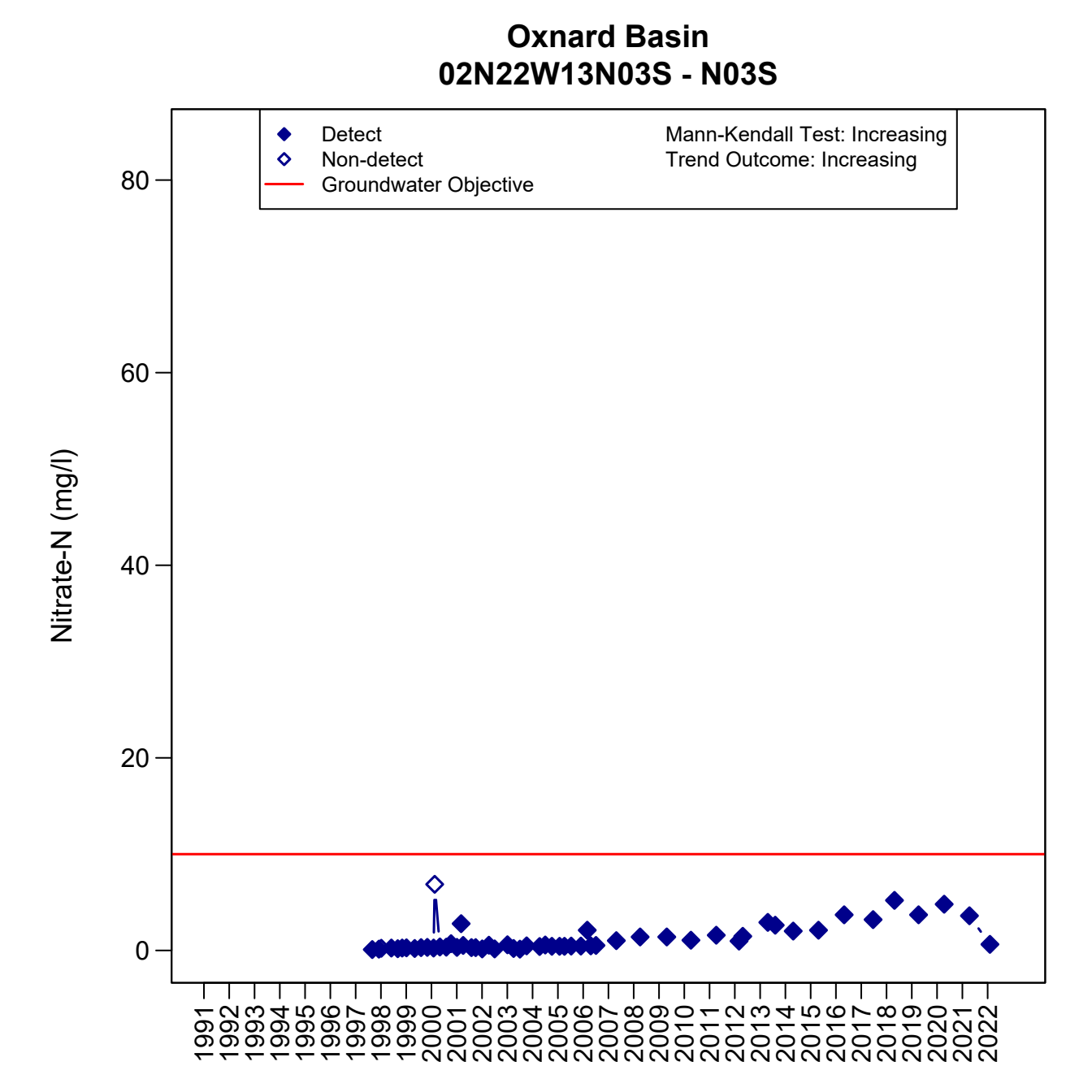


Oxnard Basin
02N21W07P03S - P03S



Oxnard Basin
01N22W27R04S - R04S




Oxnard Basin
02N22W13N03S - N03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: Increasing
Nitrate-N (mg/l)
0
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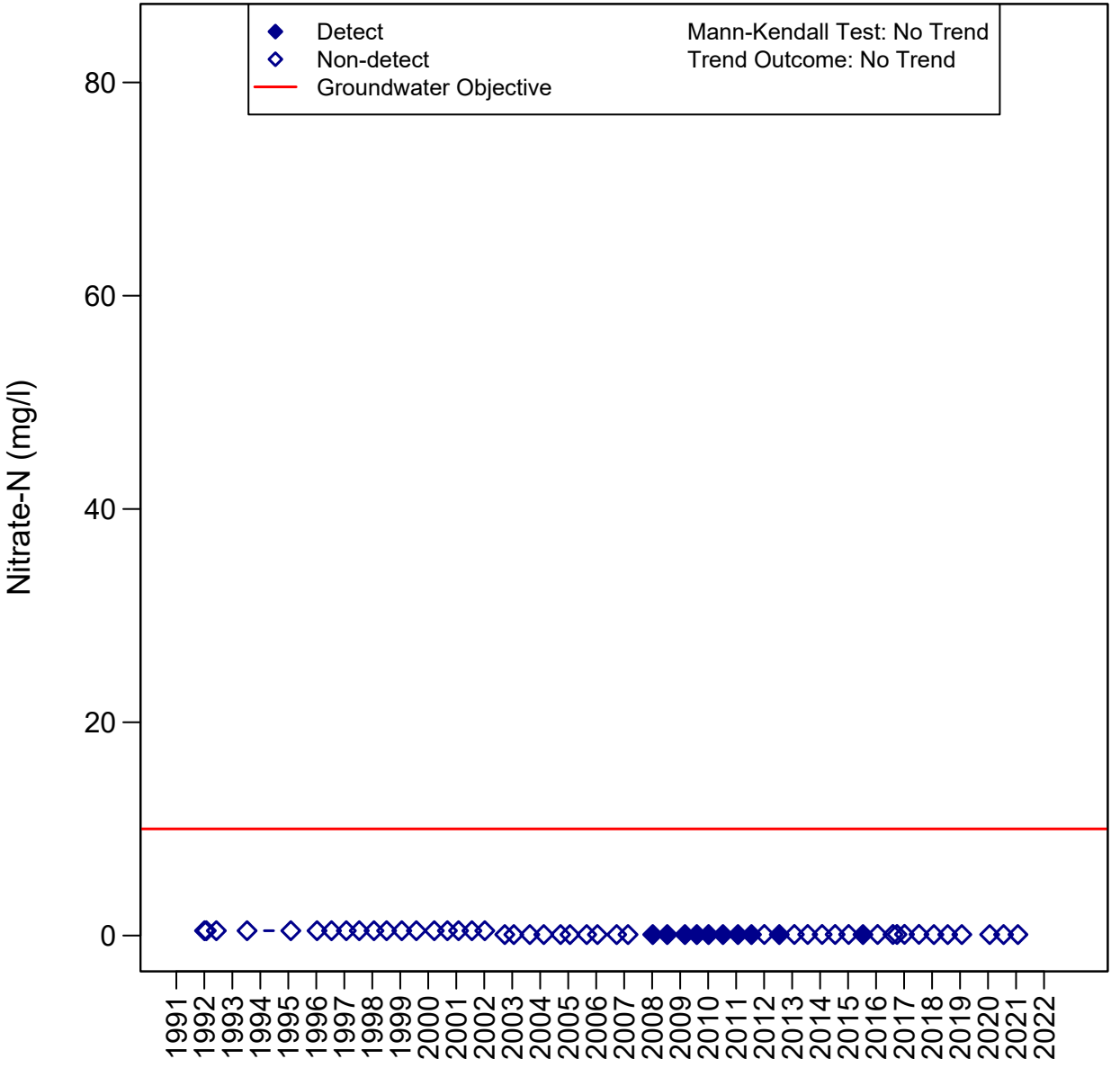
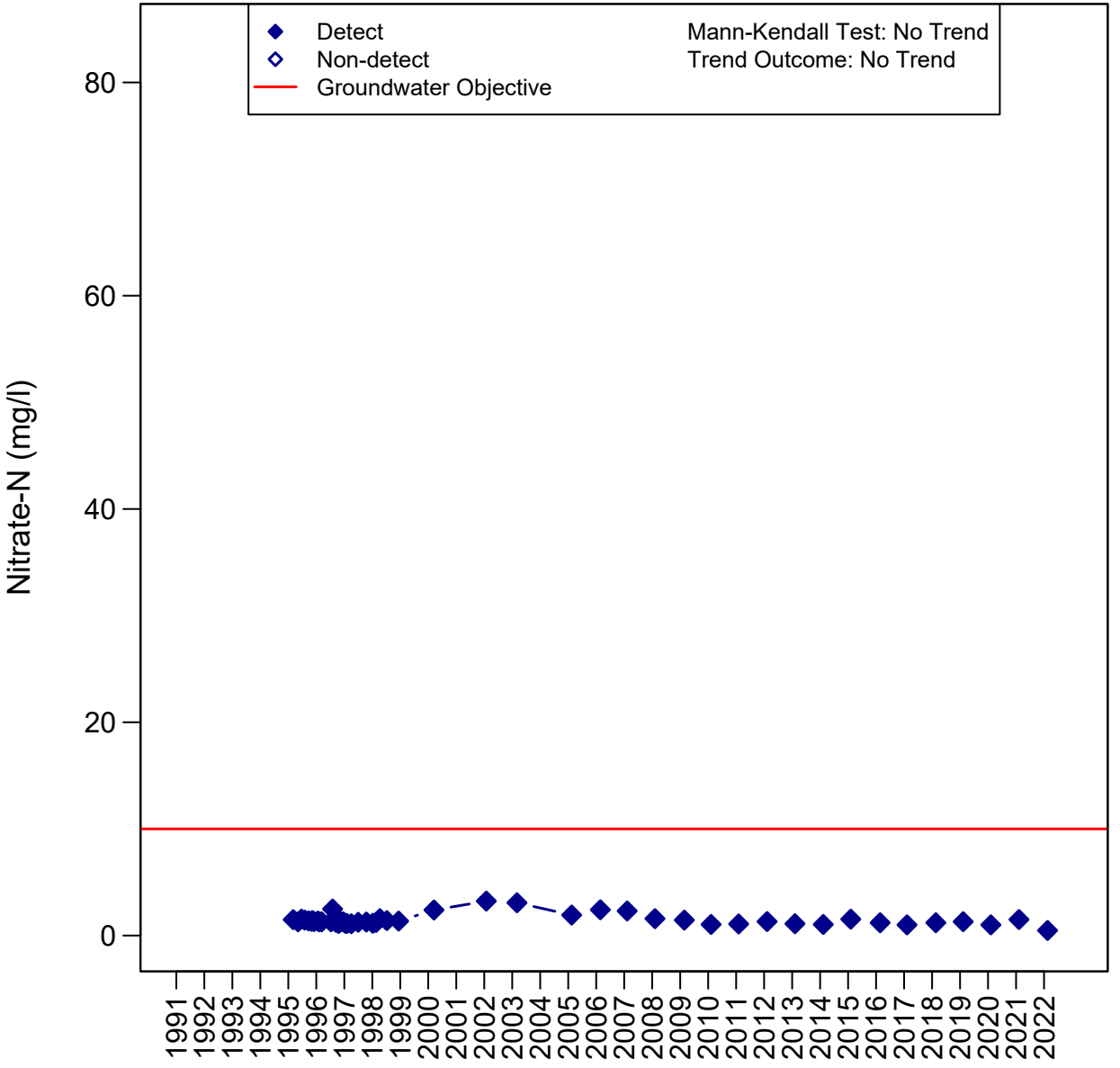
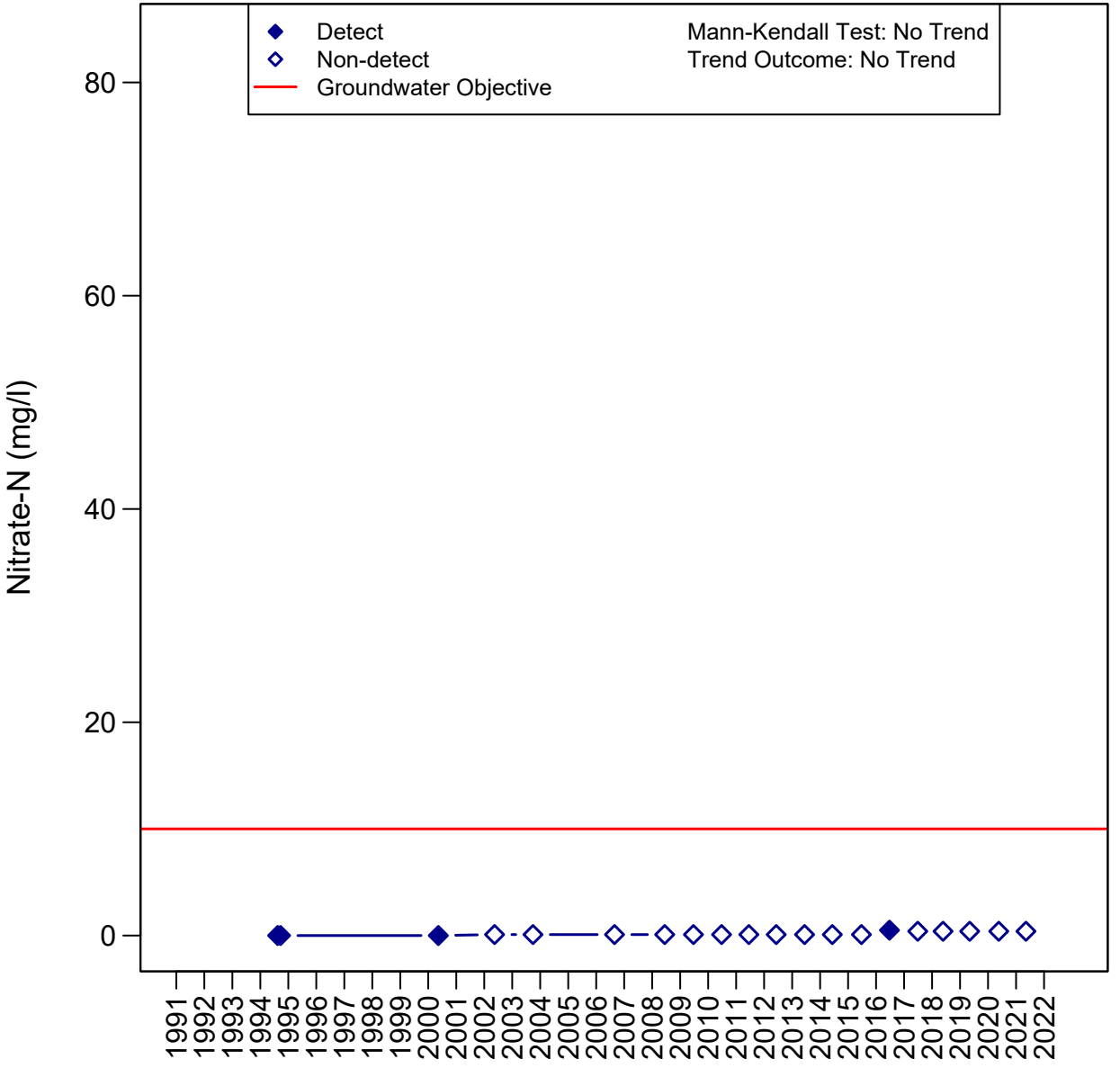
Oxnard Basin
01N22W01M03S - M03S



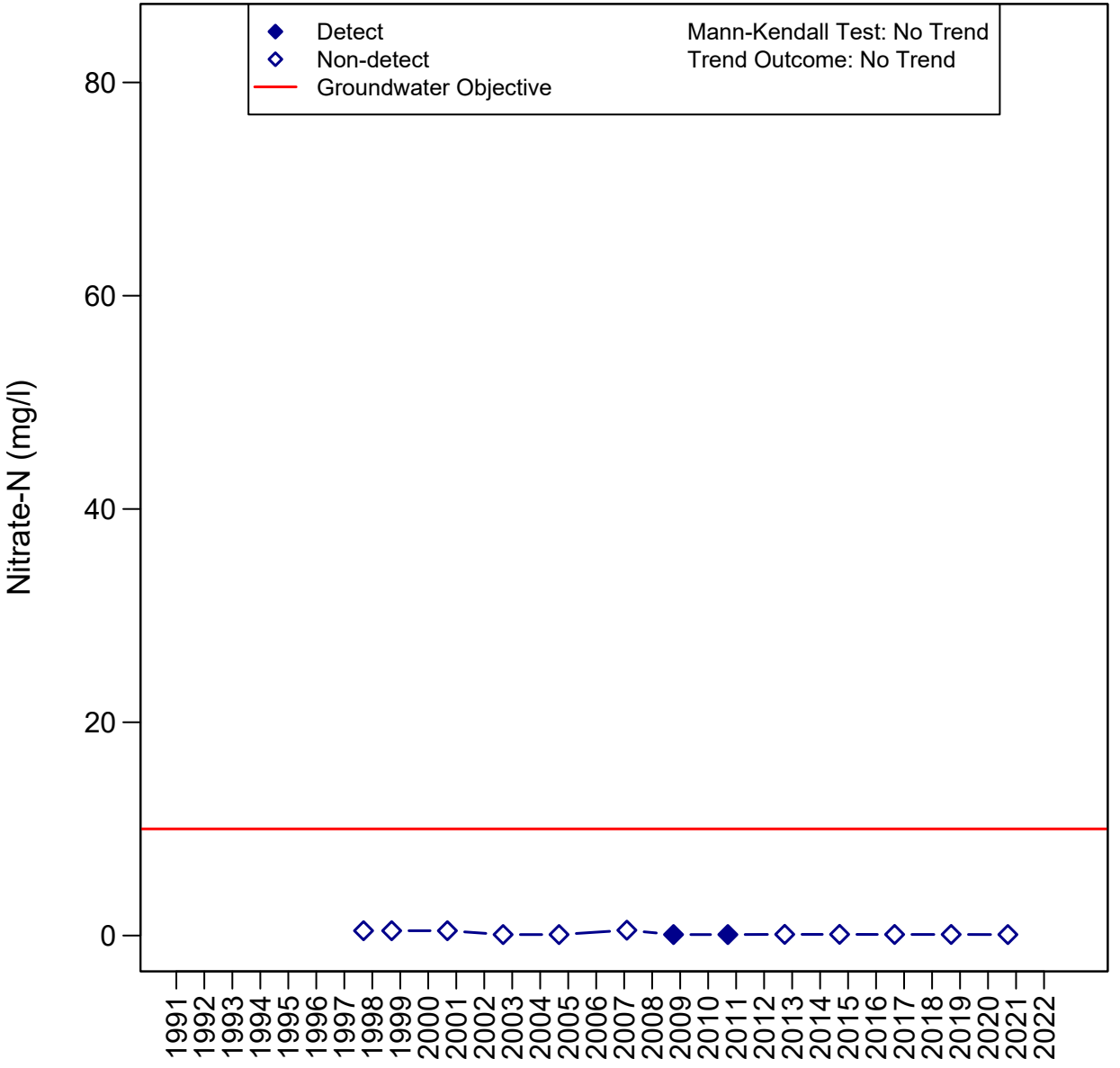
Oxnard Basin
02N22W25L05S - L05S



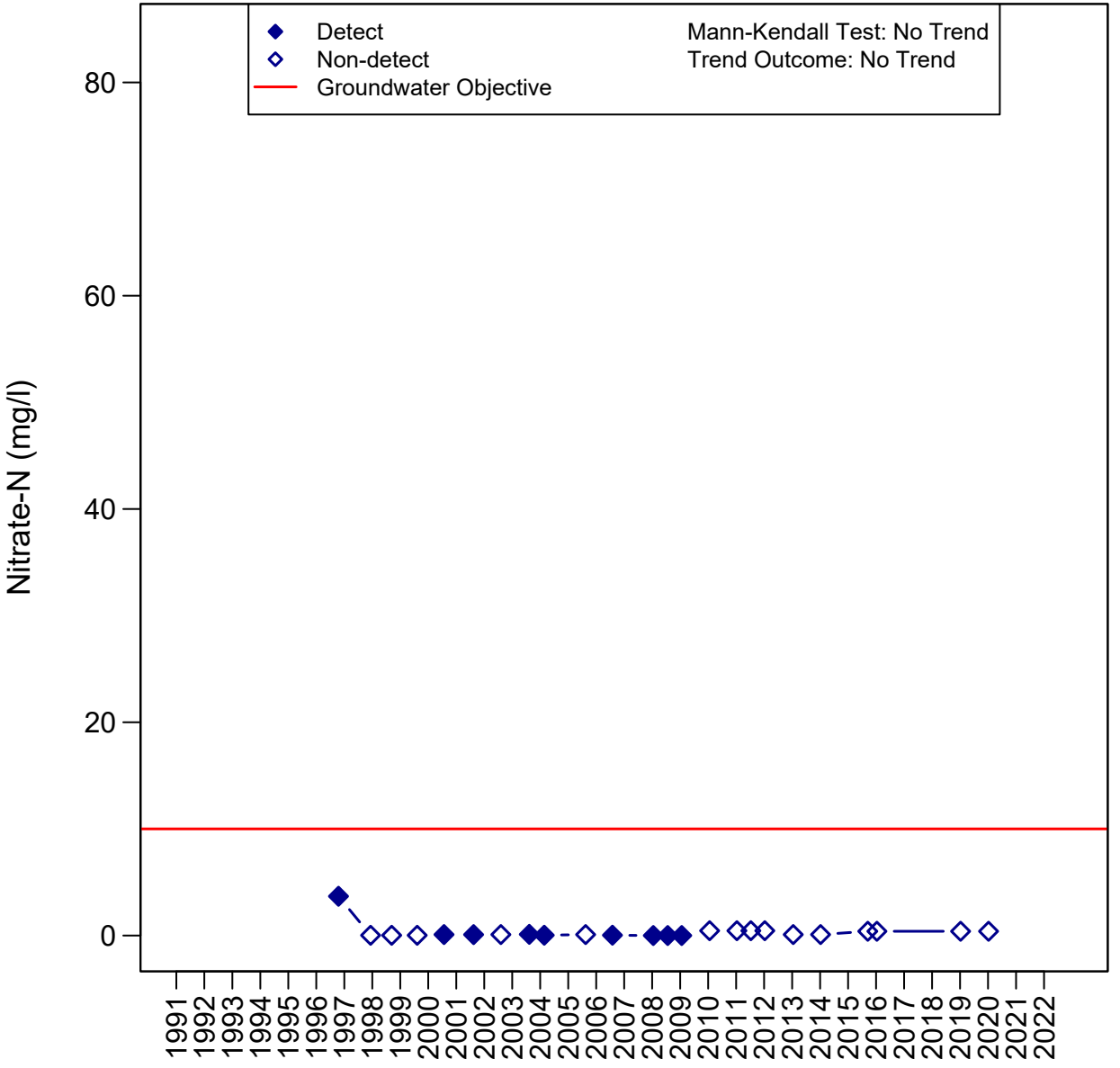
Oxnard Basin
01N21W19K08S - K08S



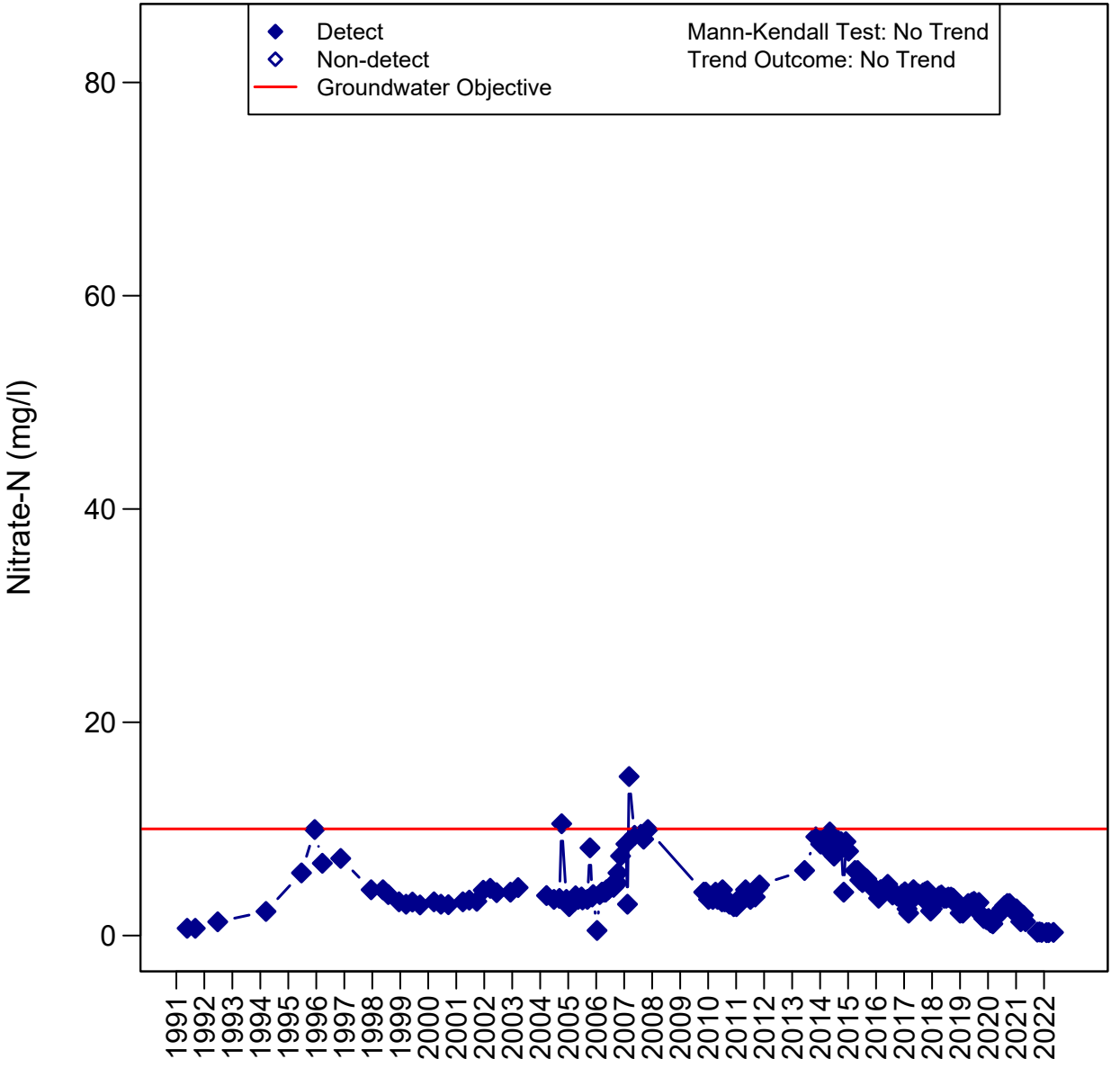
Oxnard Basin
01N23W01C03S - C03S

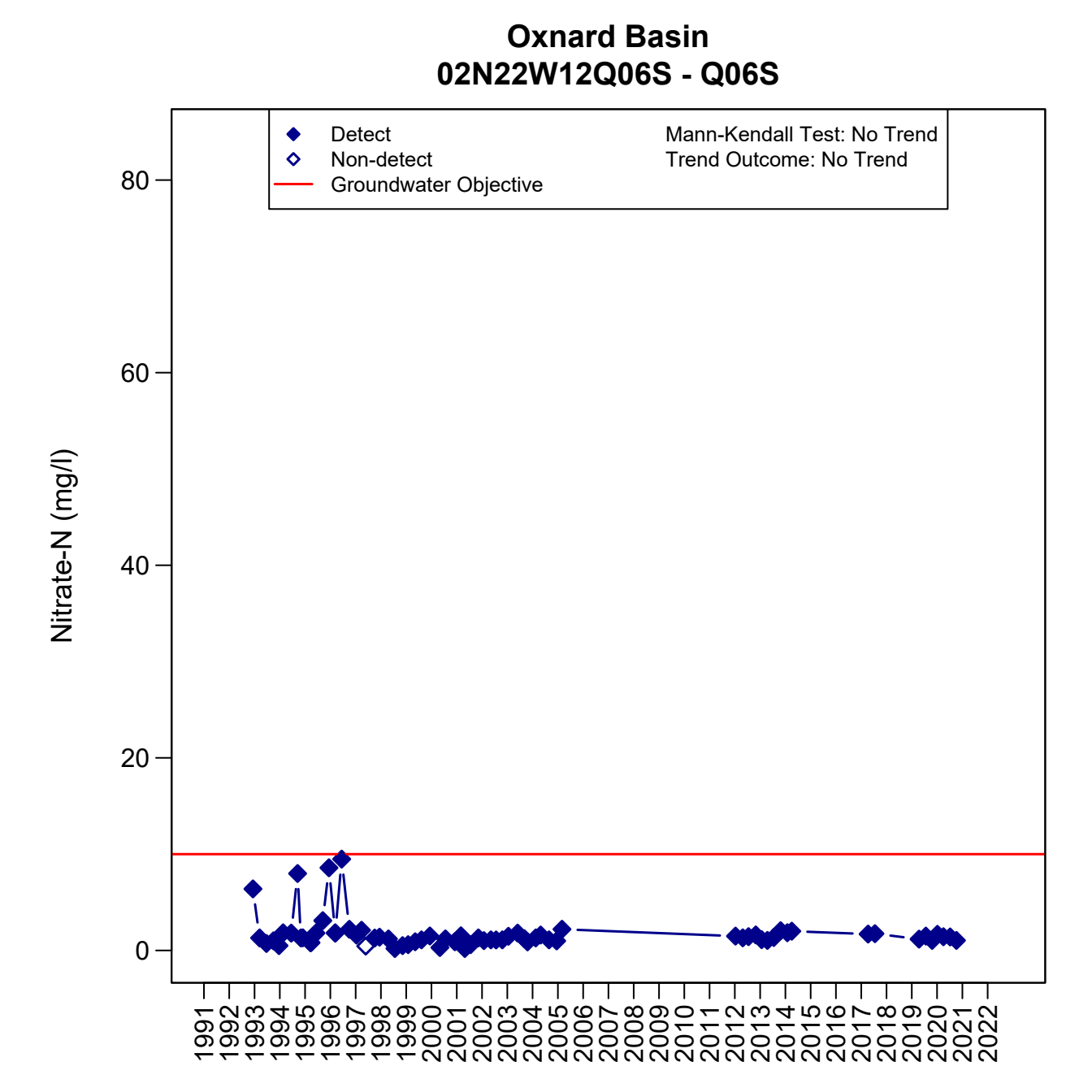


Oxnard Basin
01N22W03F02S - F02S



Oxnard Basin
01N22W03F07S - F07S




Oxnard Basin
02N22W12Q06S - Q06S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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1991
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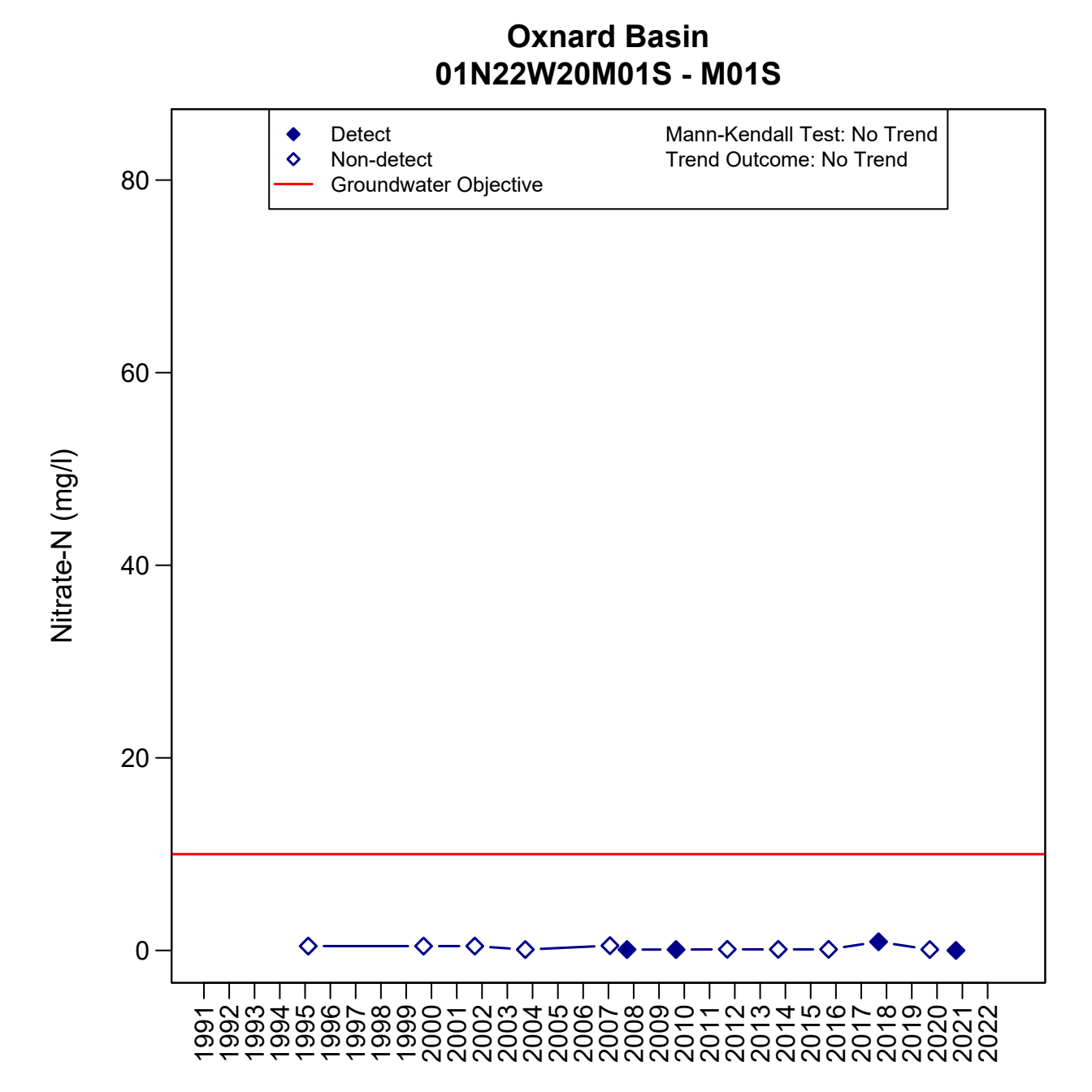
Oxnard Basin
01N22W20M01S - M01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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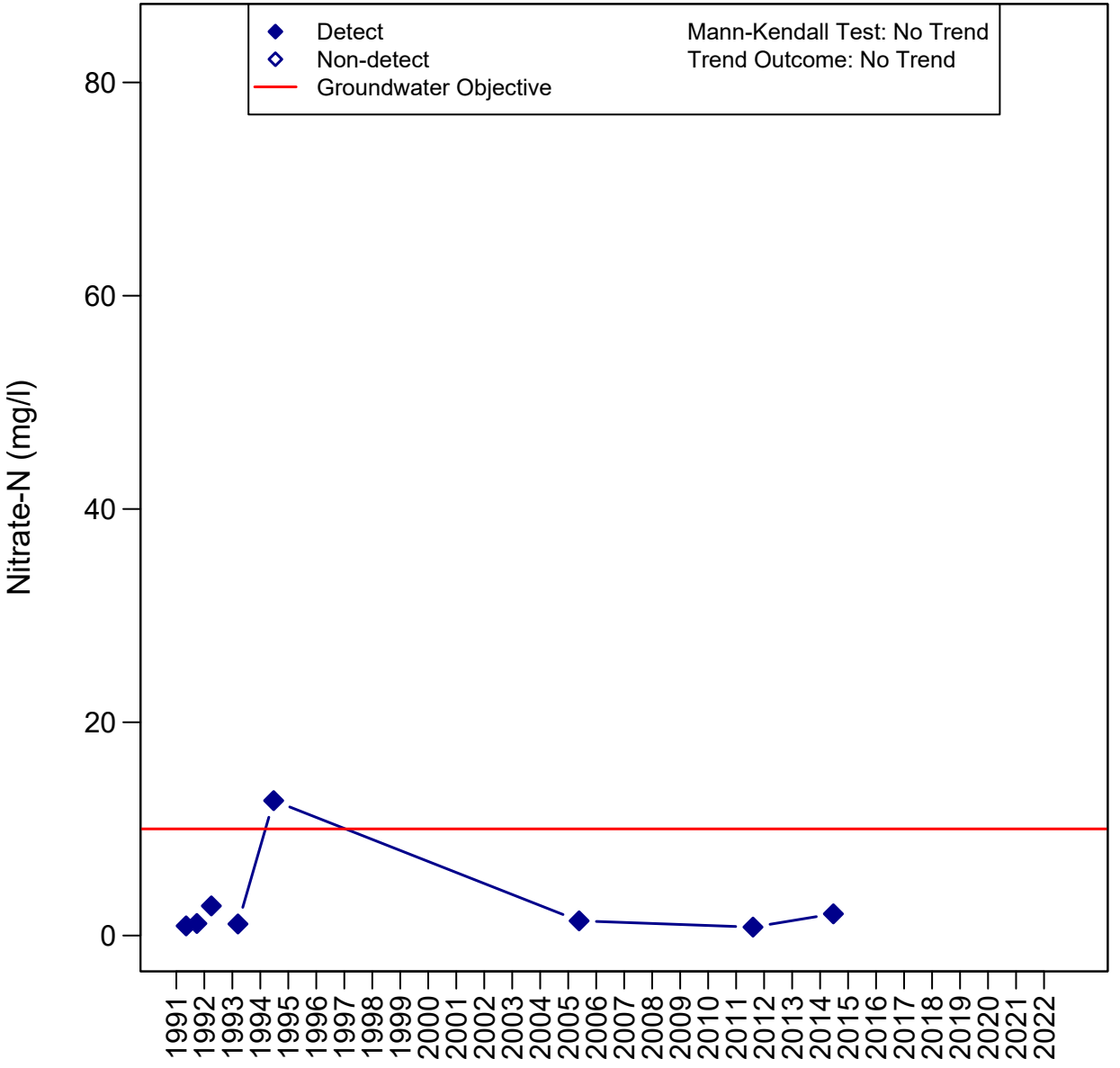
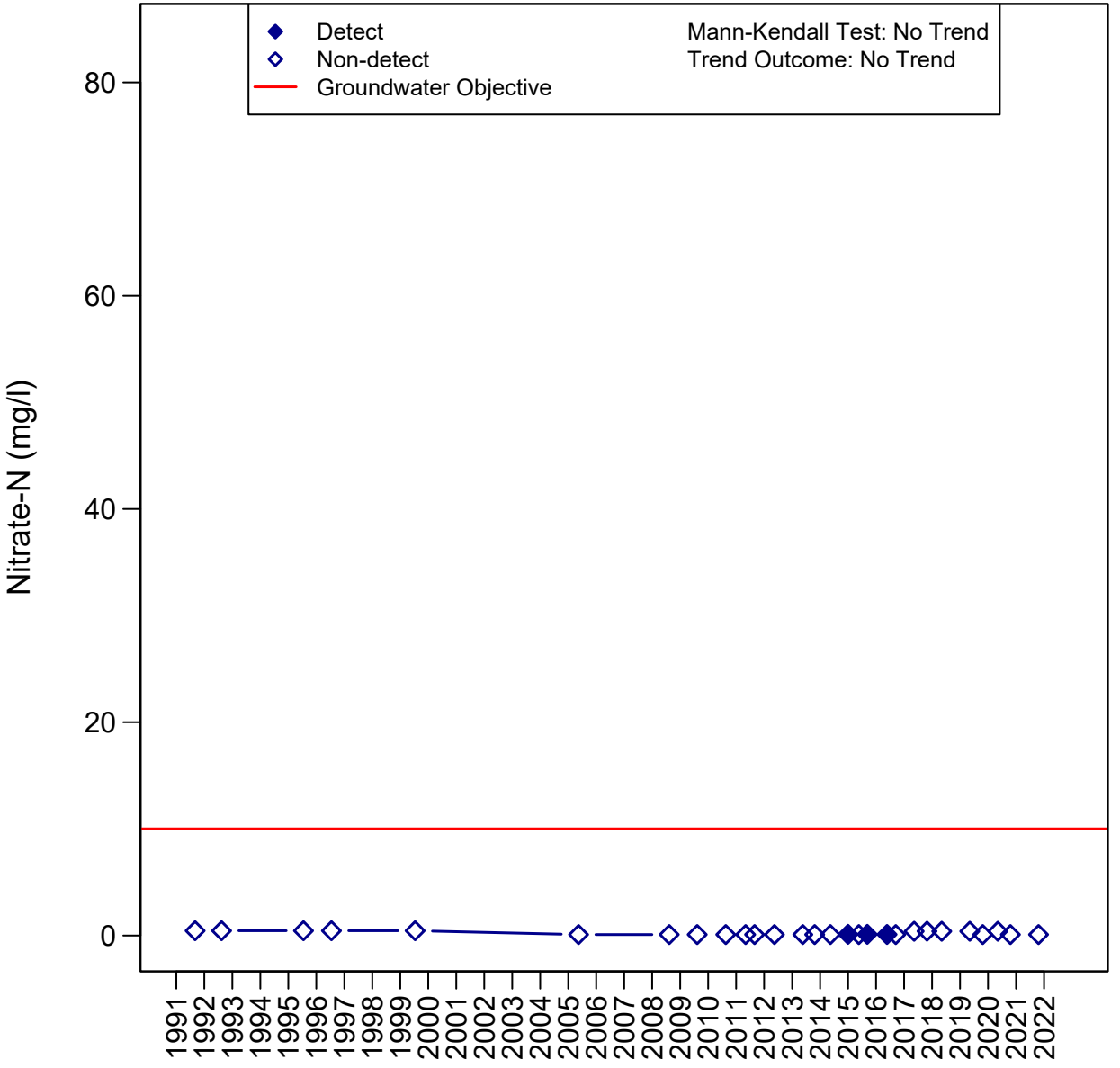
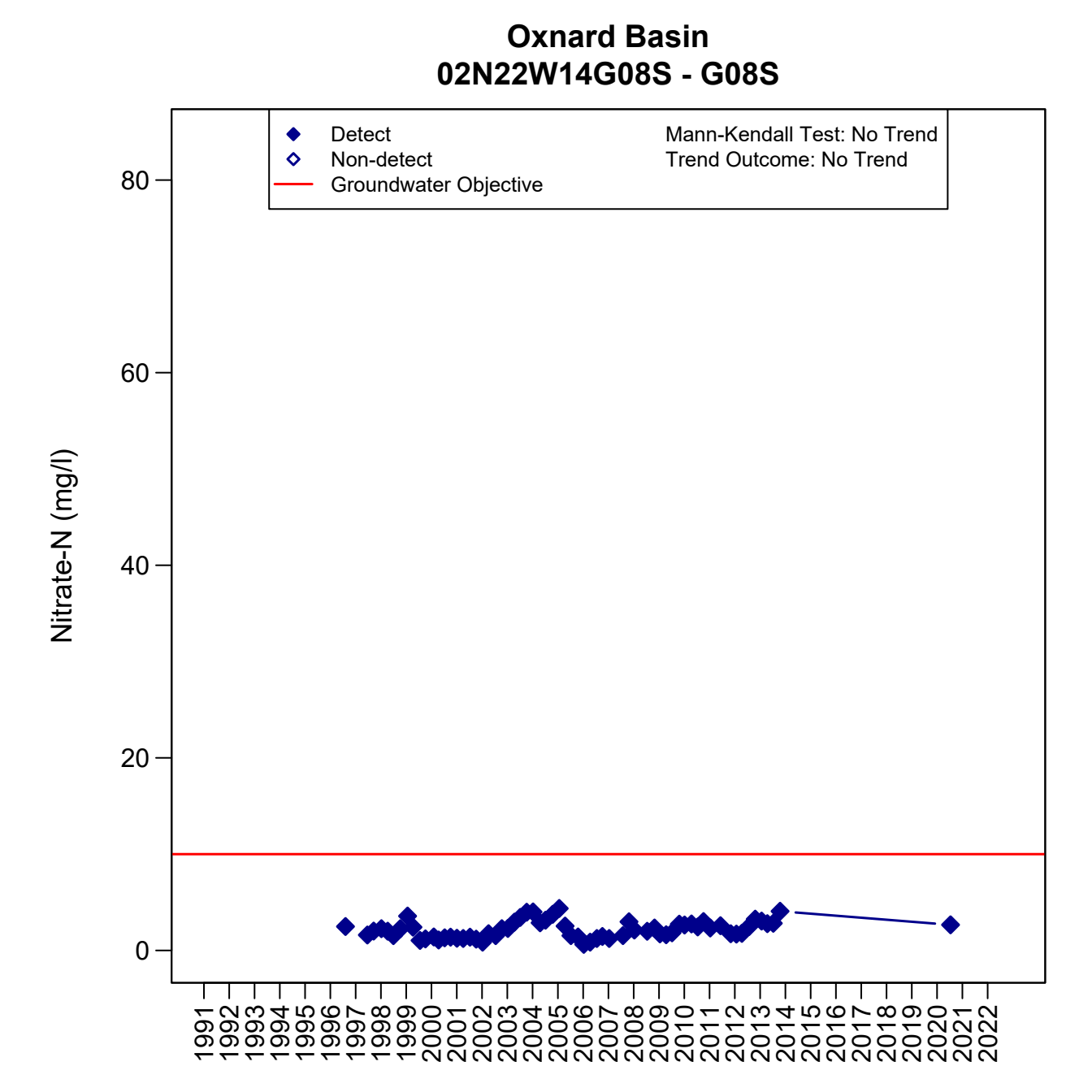
Oxnard Basin
02N22W23F01S - F01S



Oxnard Basin
02N21W07P04S - P04S




Oxnard Basin
02N22W14G08S - G08S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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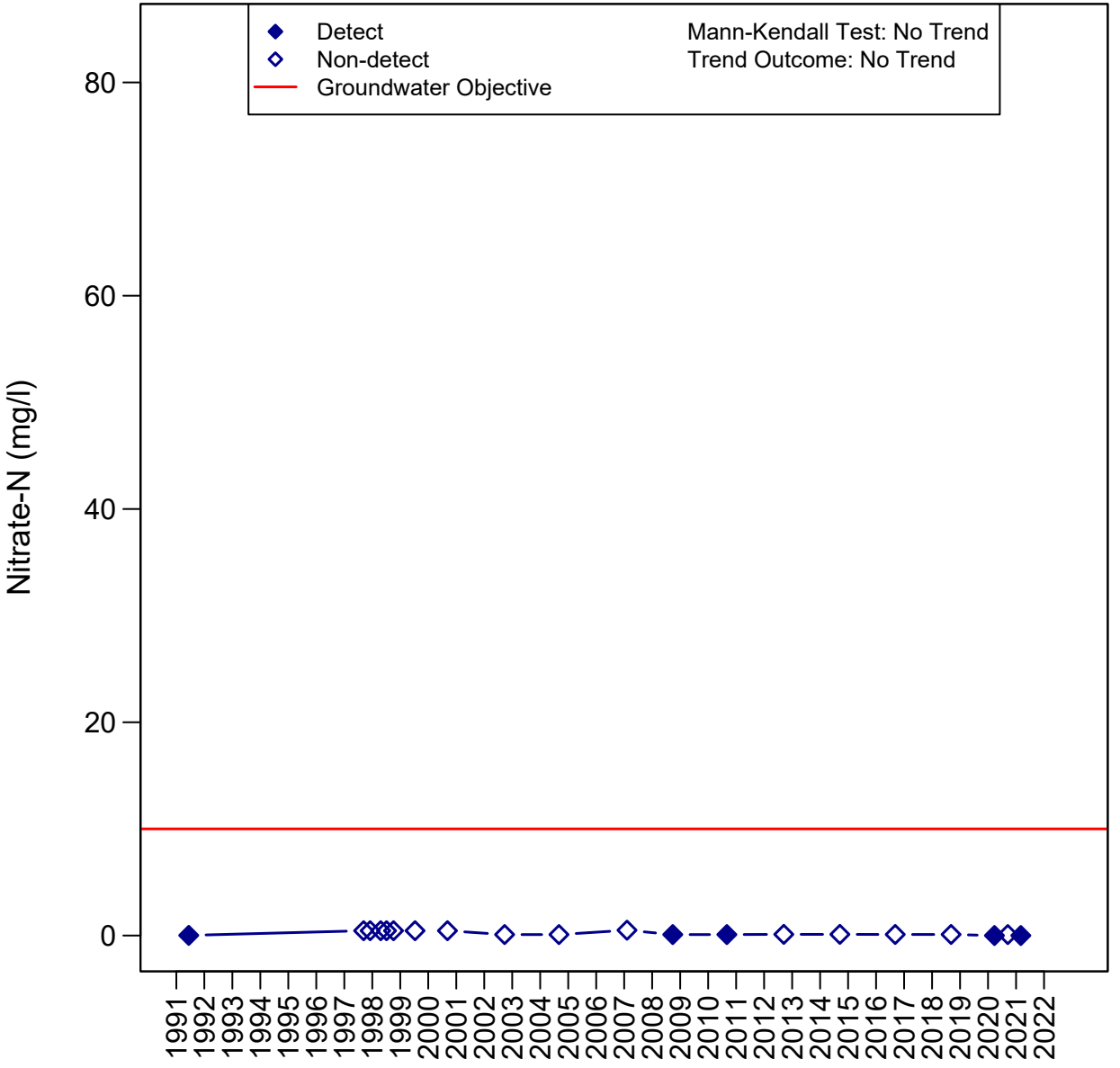
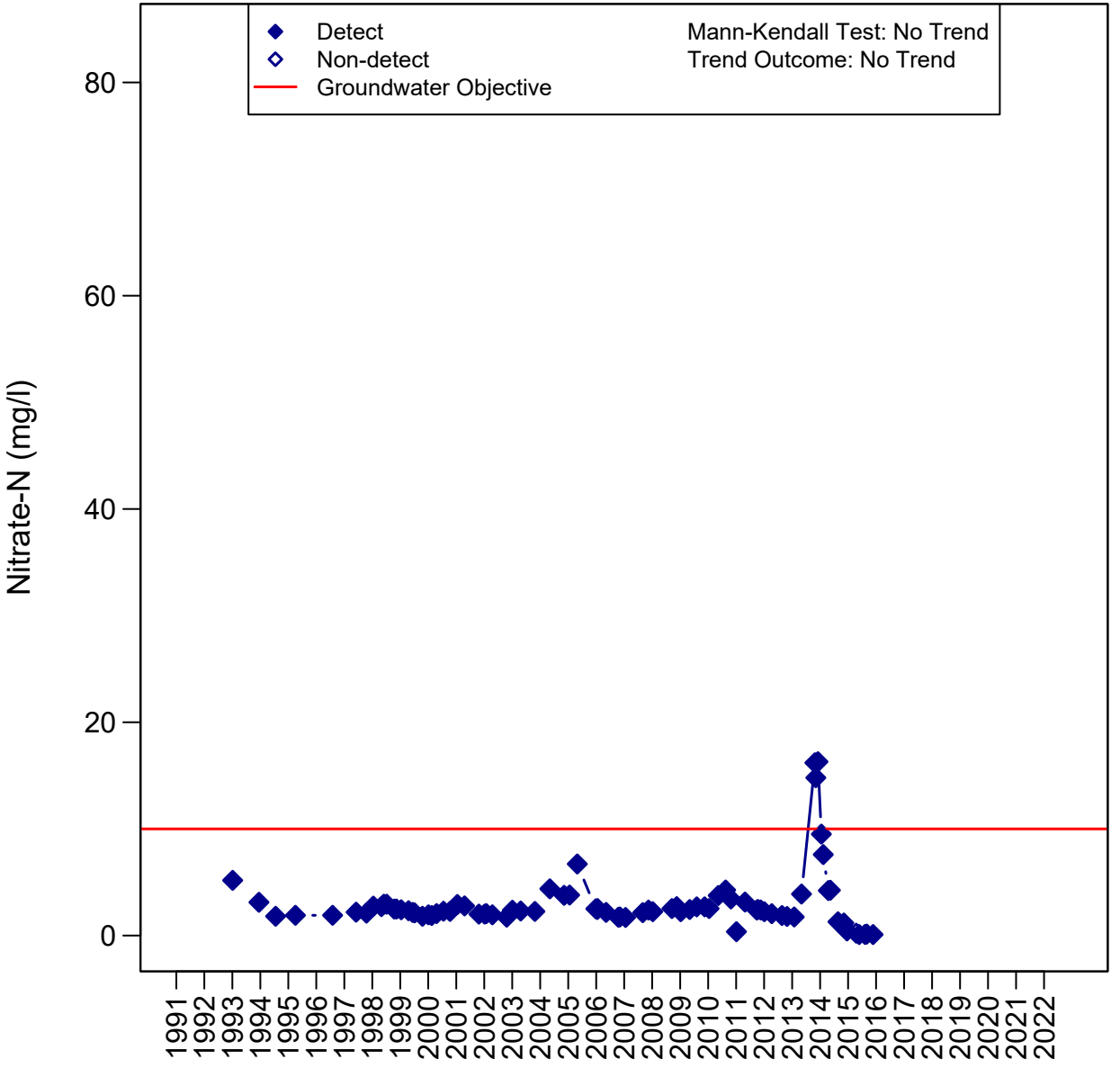
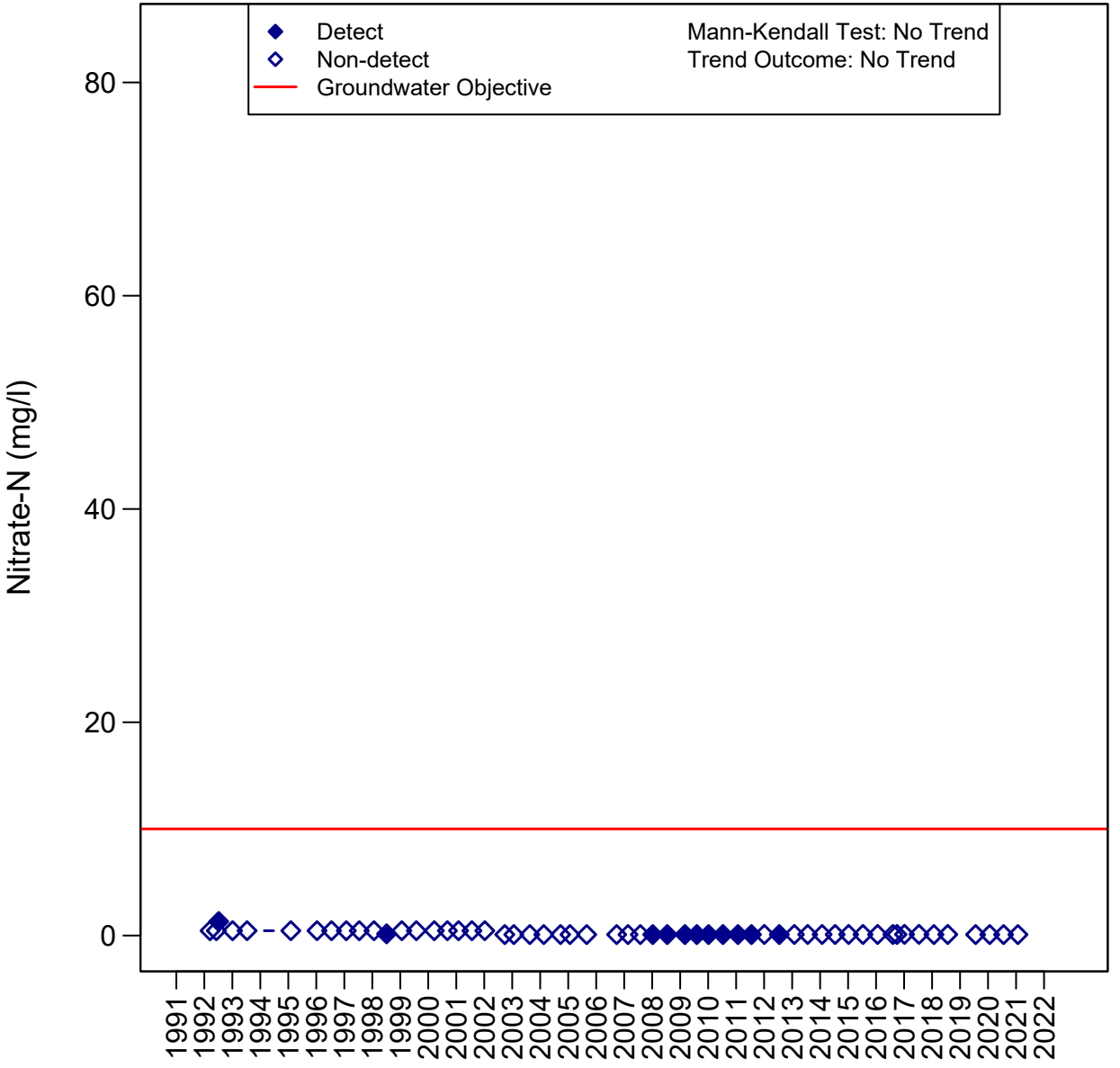
Oxnard Basin
01N21W19L12S - L12S

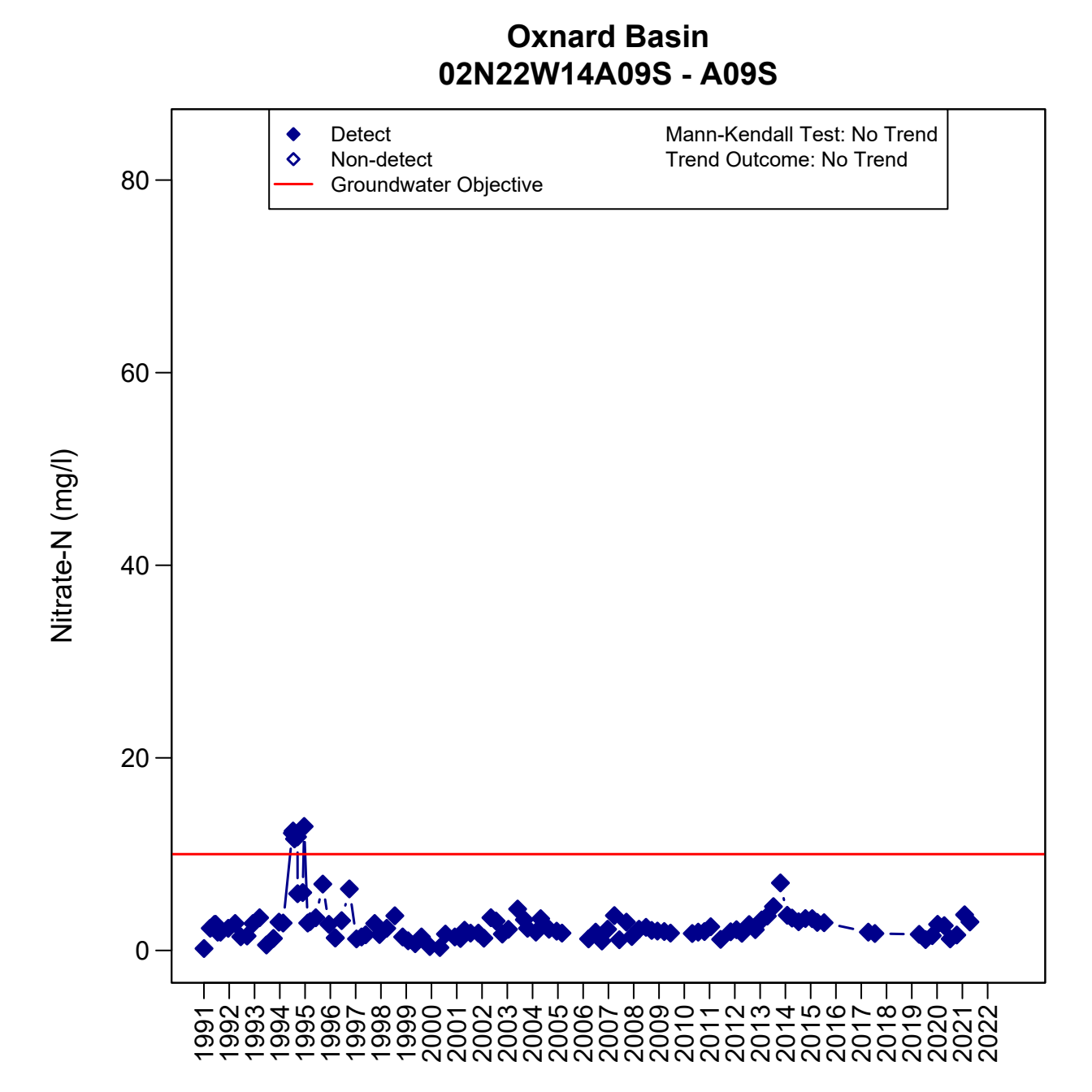


Oxnard Basin
02N22W27M02S - M02S



Oxnard Basin
01N21W07J02S - J02S




Oxnard Basin
02N22W14A09S - A09S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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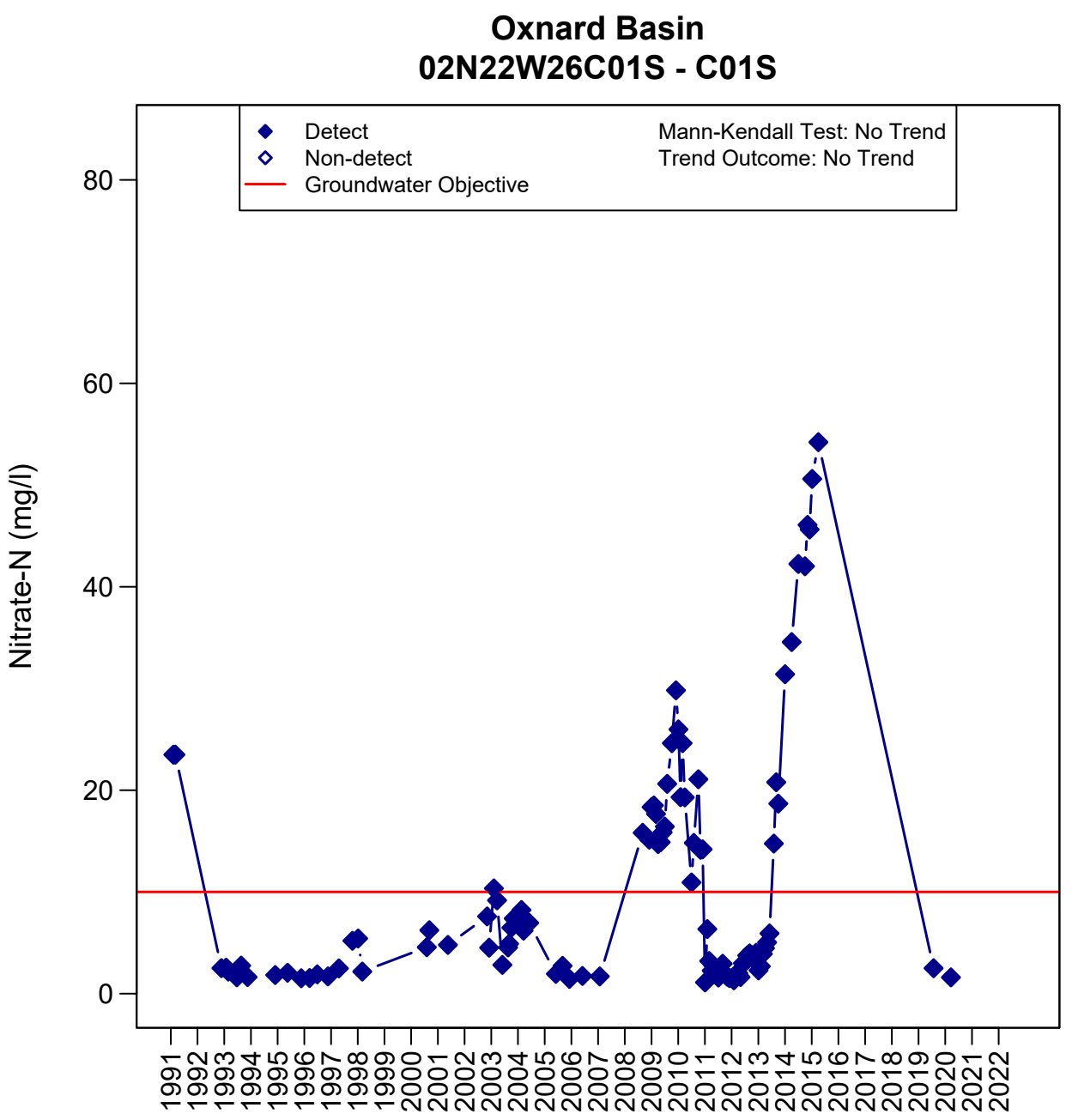
Oxnard Basin
02N22W26C01S - C01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
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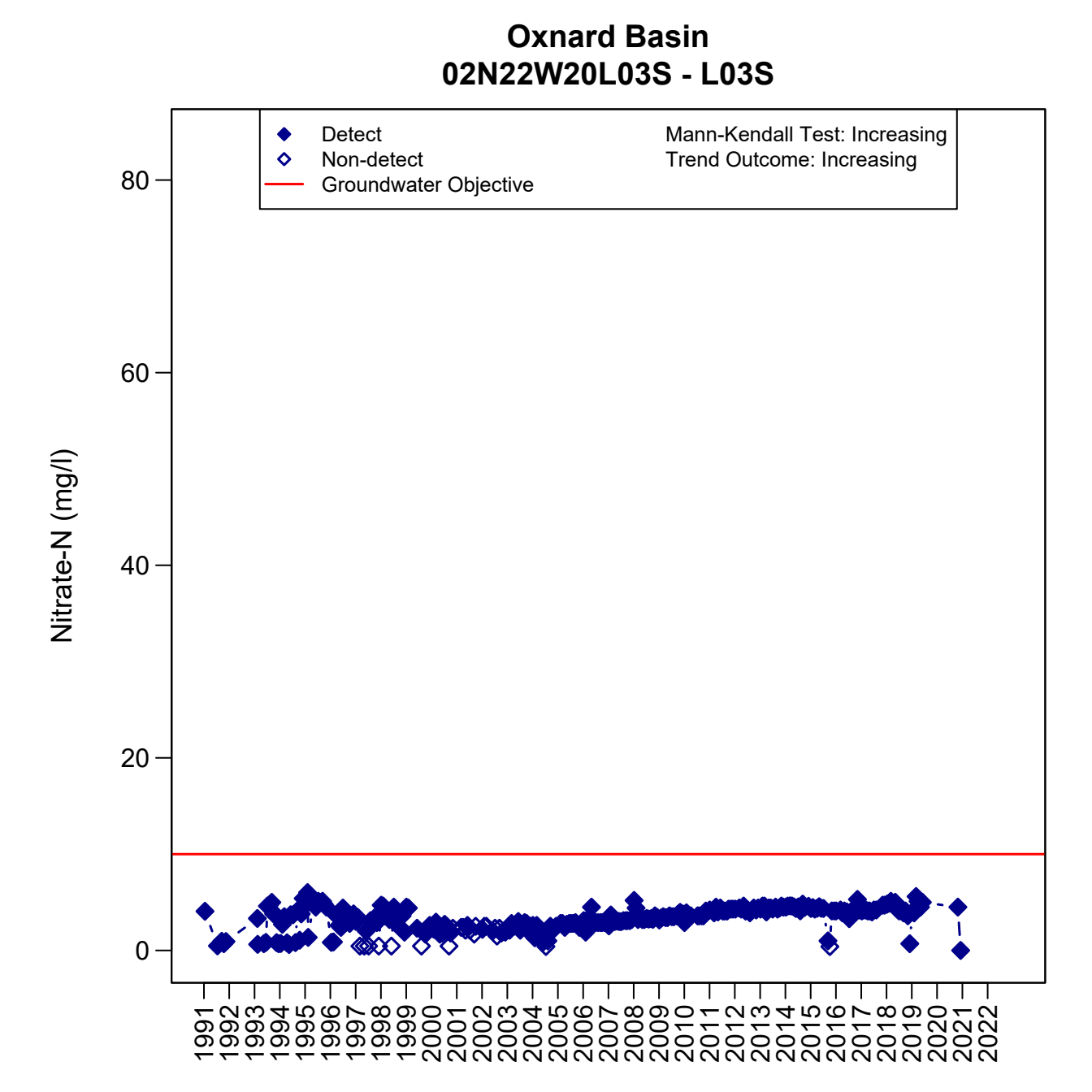
Oxnard Basin
02N22W20L03S - L03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: Increasing
Nitrate-N (mg/l)
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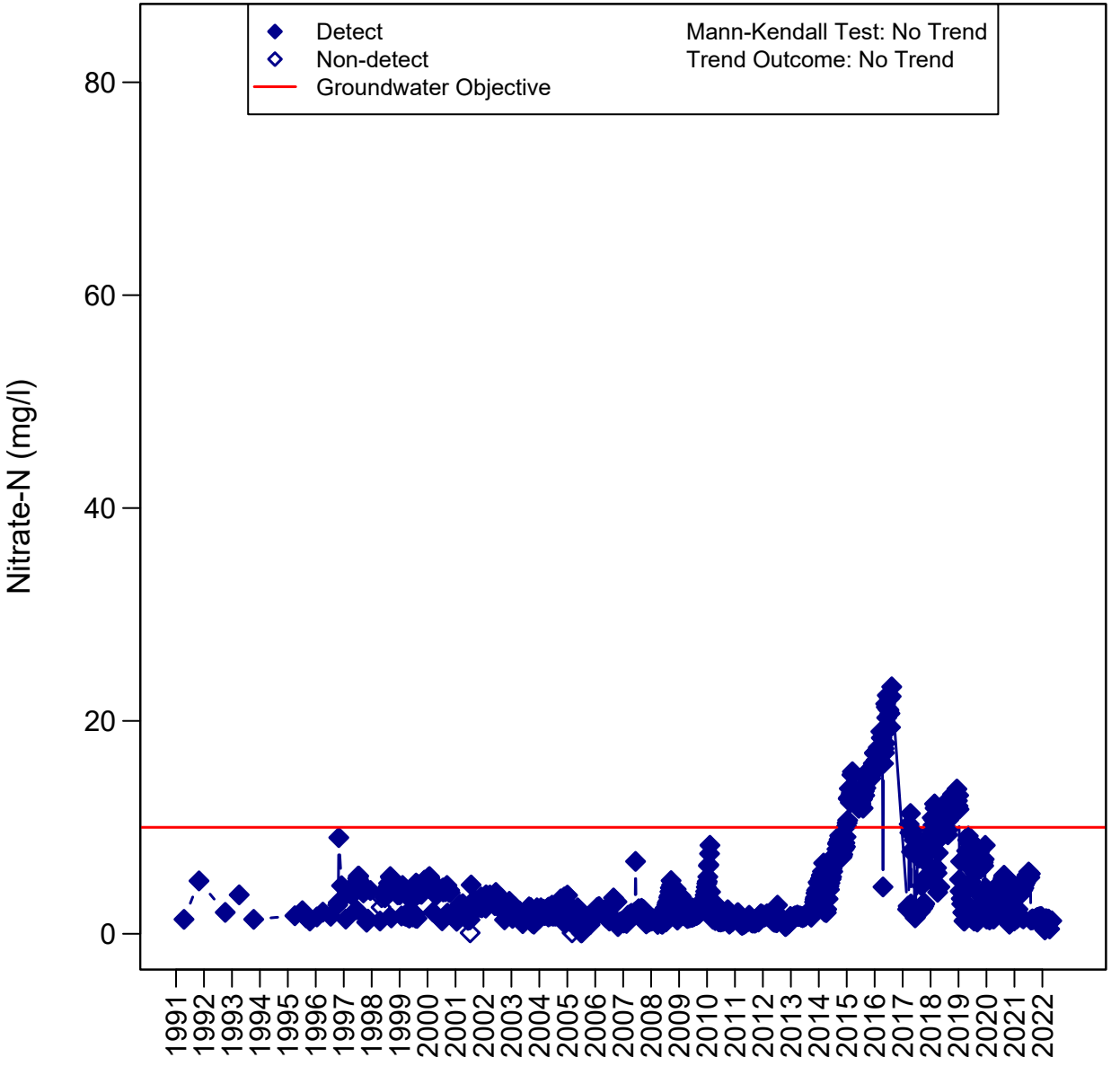
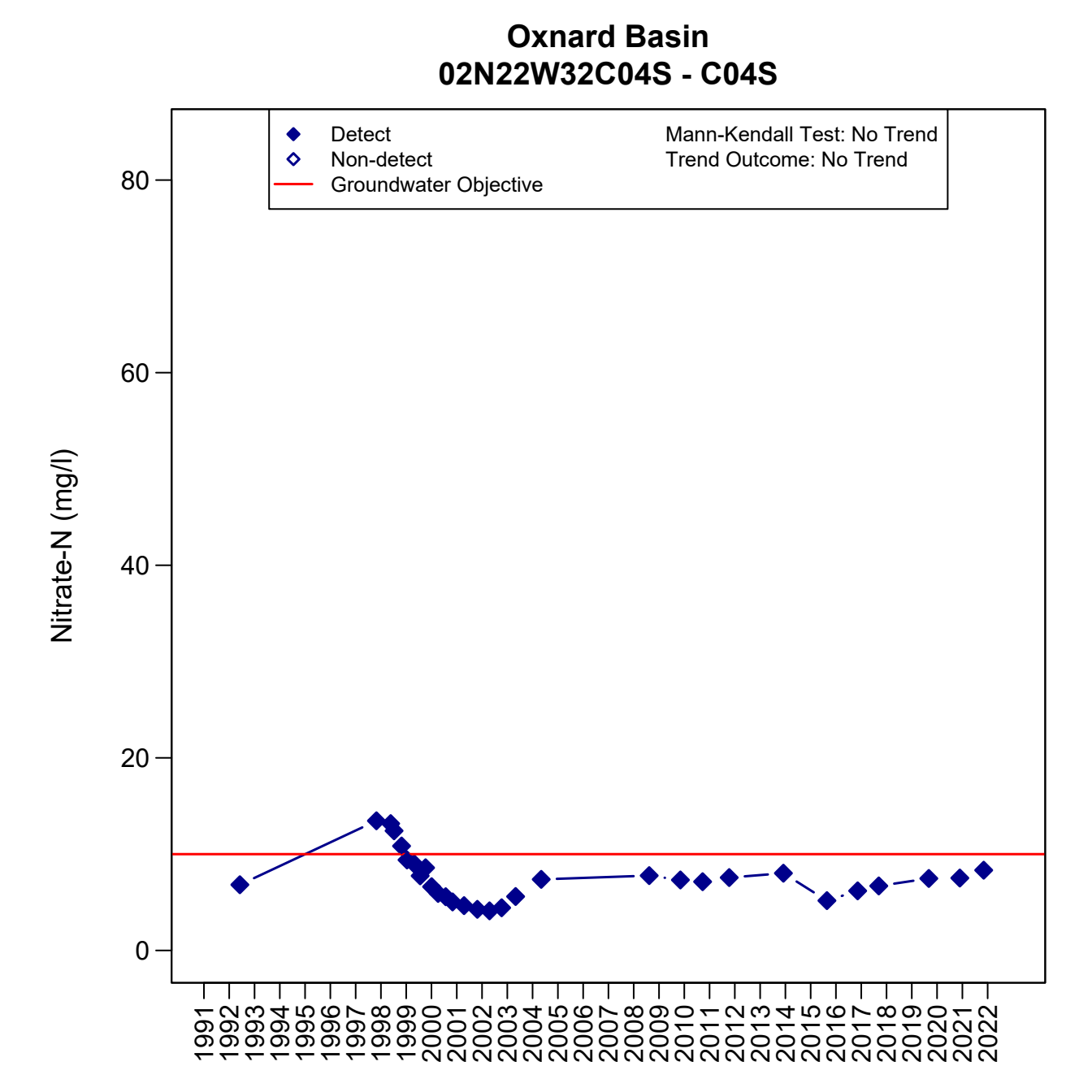
Oxnard Basin
02N22W23G03S - G03S




Oxnard Basin
02N22W32C04S - C04S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
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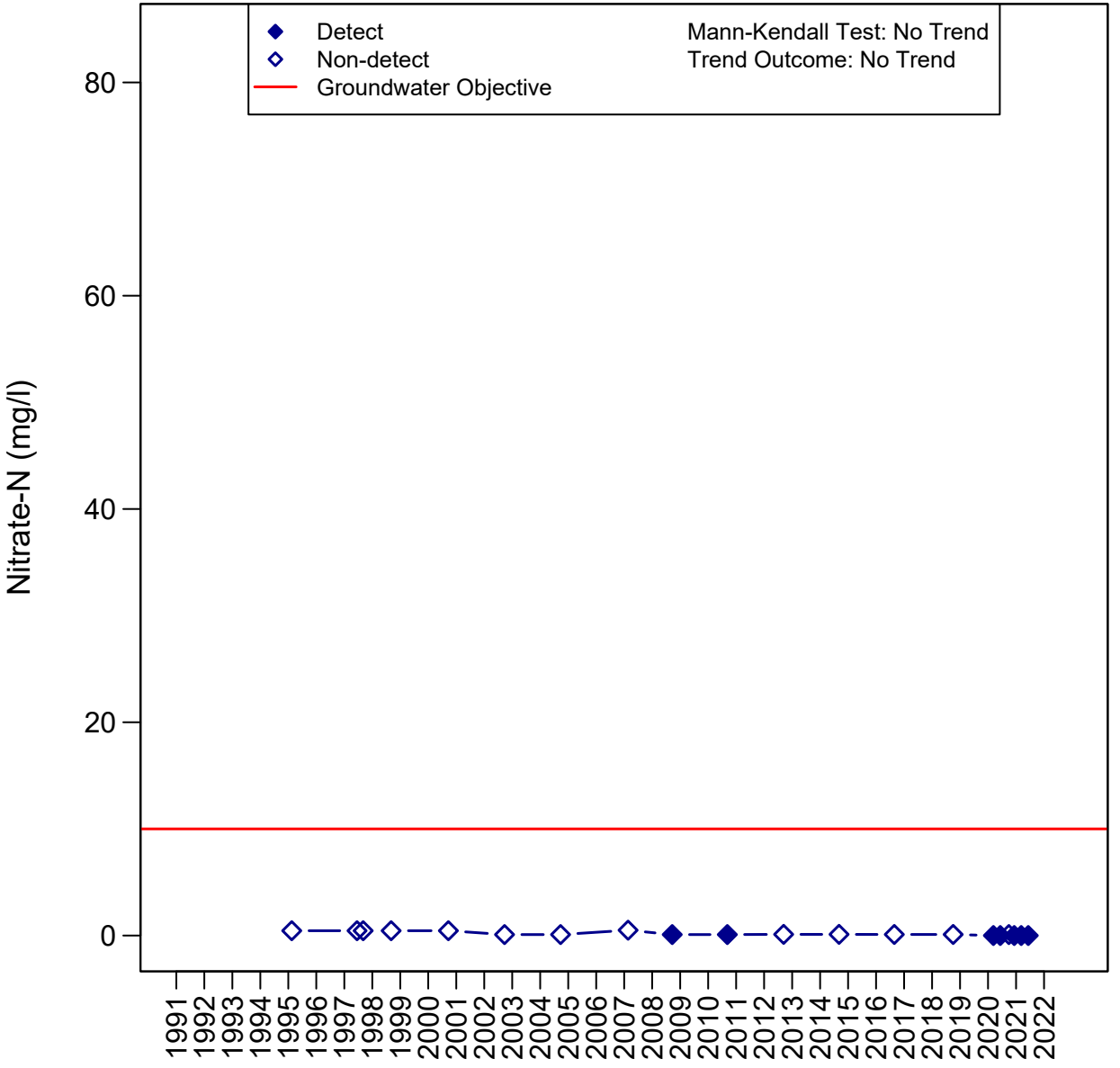
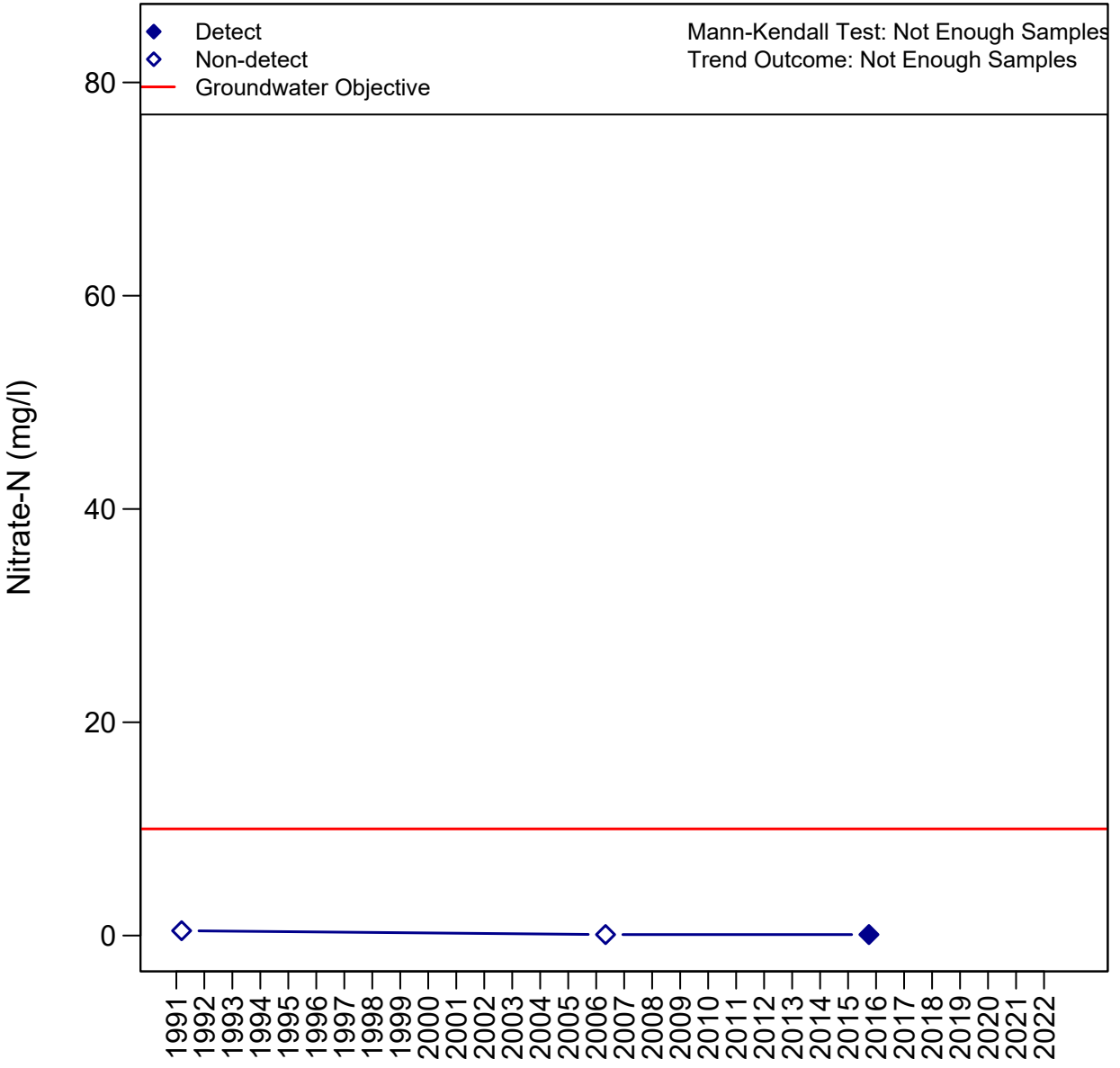
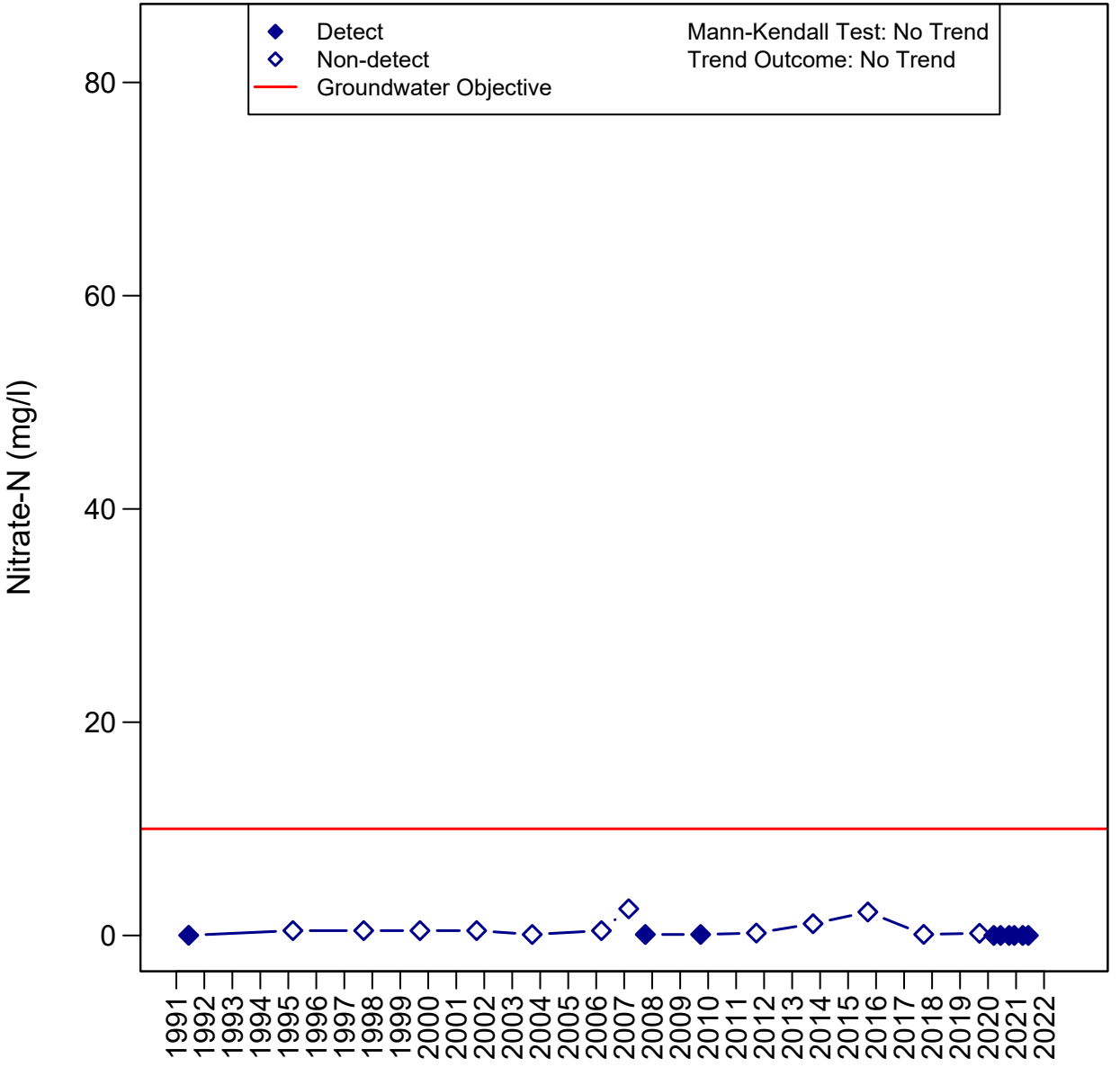
Oxnard Basin
01N22W29D04S - D04S

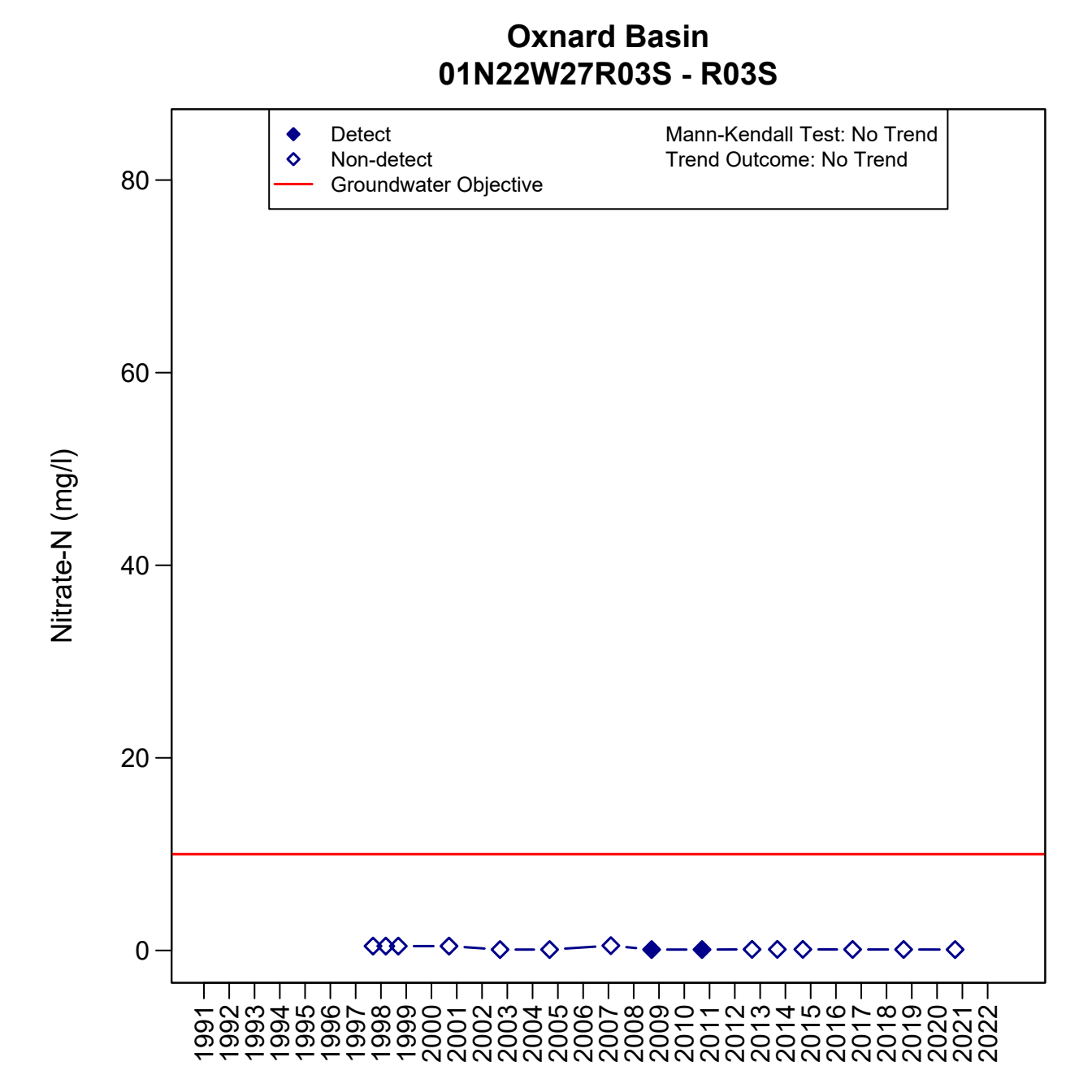


Oxnard Basin
01N21W28M01S - M01S



Oxnard Basin
01S22W01H03S - H03S




Oxnard Basin
01N22W27R03S - R03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
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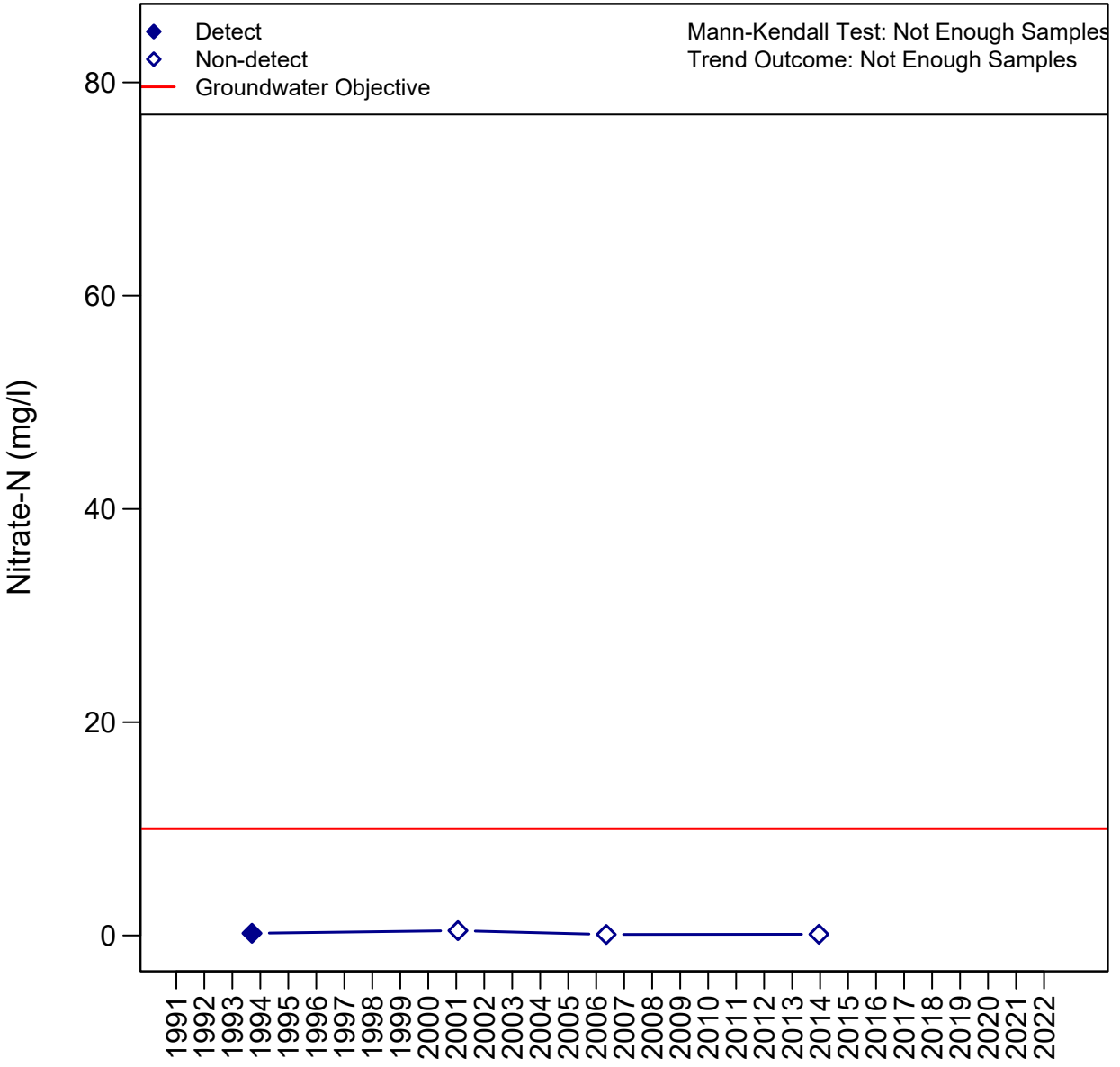
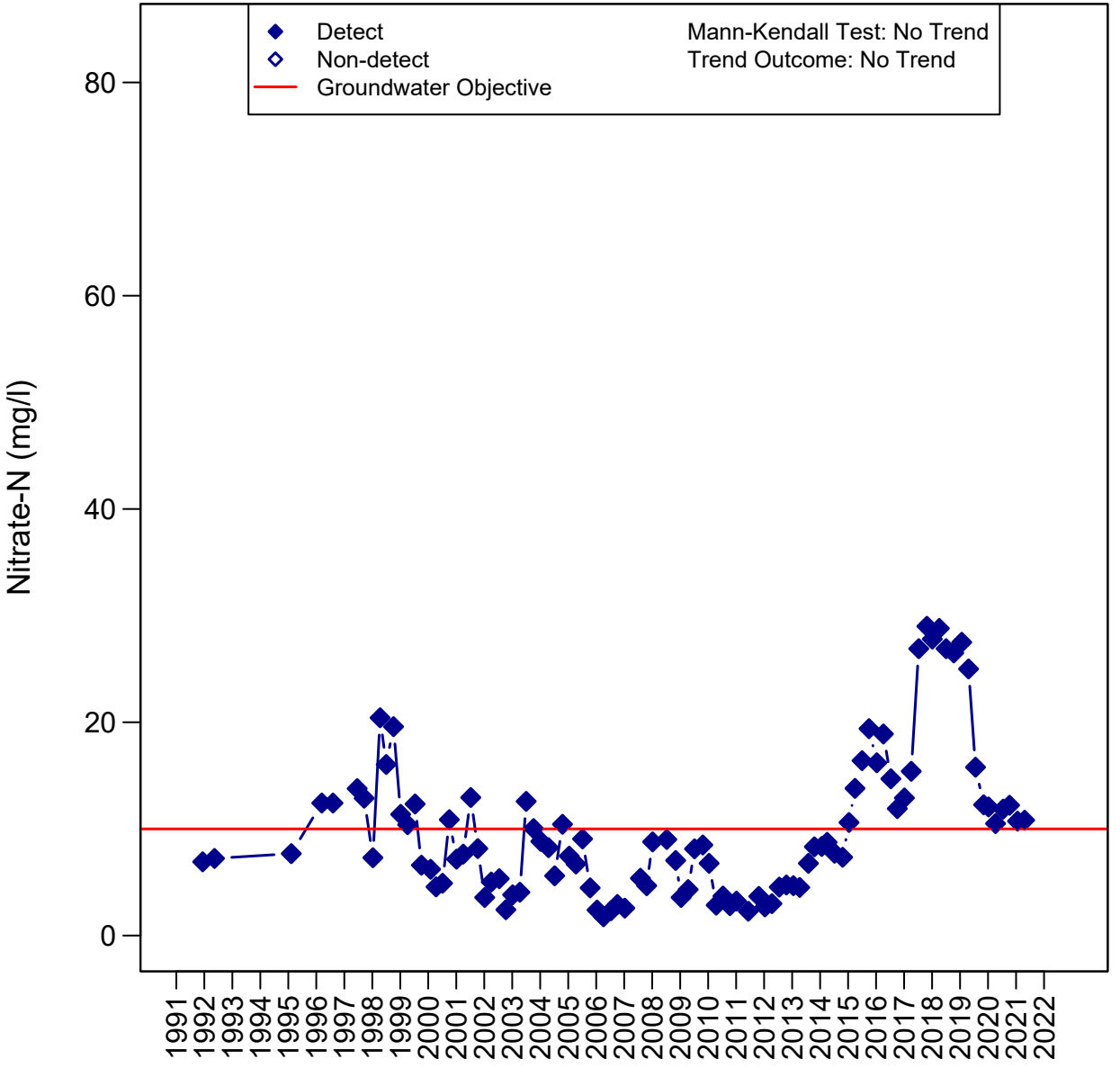
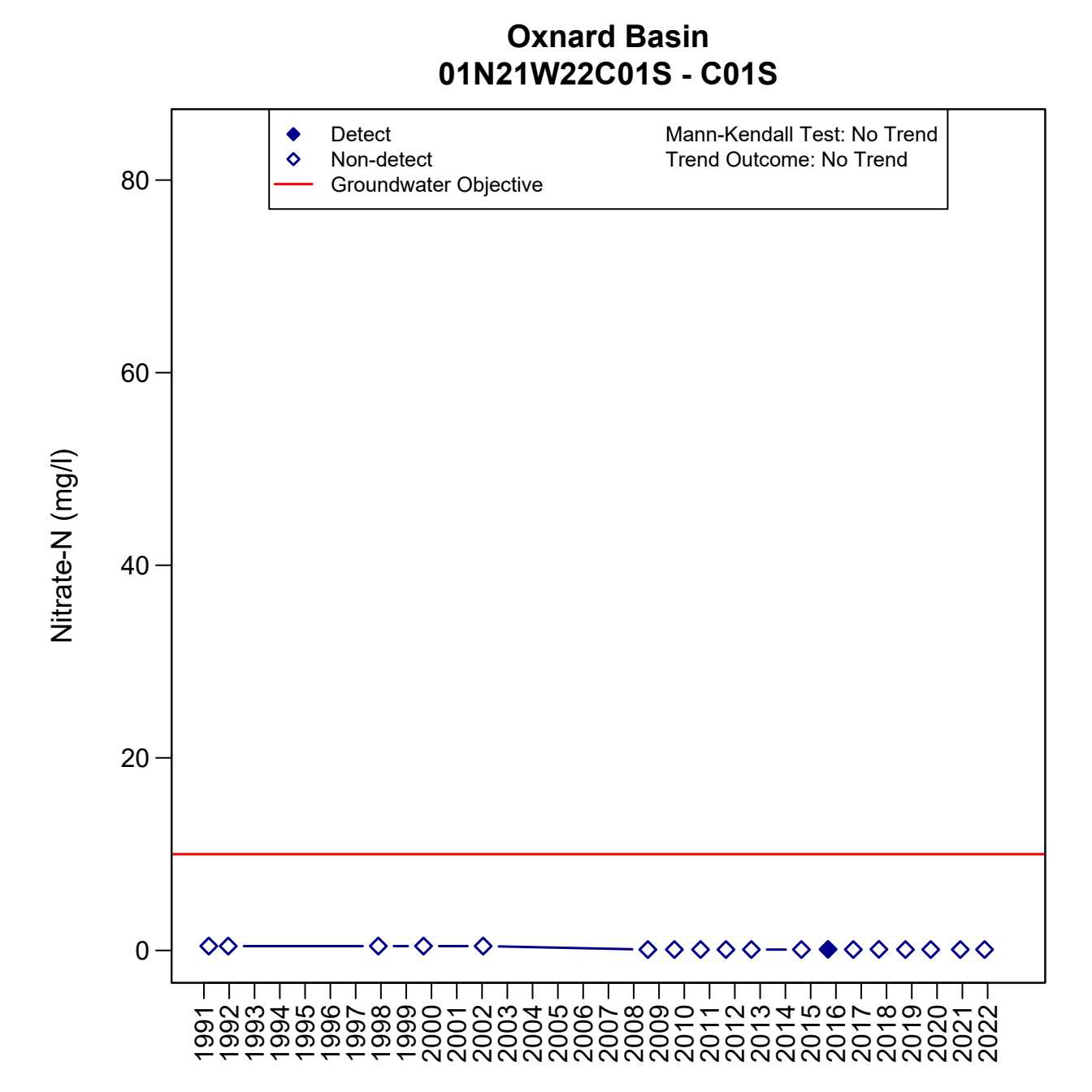
Oxnard Basin
01N21W30K01S - K01S



Oxnard Basin
02N22W23B07S - B07S




Oxnard Basin
01N21W22C01S - C01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
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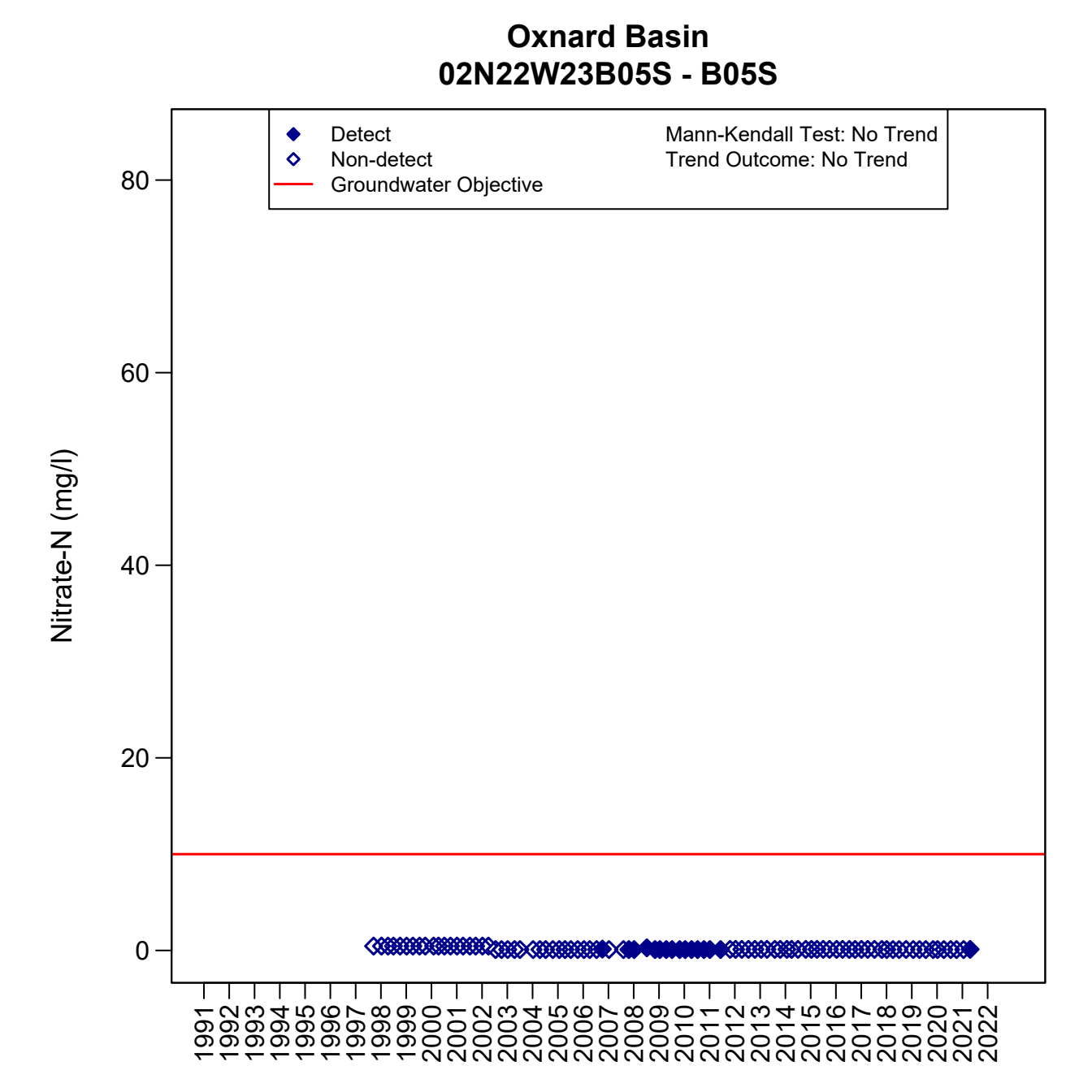
Oxnard Basin
02N22W23B05S - B05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
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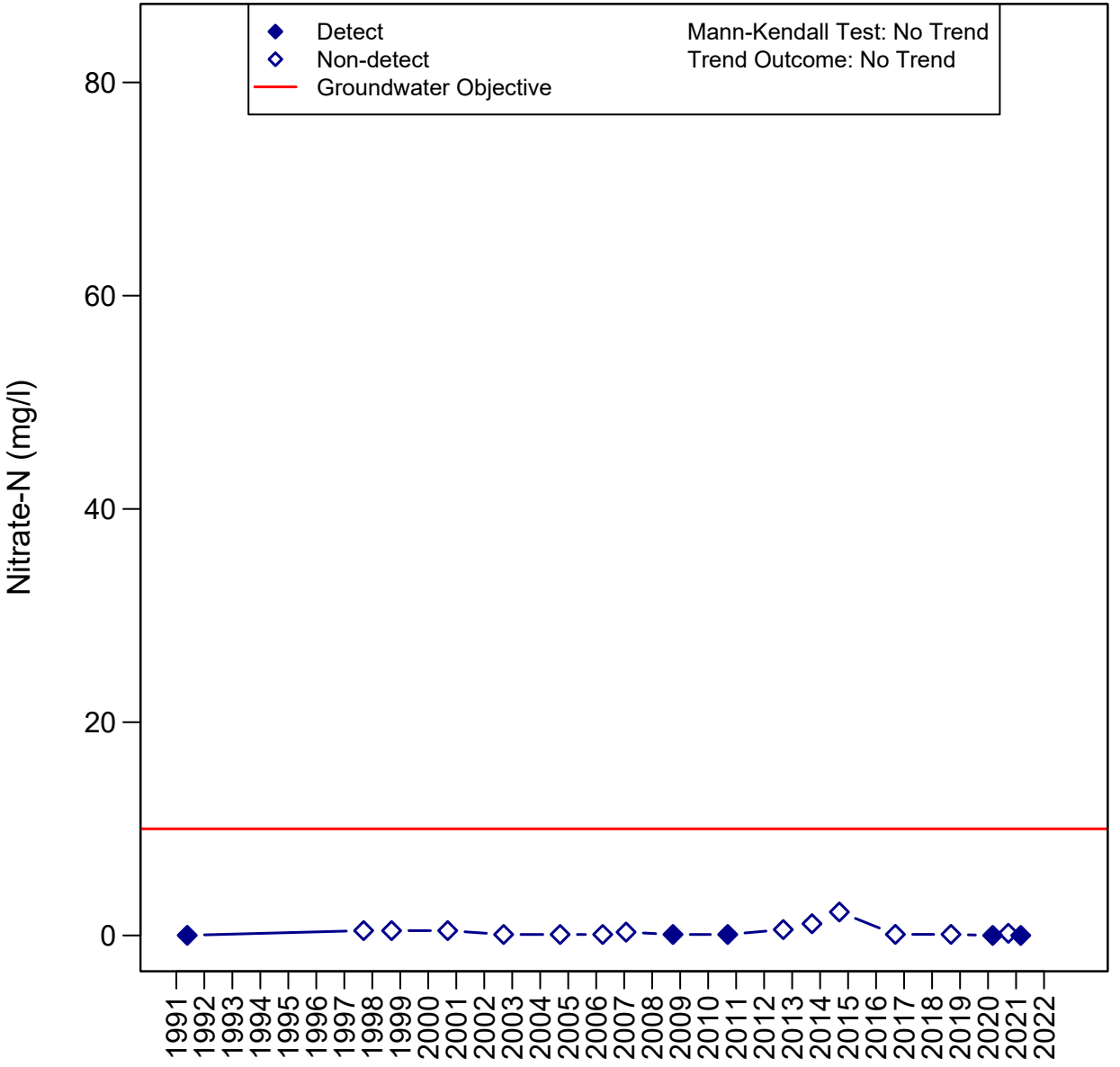
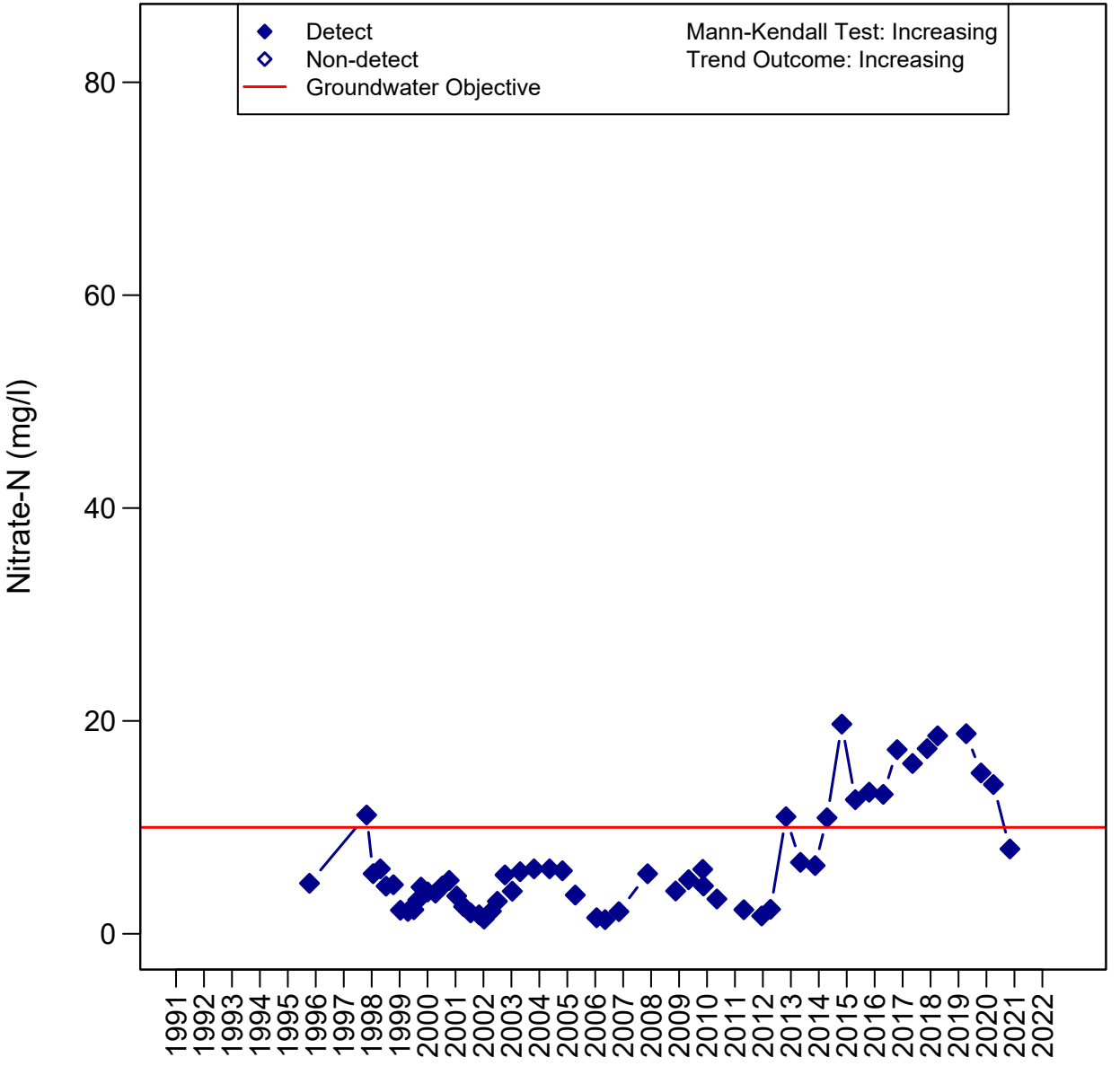
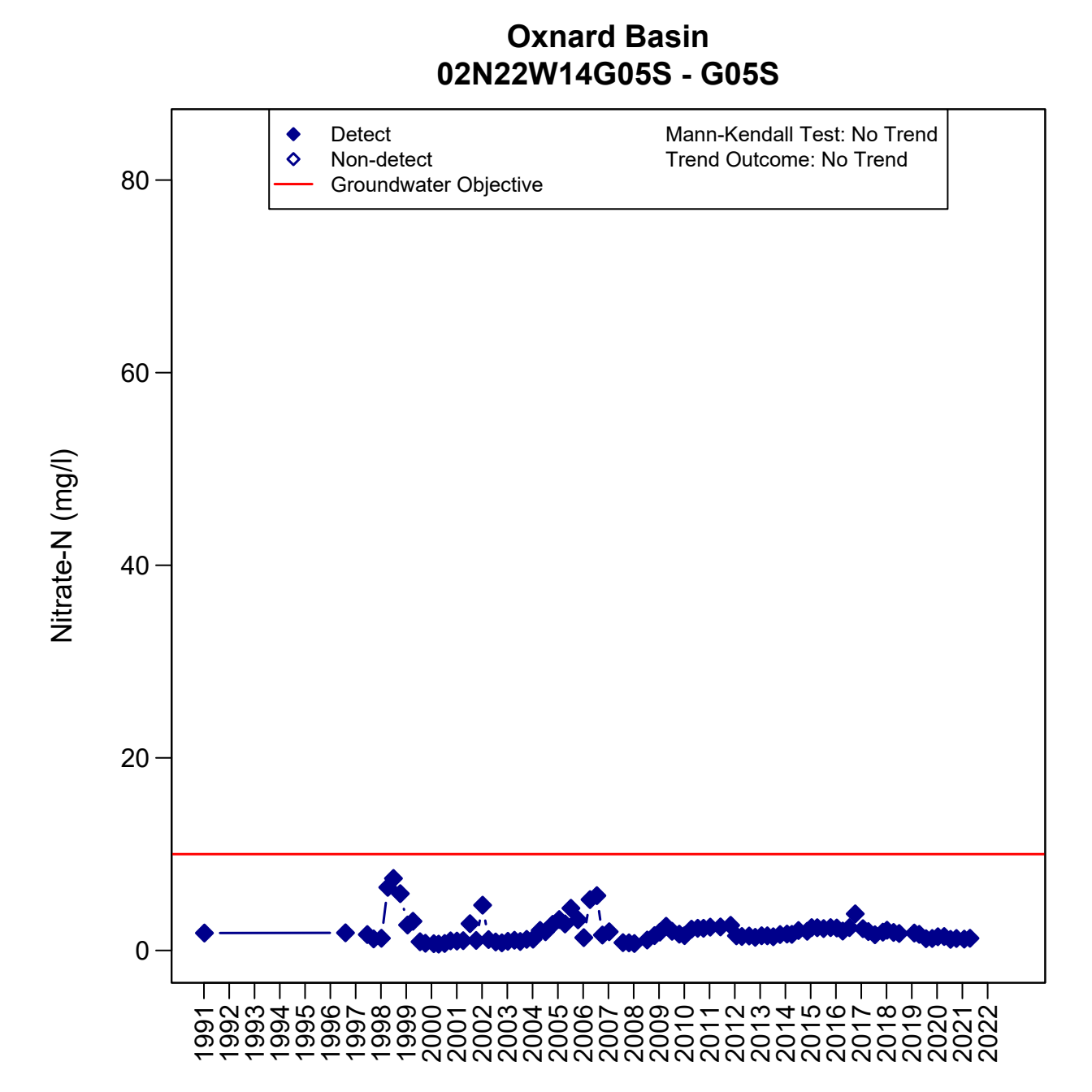
2022

Oxnard Basin
01N22W36K06S - K06S



Oxnard Basin
02N22W24A01S - A01S




Oxnard Basin
02N22W14G05S - G05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
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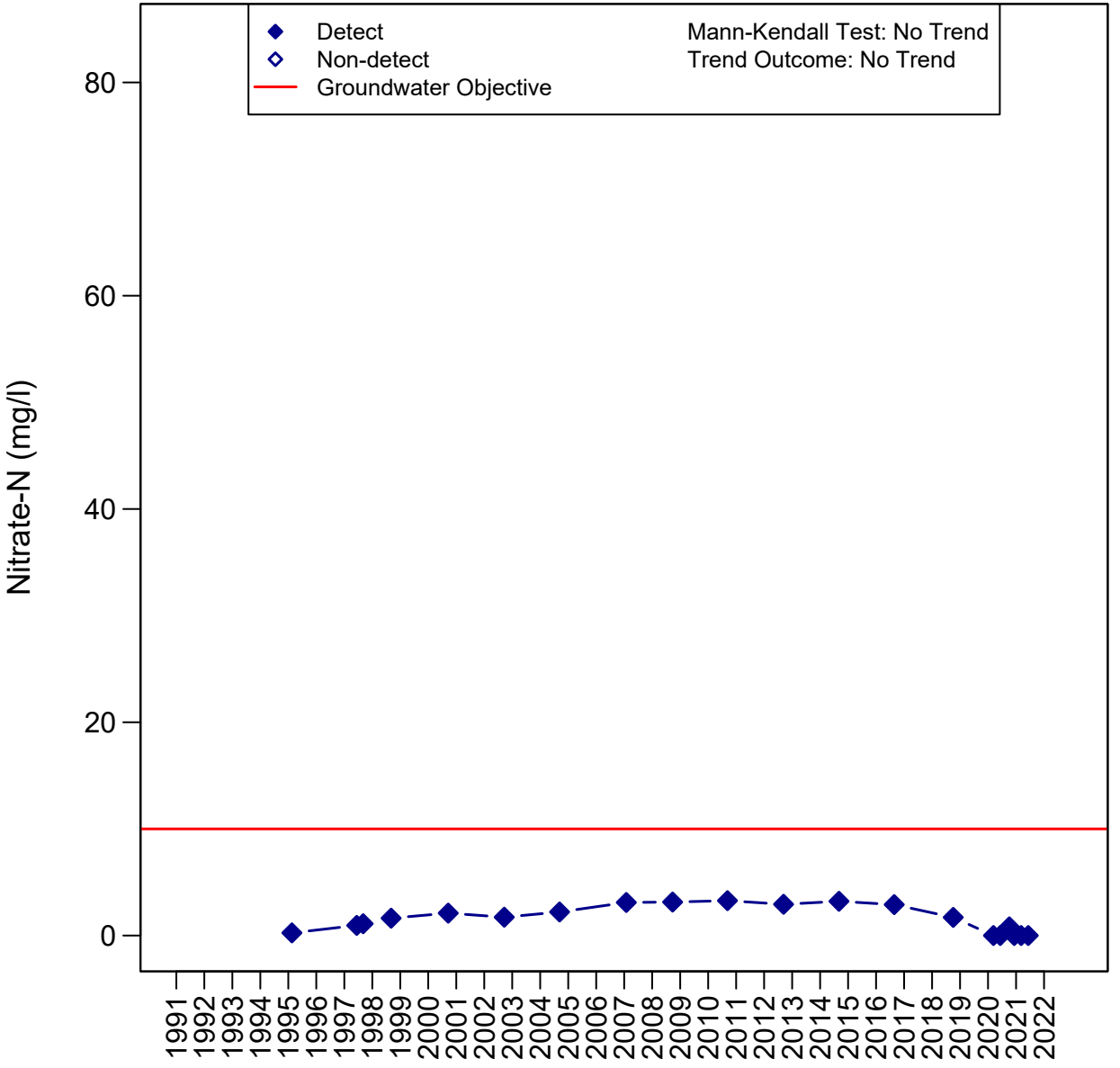
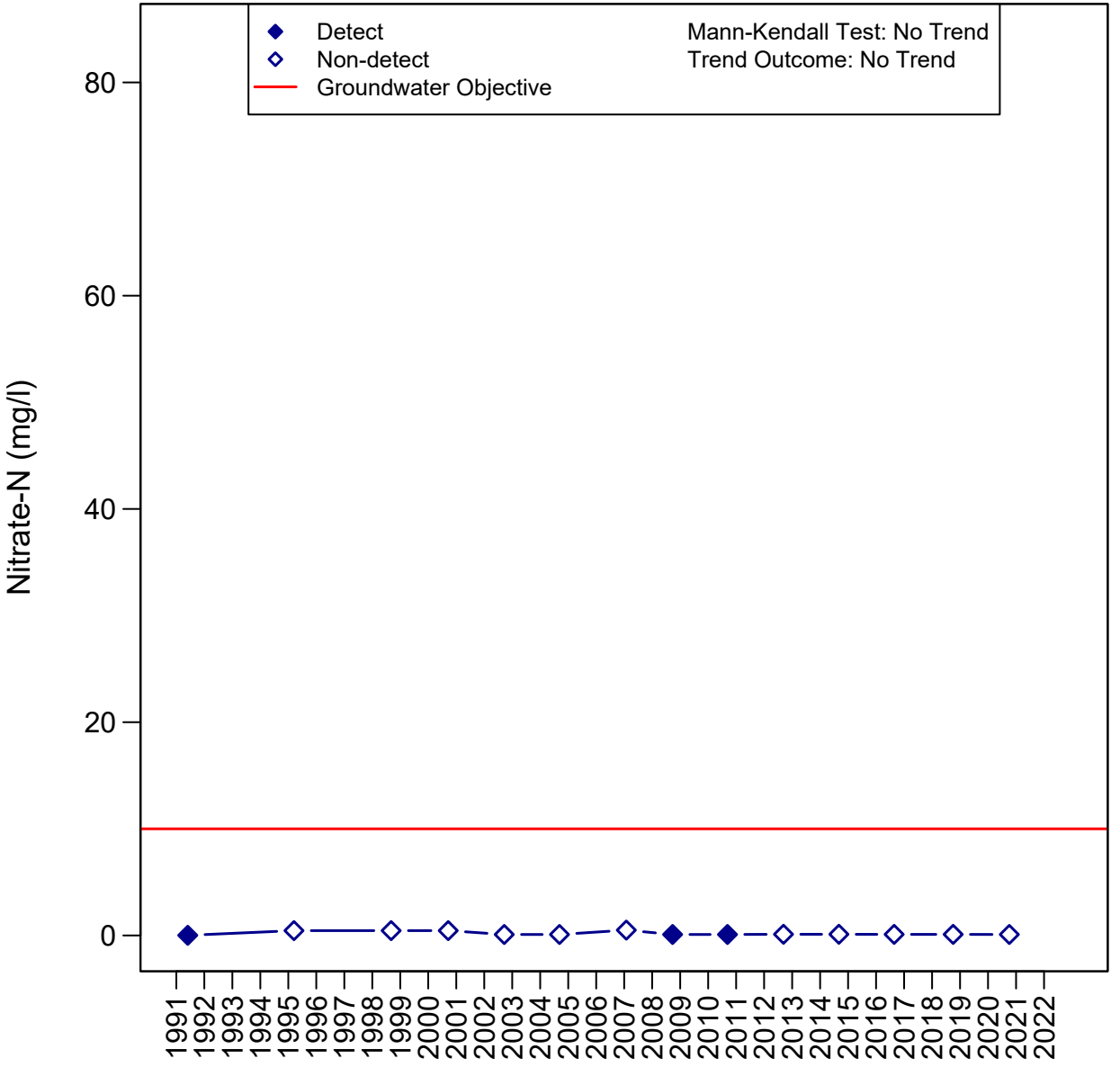
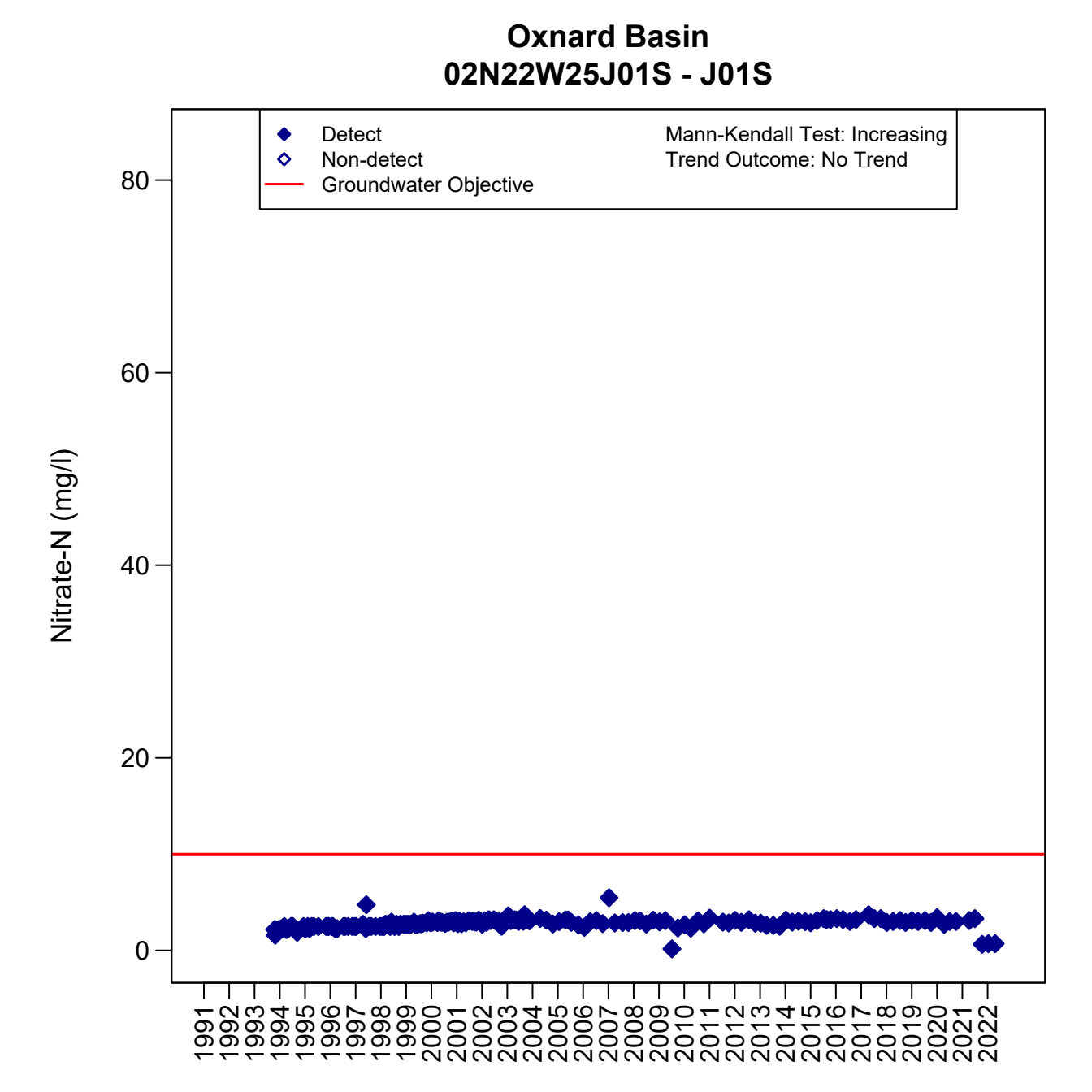
Oxnard Basin
01N22W20J08S - J08S



Oxnard Basin
01N22W20J05S - J05S




Oxnard Basin
02N22W25J01S - J01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
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1998
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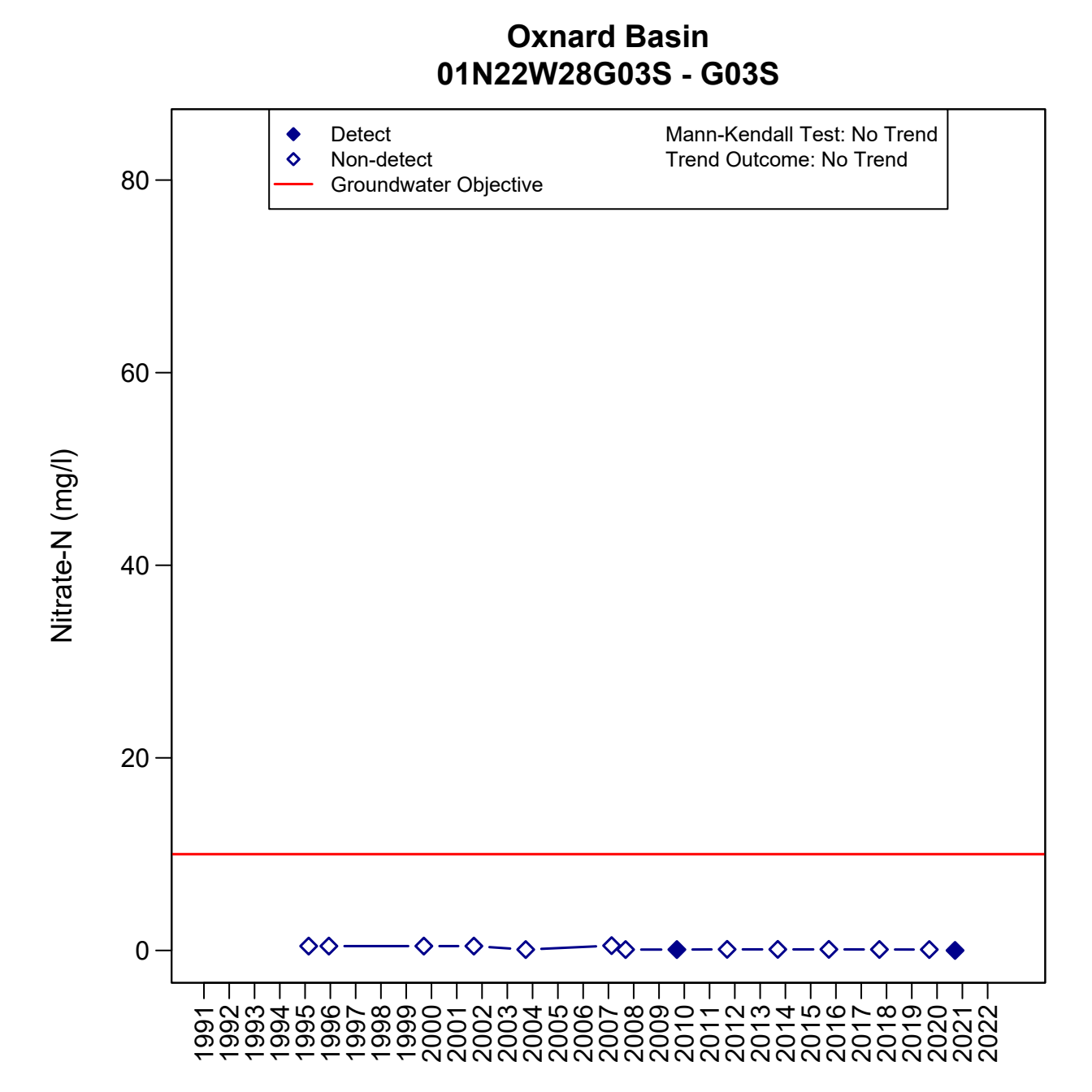
Oxnard Basin
01N22W28G03S - G03S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
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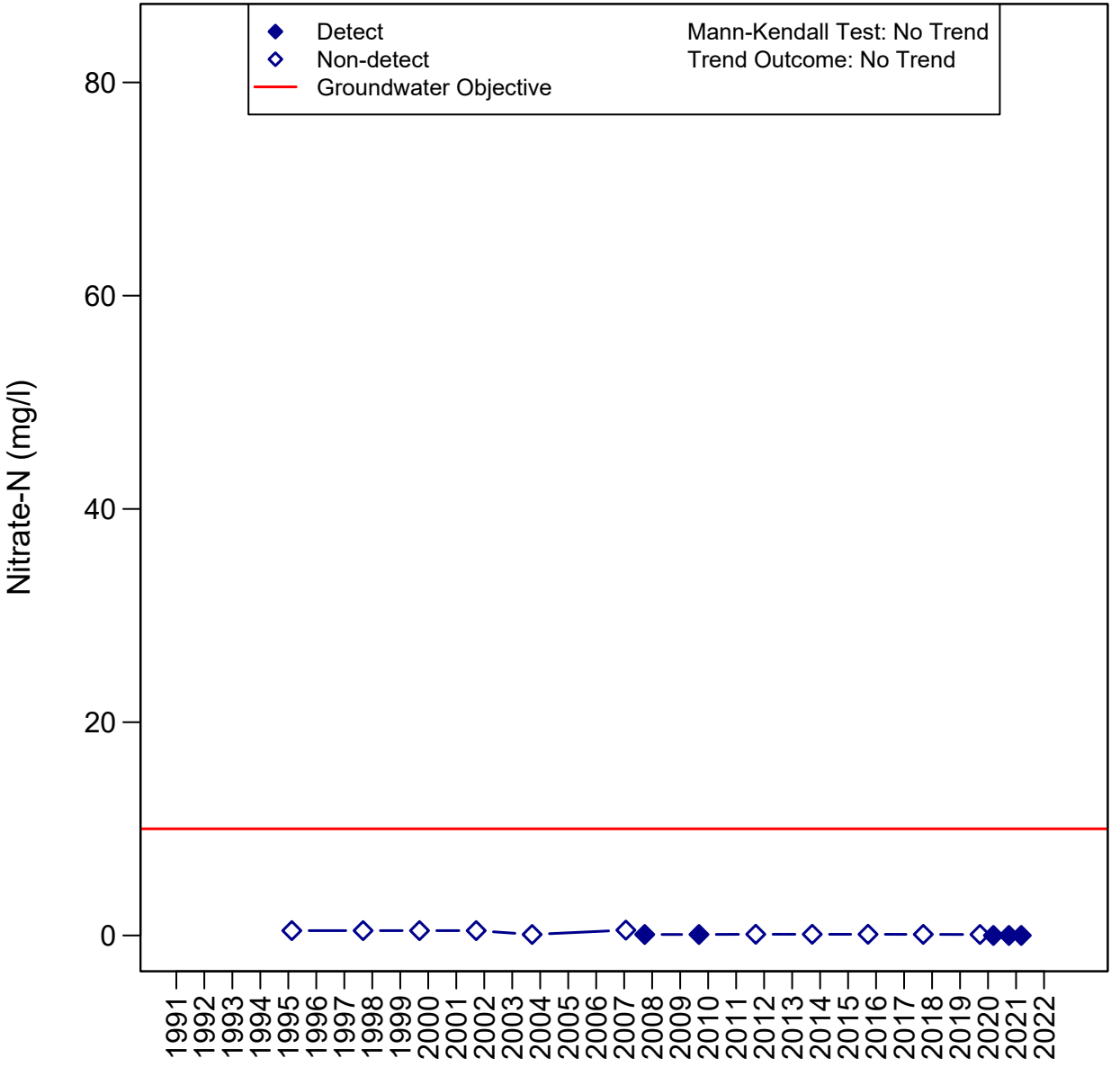
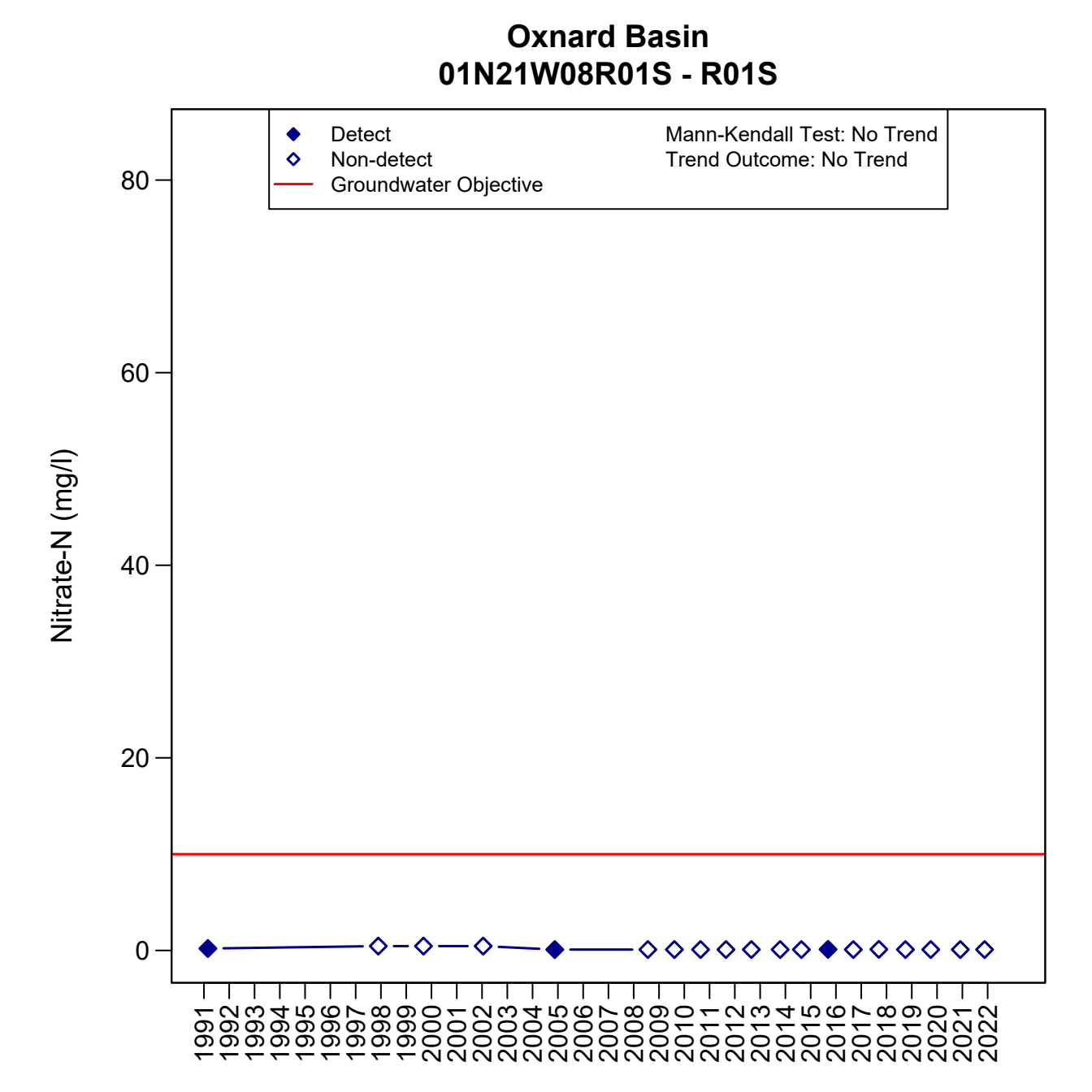
Oxnard Basin
01N22W20M04S - M04S




Oxnard Basin
01N21W08R01S - R01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
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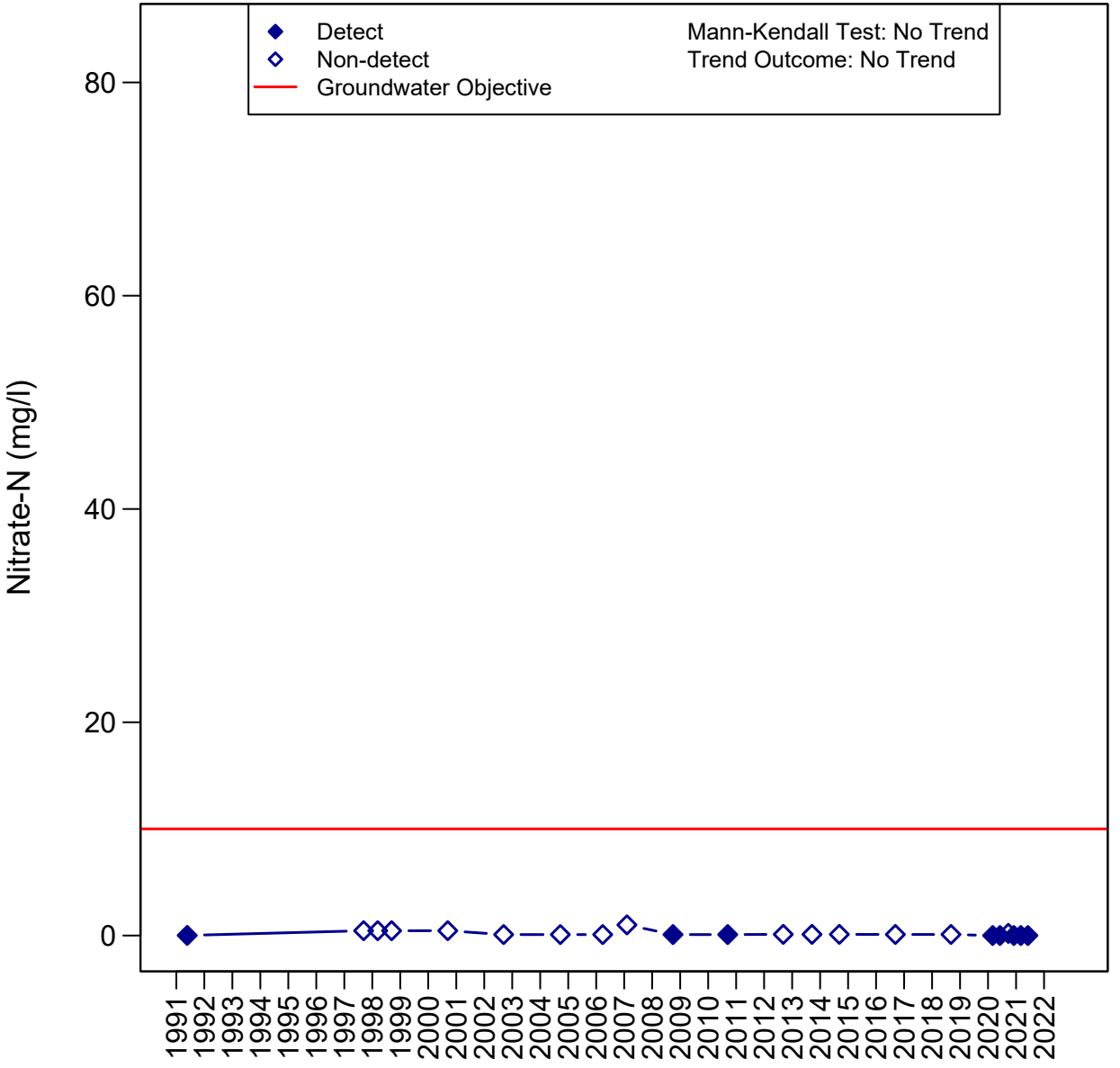
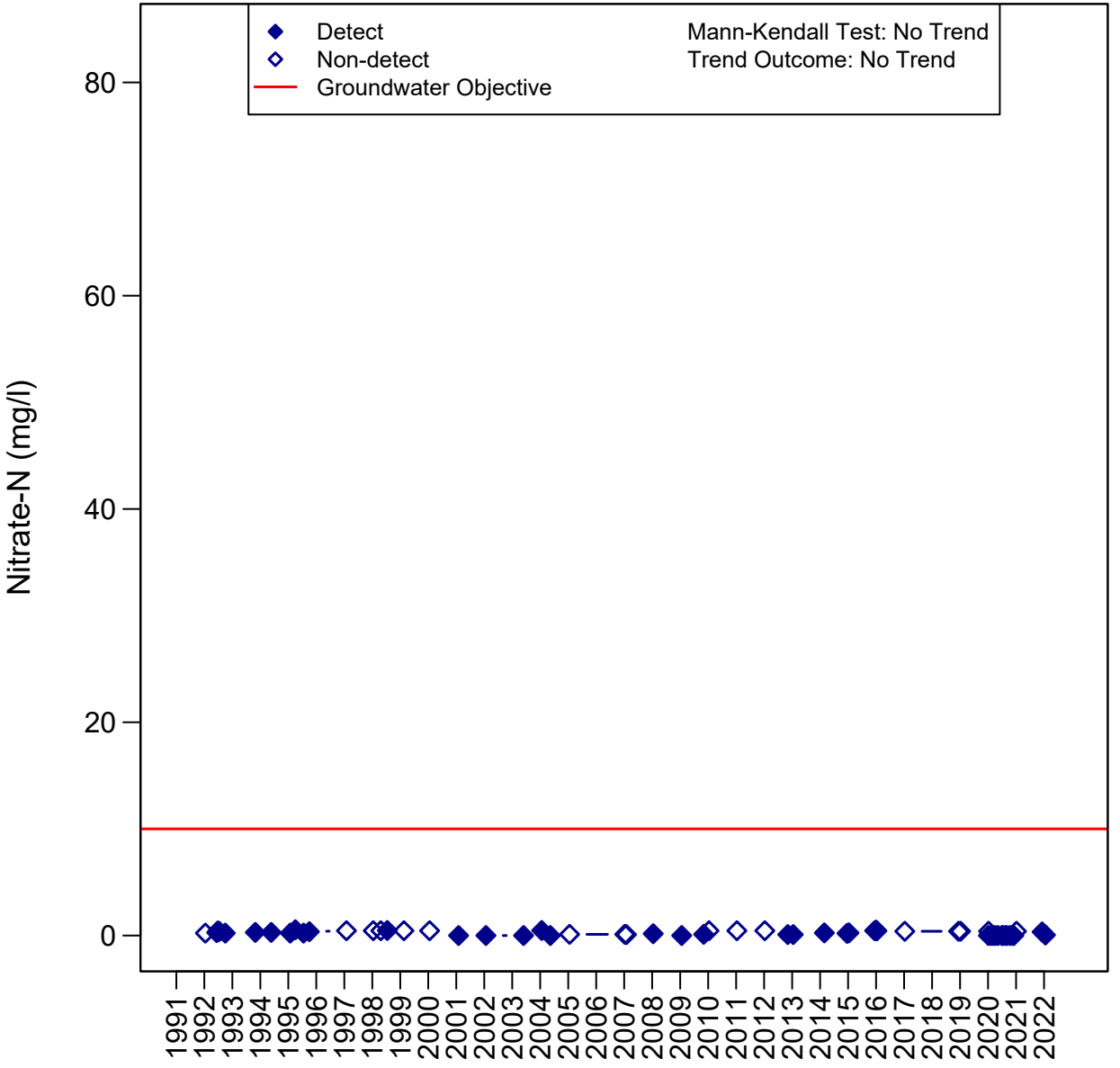
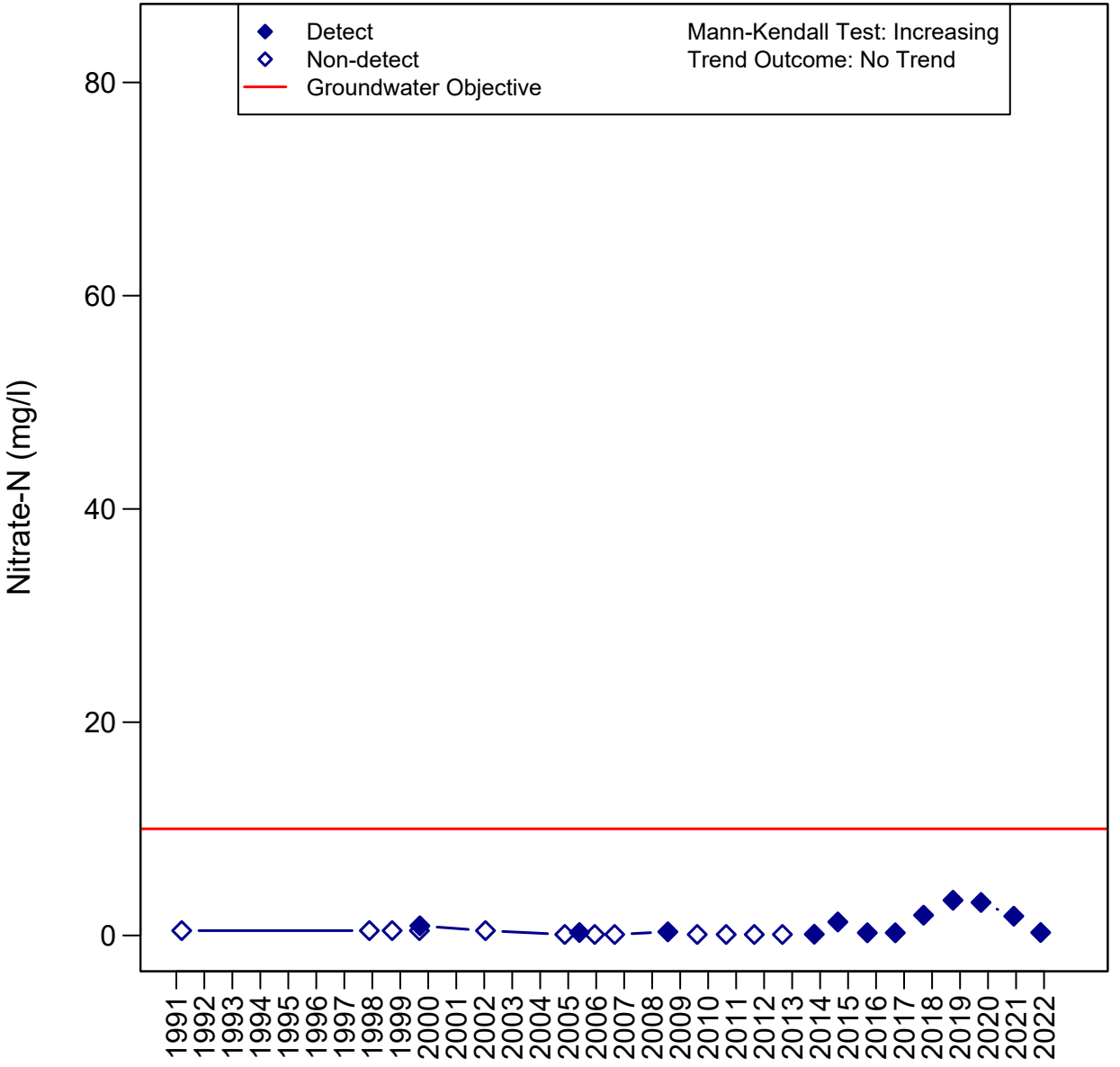
Oxnard Basin
01N22W36K09S - K09S



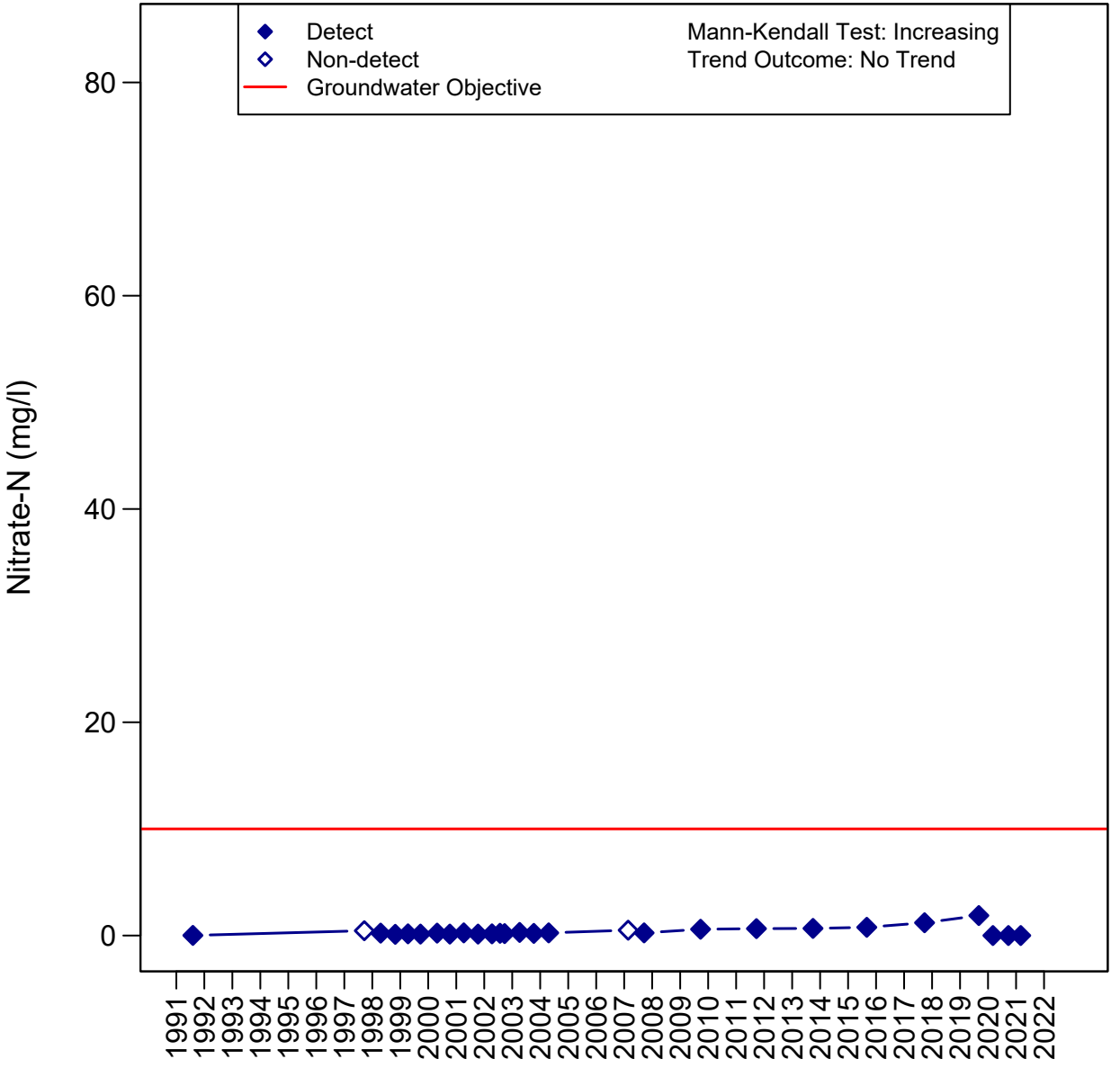
Pleasant Valley Basin
02N20W19L05S - L05S



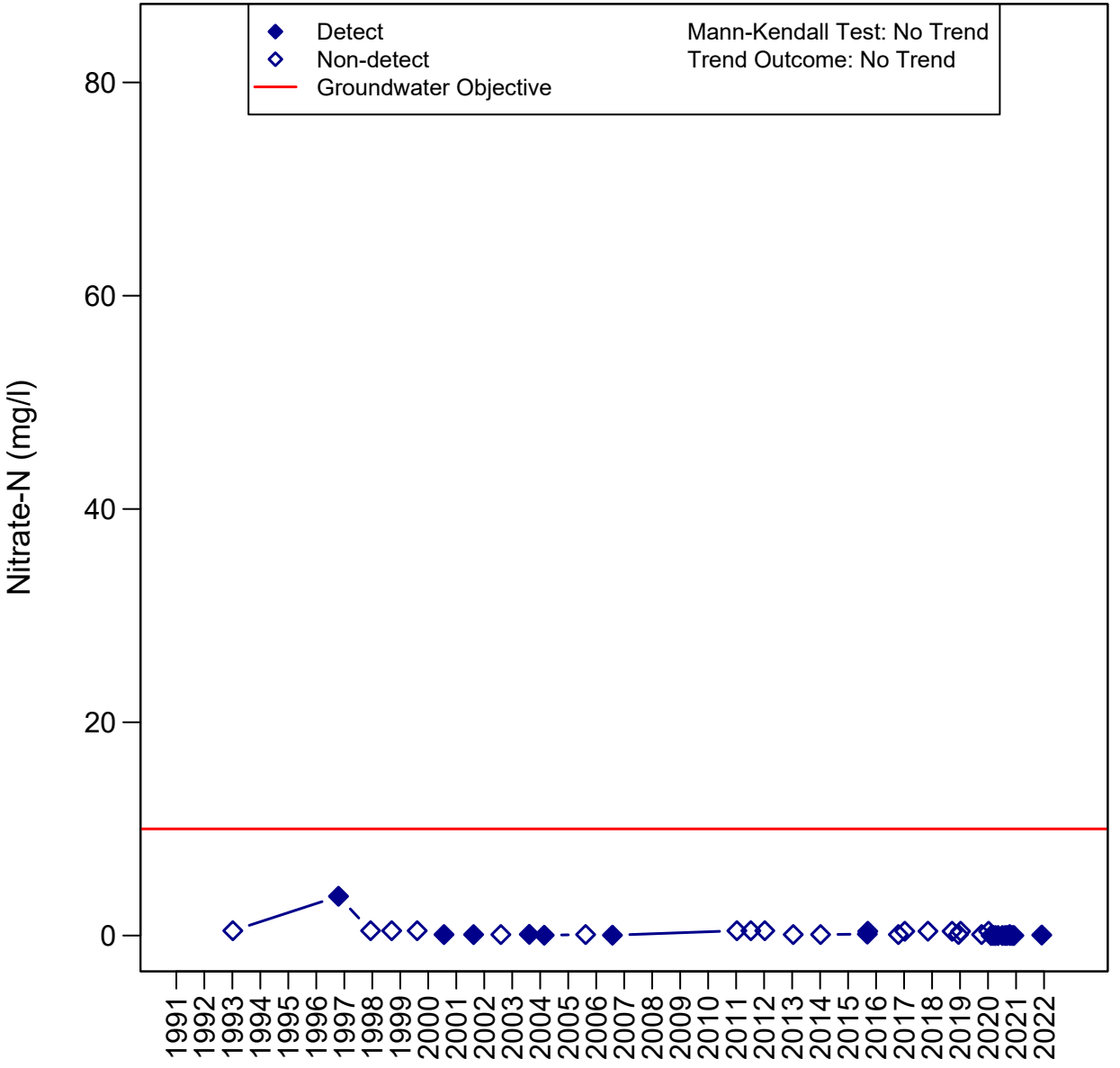
Pleasant Valley Basin
01N21W10G01S - G01S



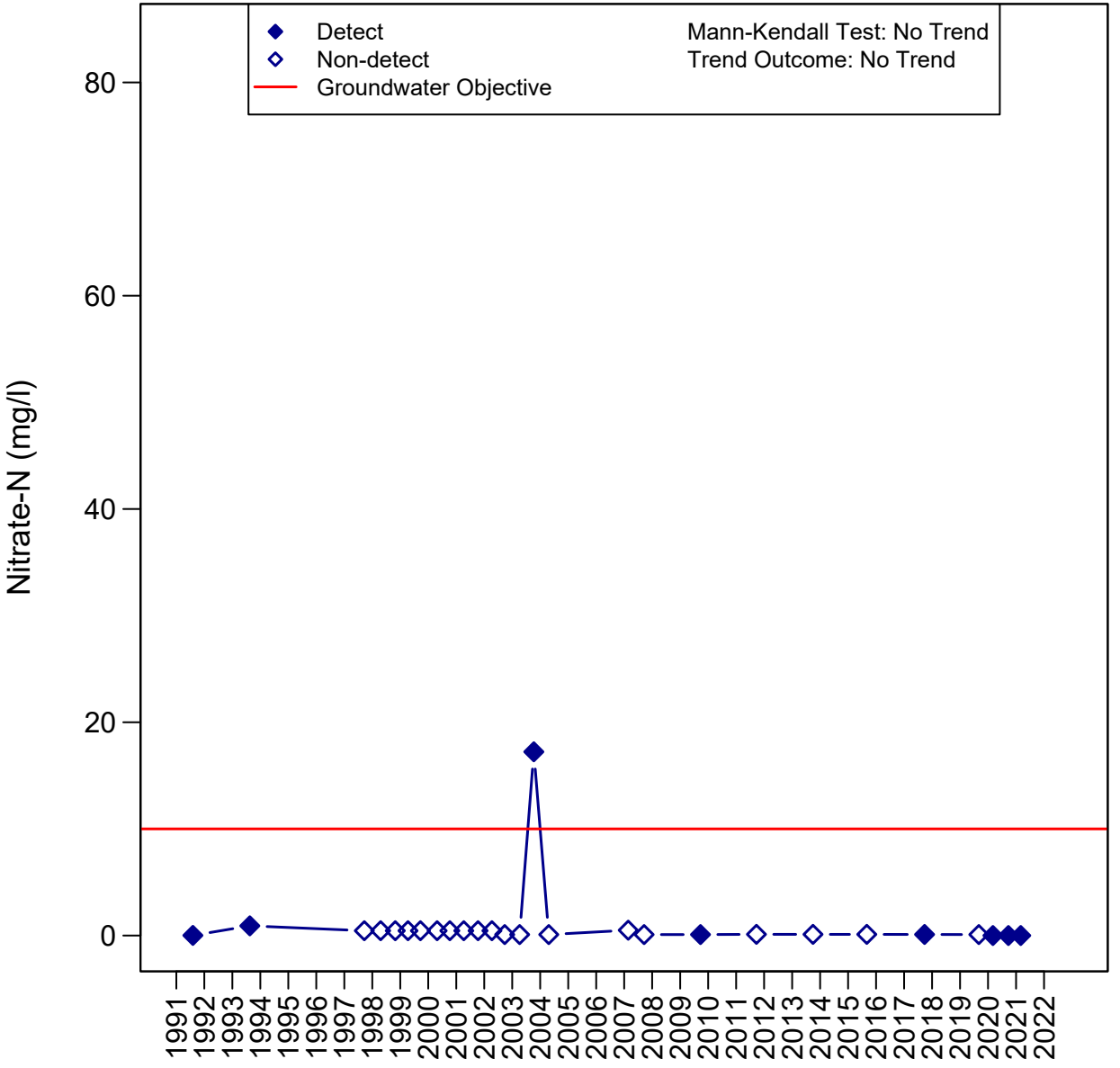
Pleasant Valley Basin
02N21W34G04S - G04S



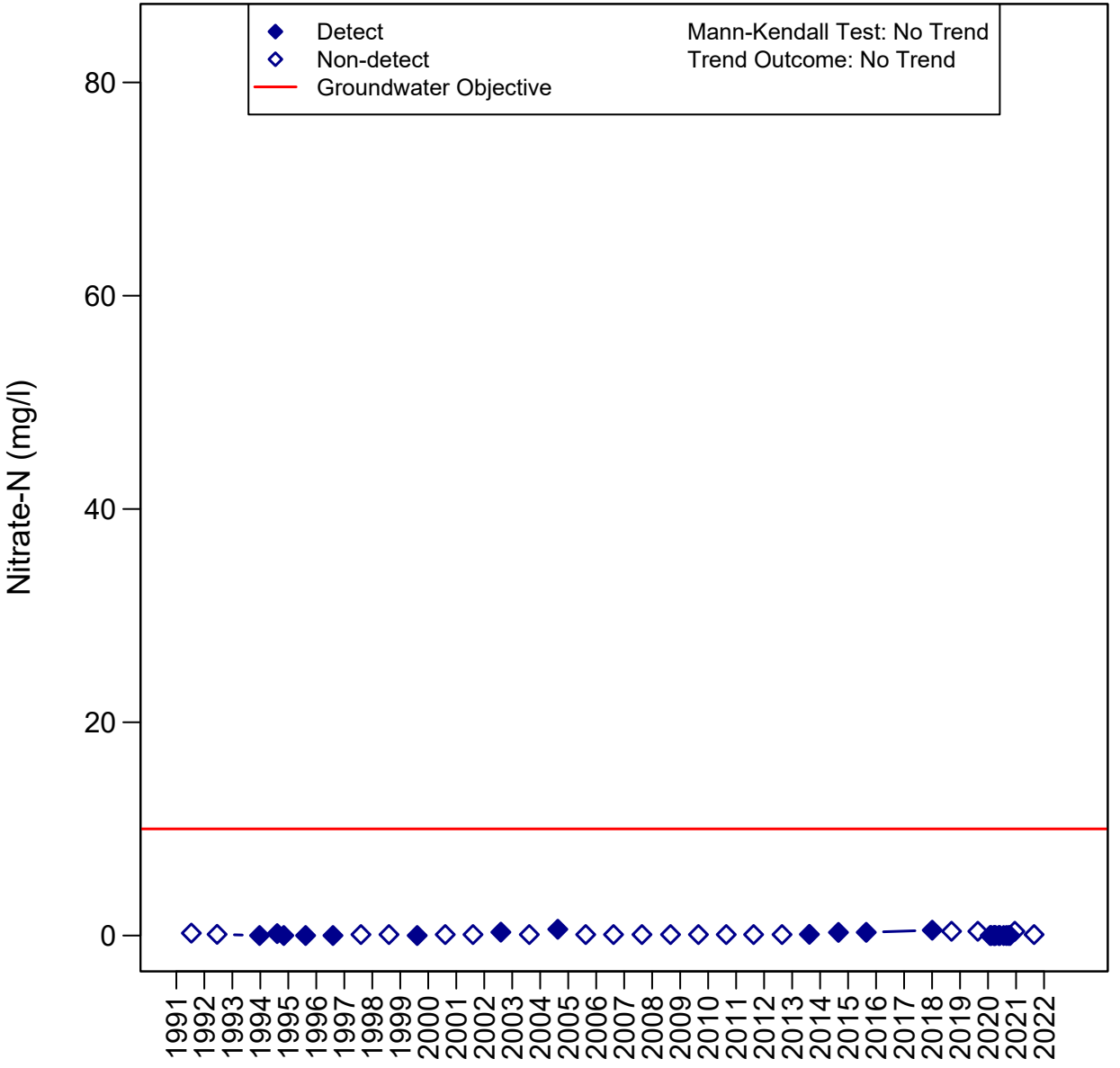
Pleasant Valley Basin
02N21W33R02S - R02S



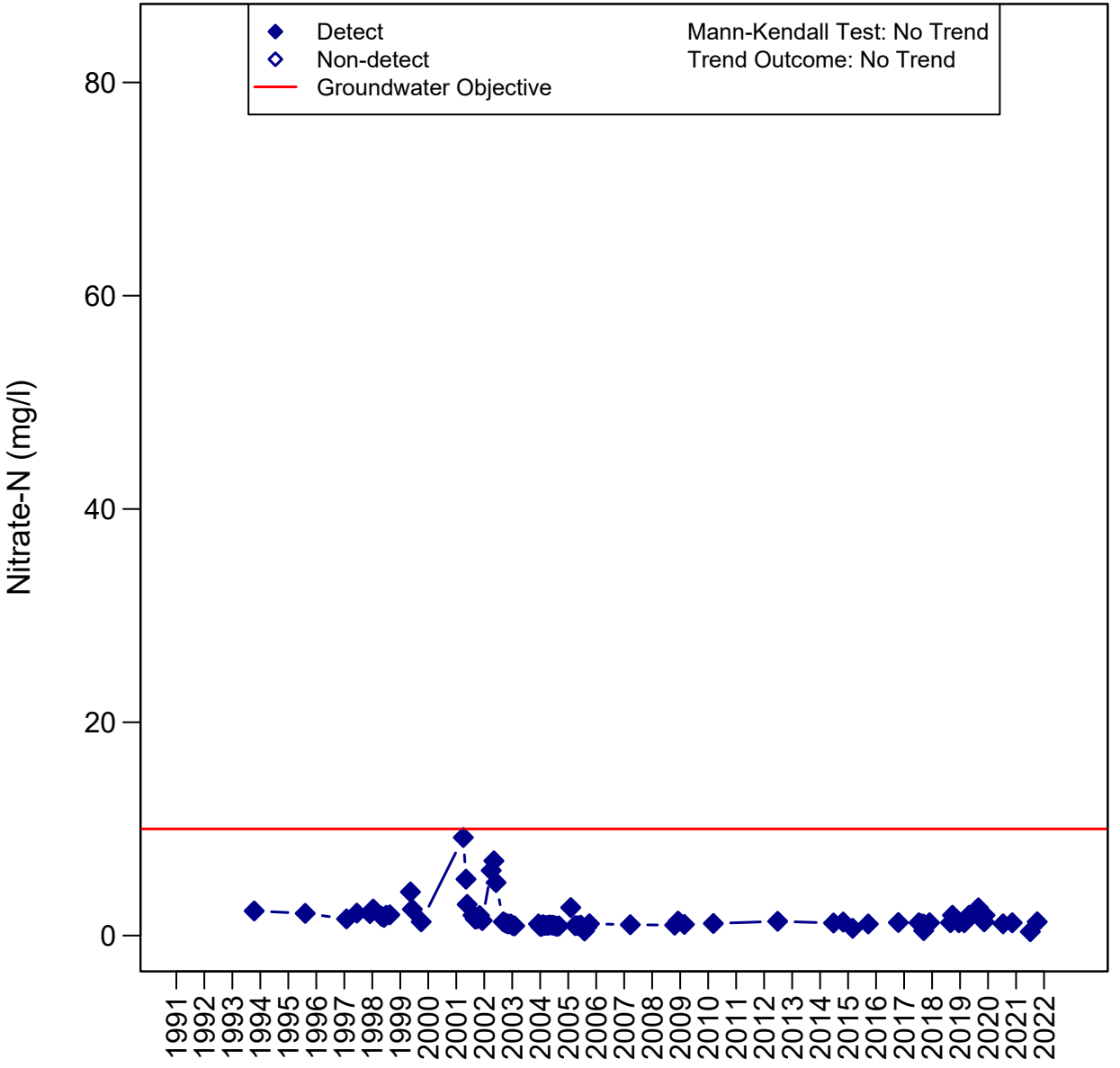
Pleasant Valley Basin
02N21W34G02S - G02S



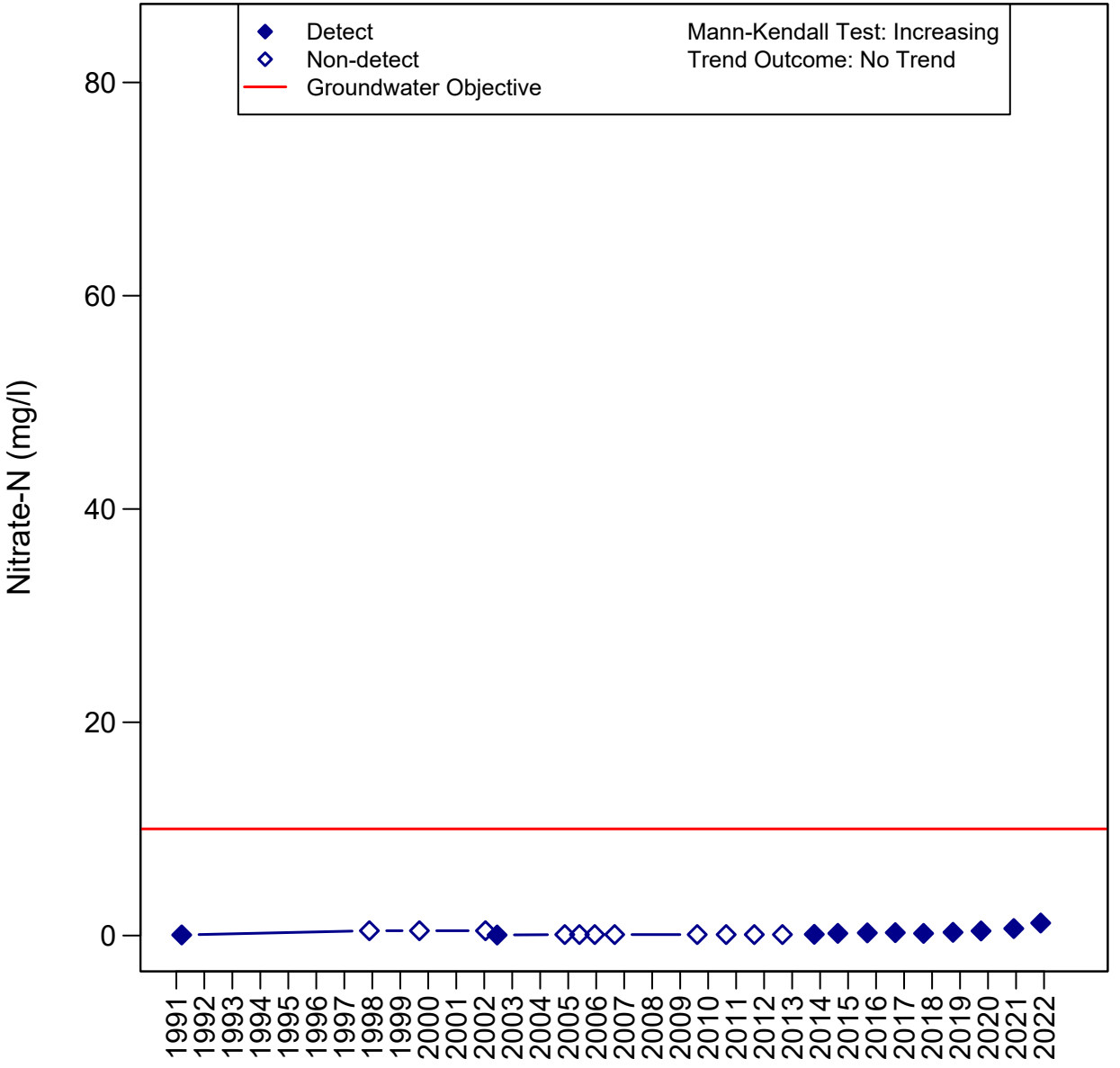
Pleasant Valley Basin
02N20W19E01S - E01S



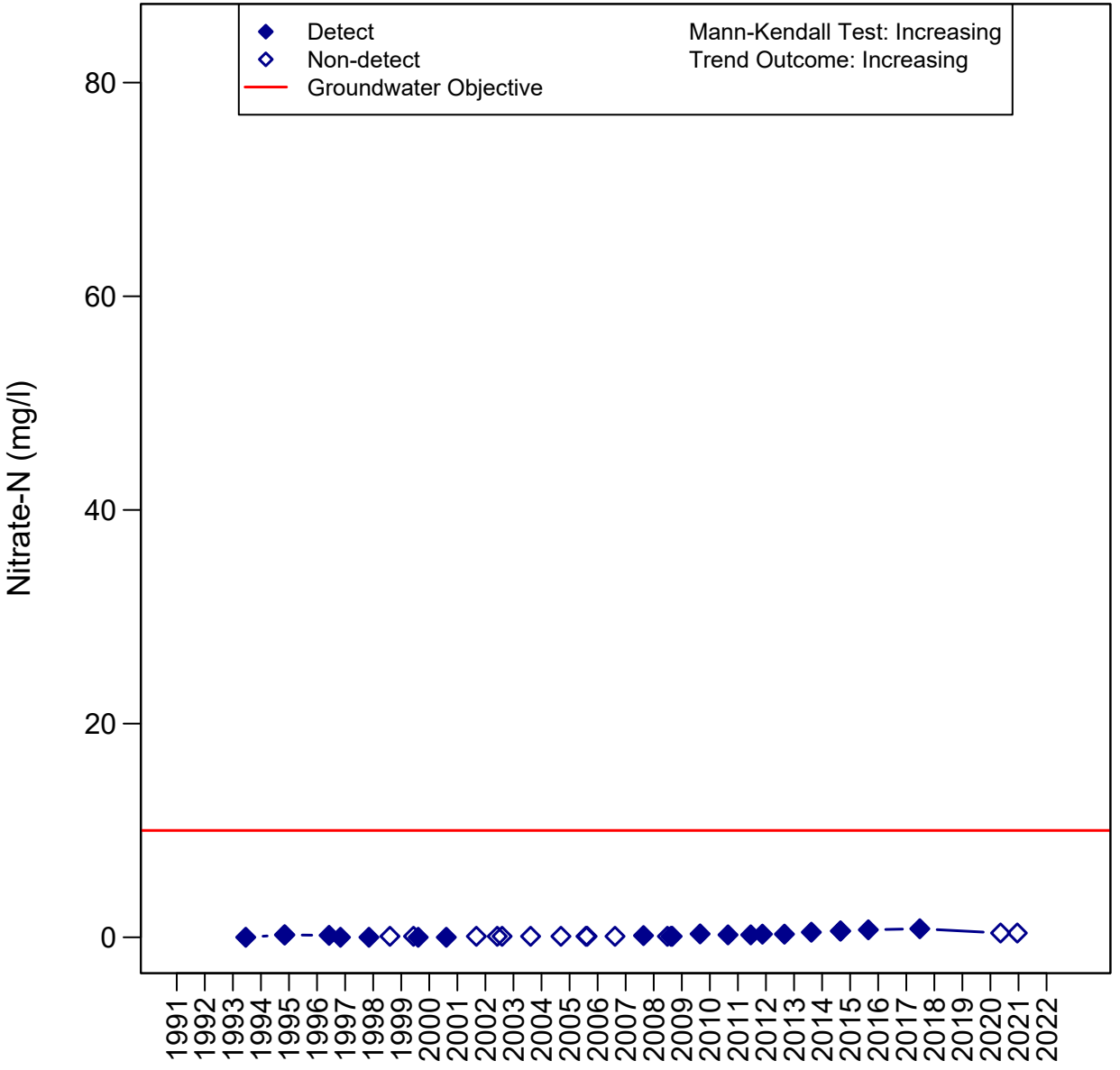
Pleasant Valley Basin
02N20W29B02S - B02S



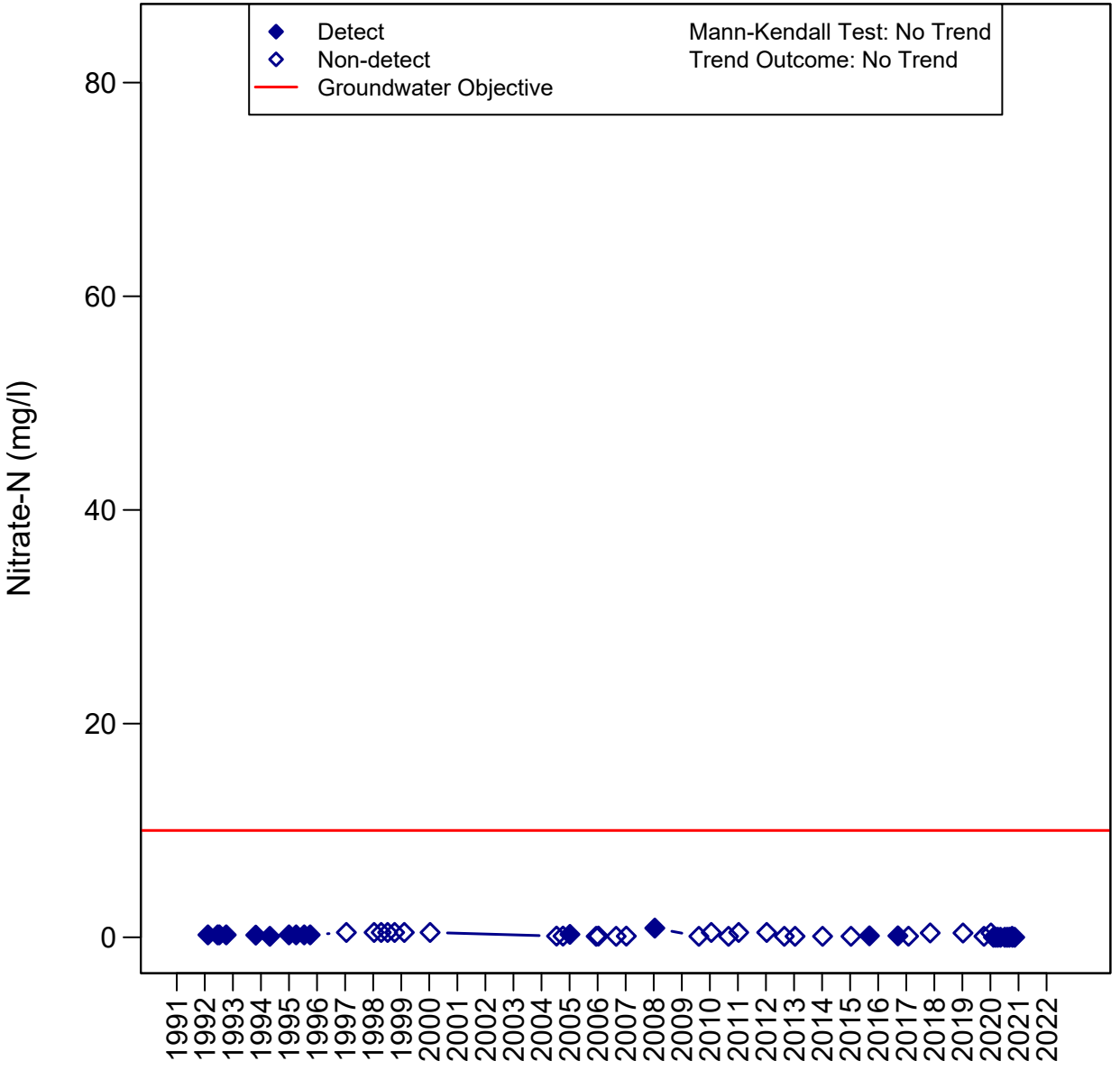
Pleasant Valley Basin
01N21W15D02S - D02S



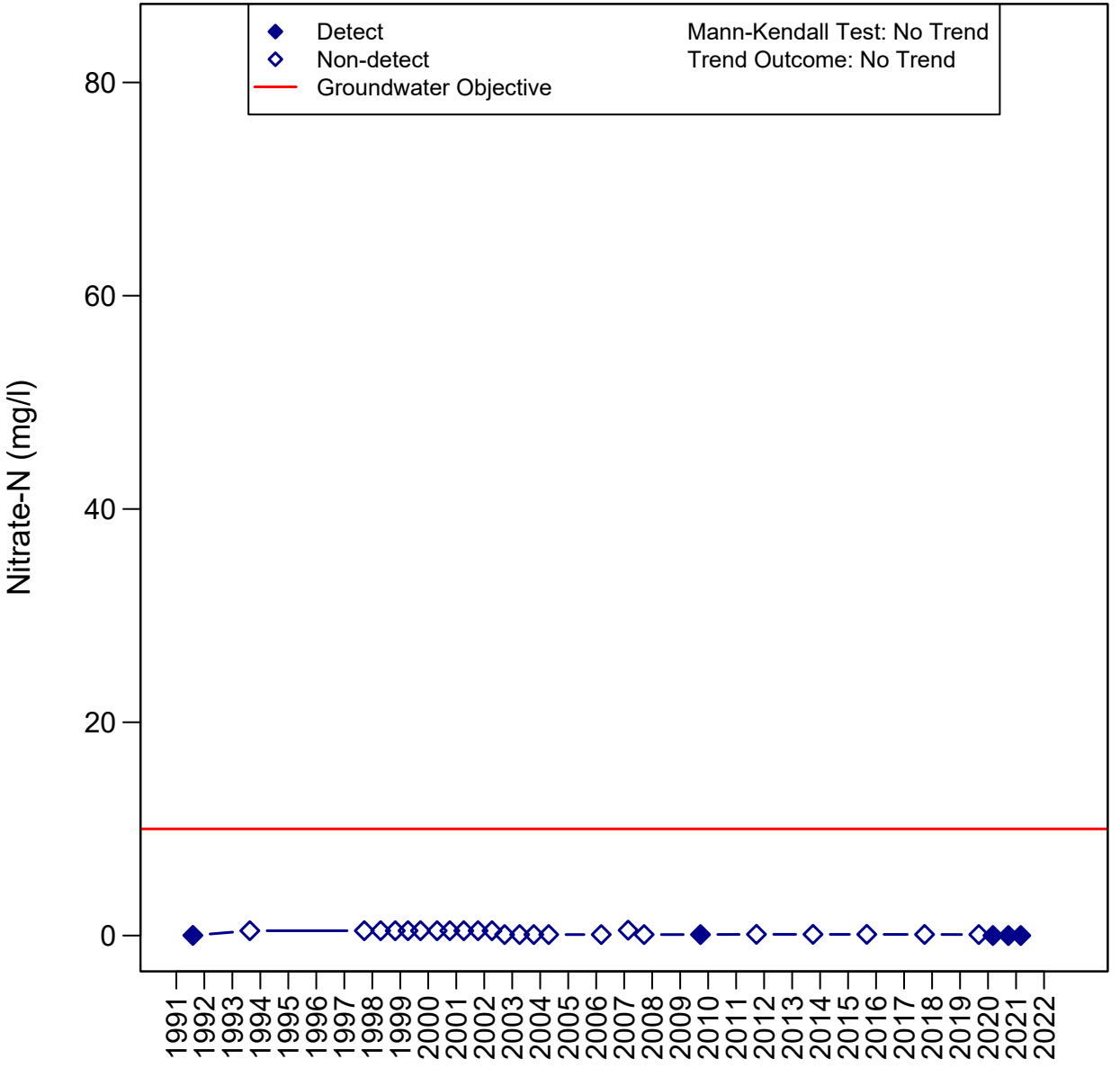
Pleasant Valley Basin
02N20W19M06S - M06S



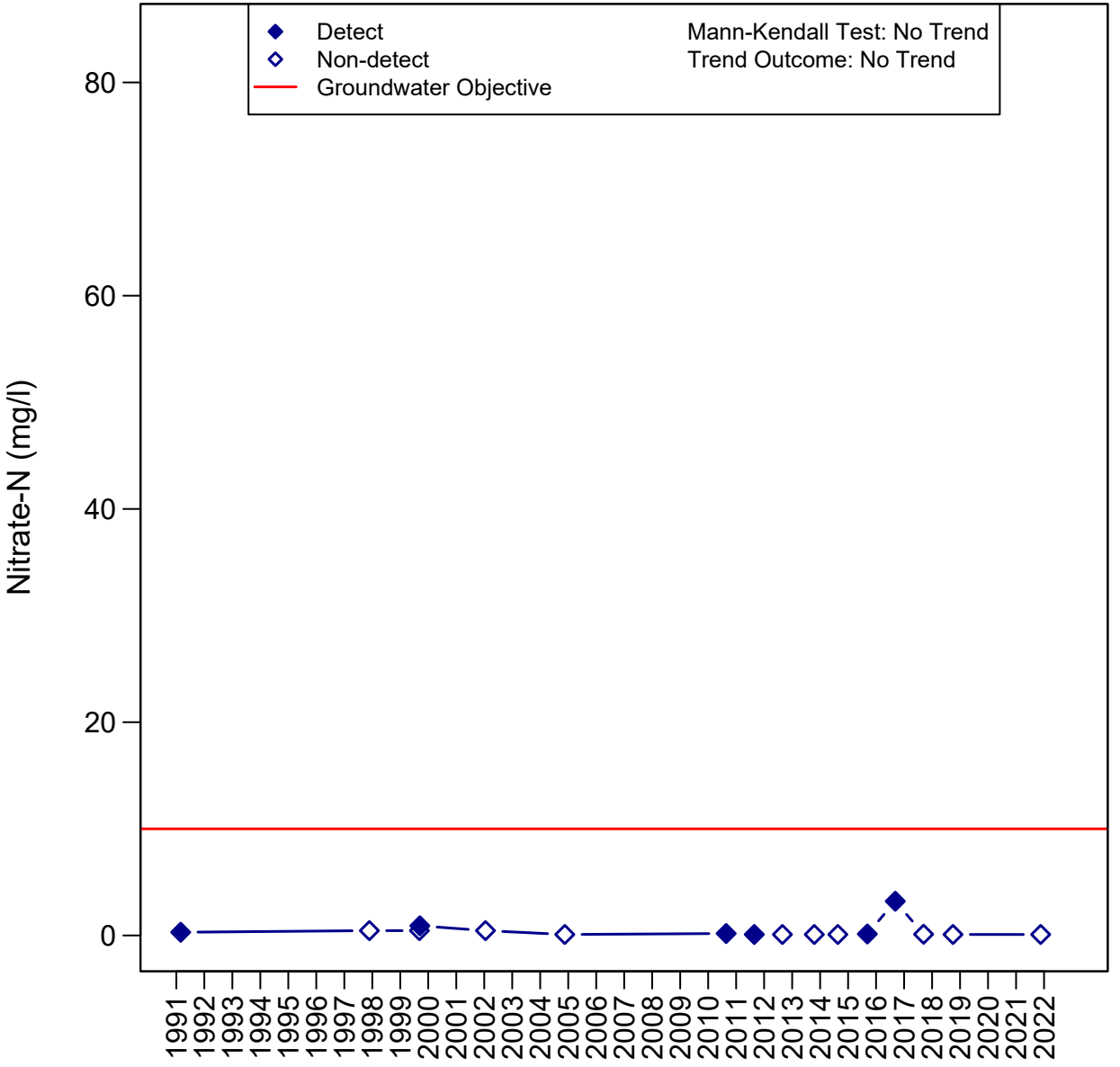
Pleasant Valley Basin
02N20W19F04S - F04S



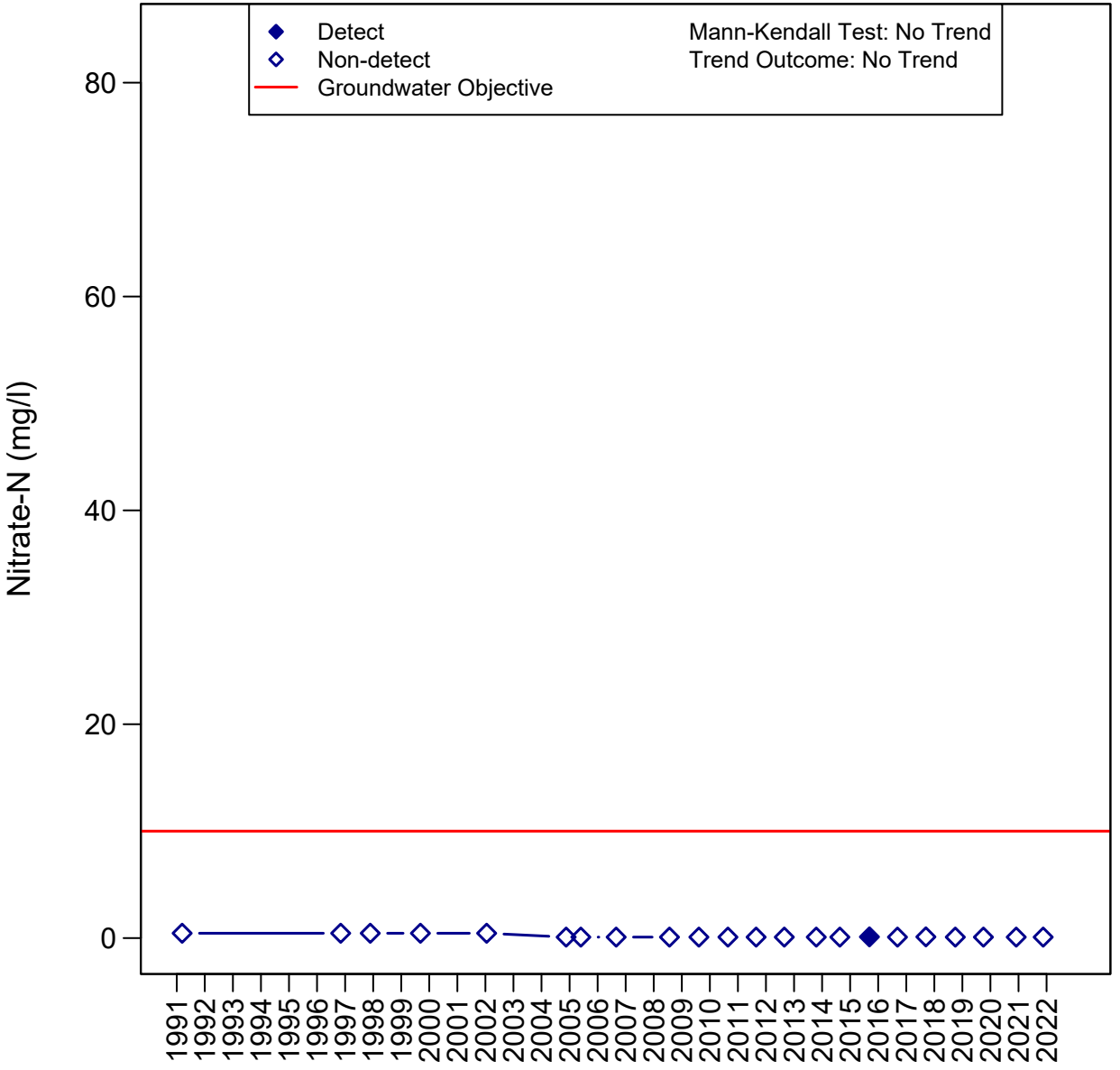
Pleasant Valley Basin
02N21W34G03S - G03S



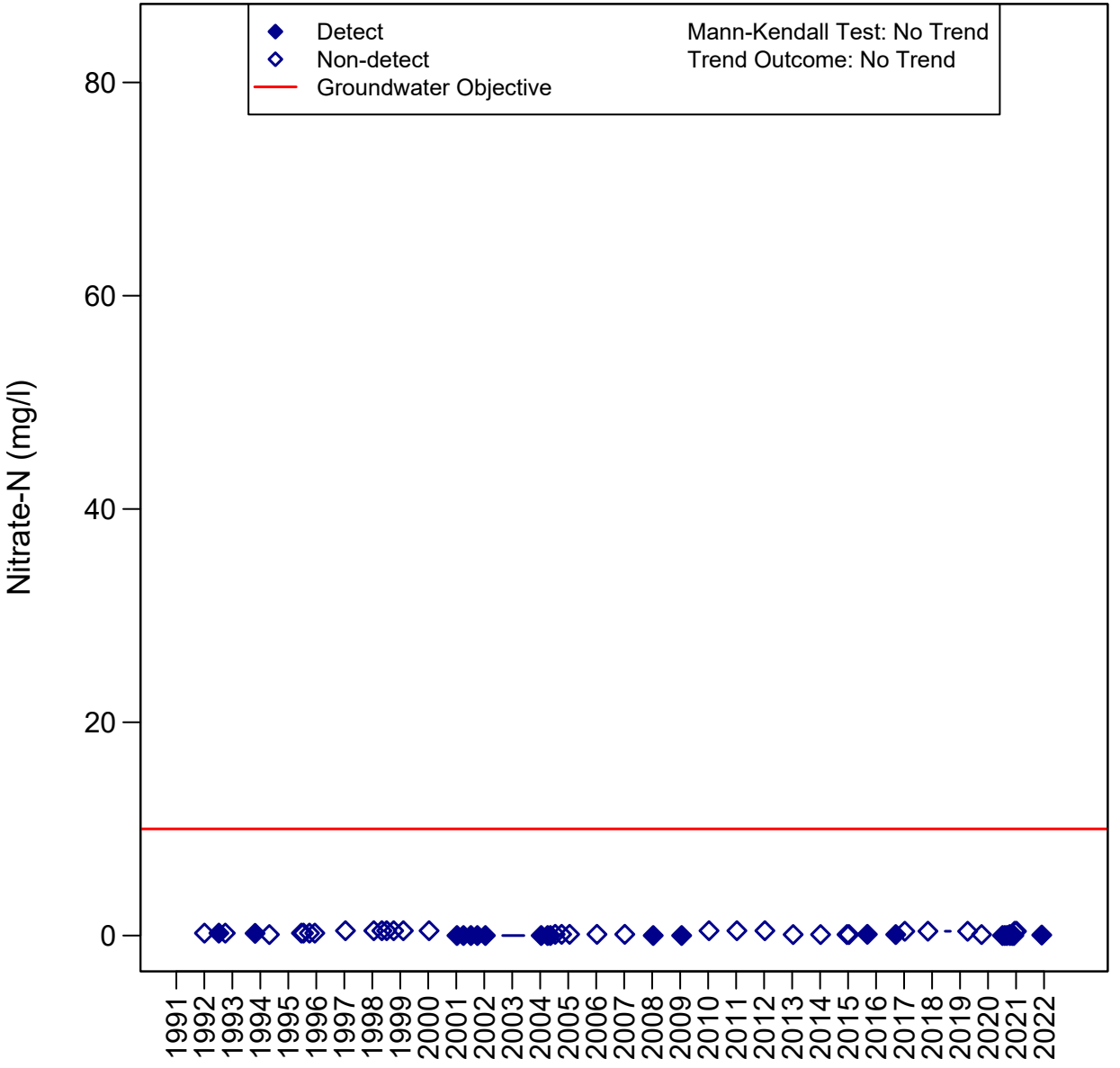
Pleasant Valley Basin
01N21W04K01S - K01S



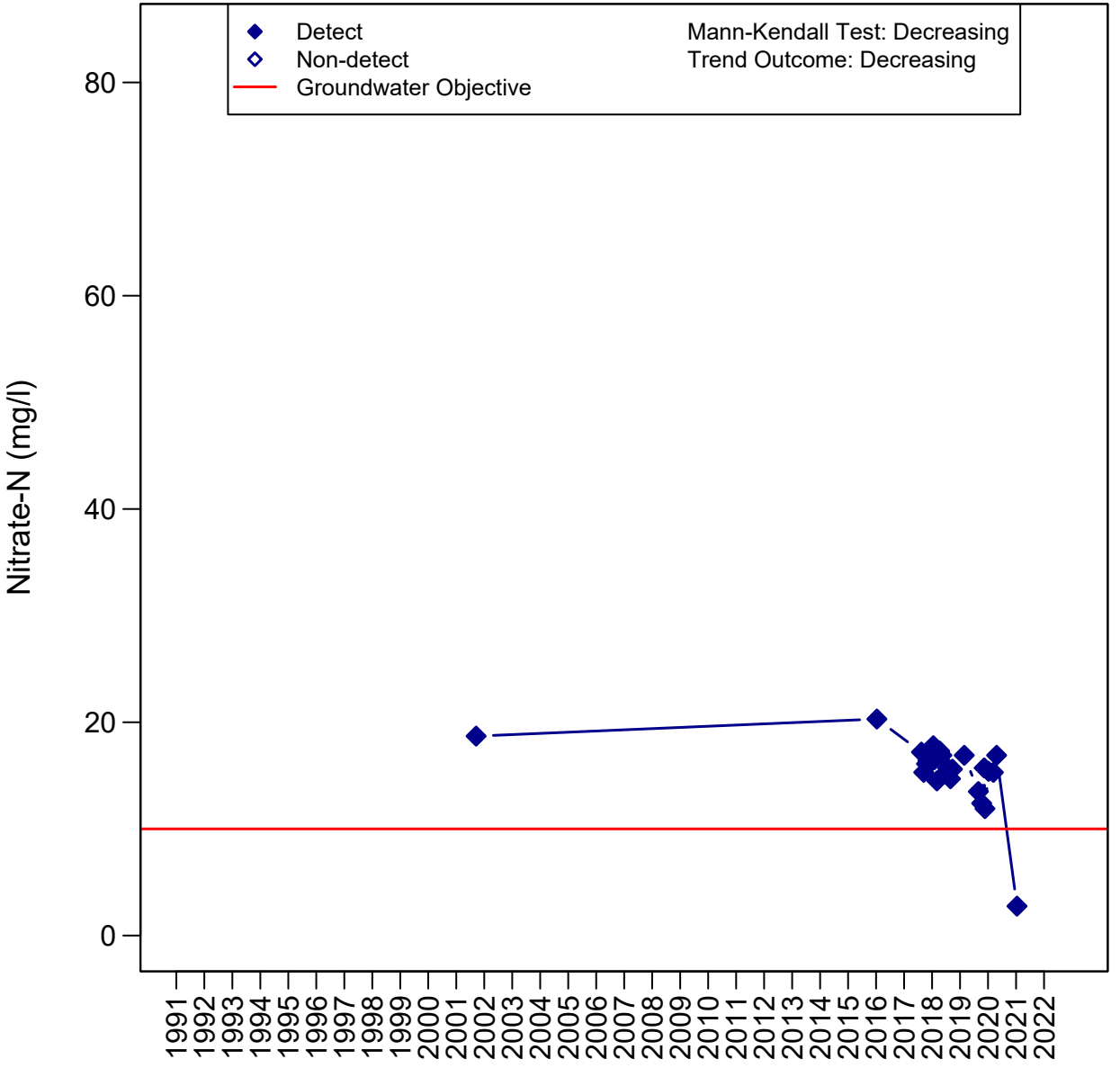
Pleasant Valley Basin
02N21W34G01S - G01S



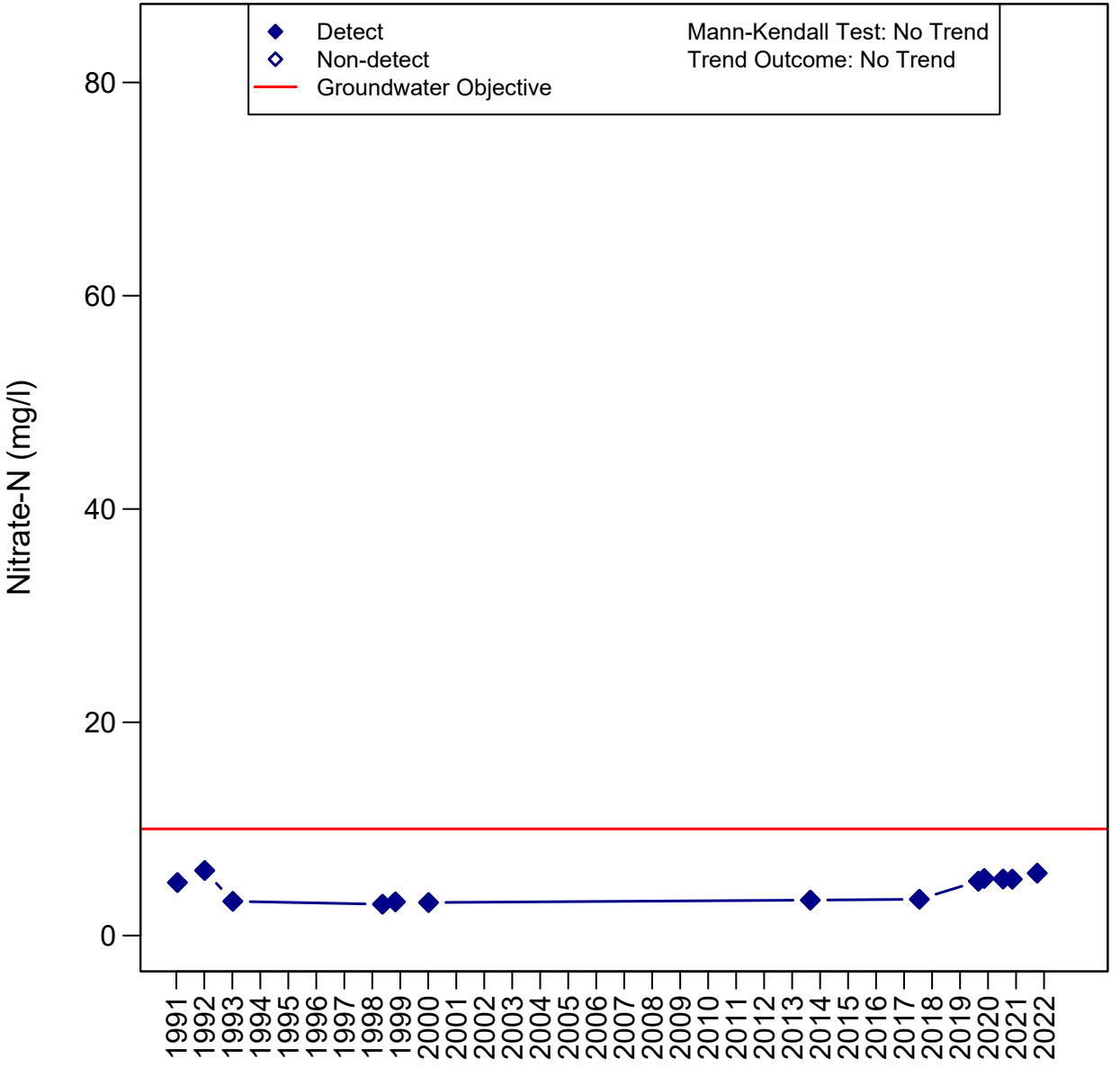
Pleasant Valley Basin
02N21W34C01S - C01S

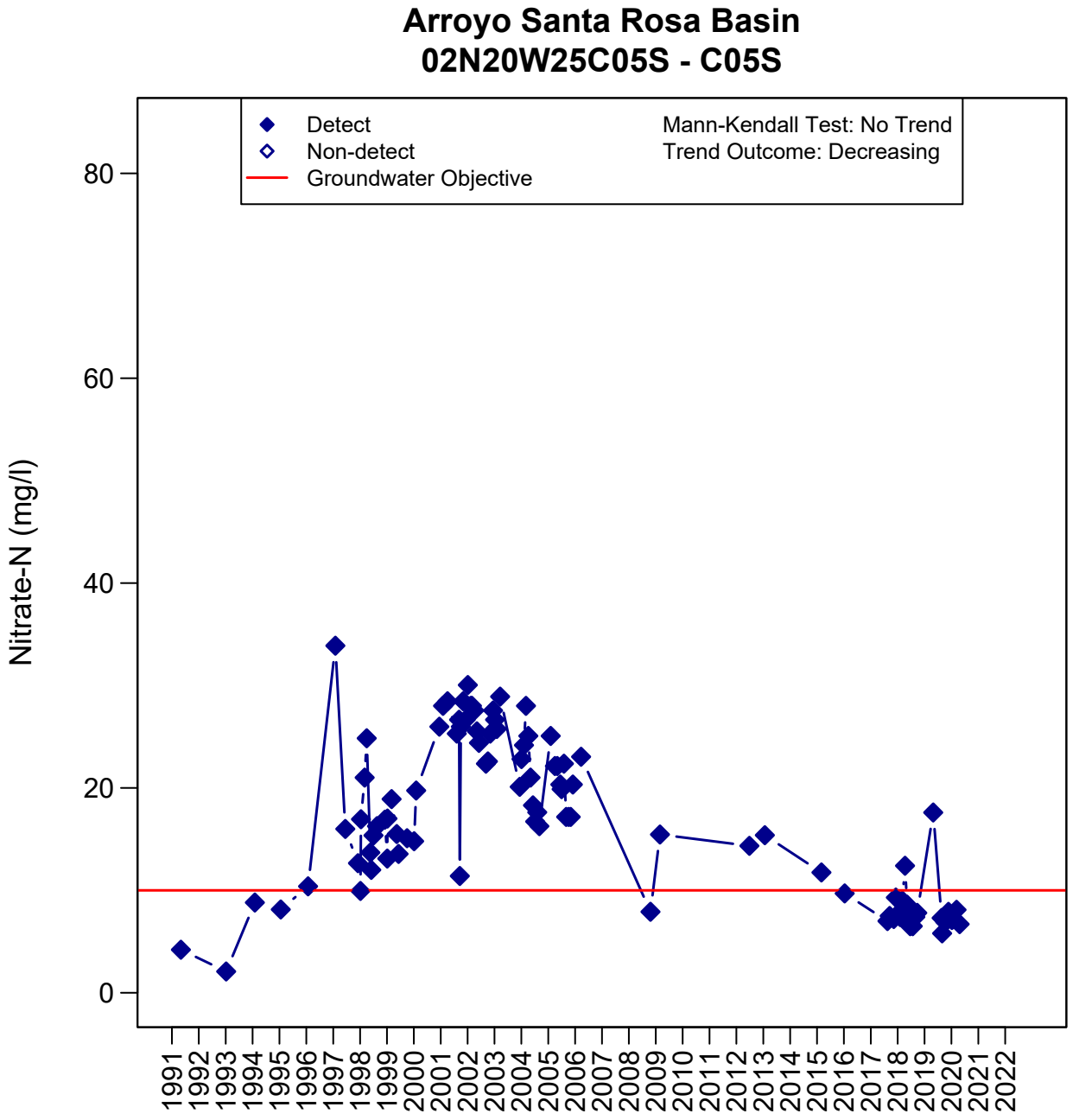


Arroyo Santa Rosa Basin
02N20W25C07S - C07S



Arroyo Santa Rosa Basin
02N19W20M04S - M04S




Arroyo Santa Rosa Basin
02N20W25C05S - C05S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: Decreasing
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
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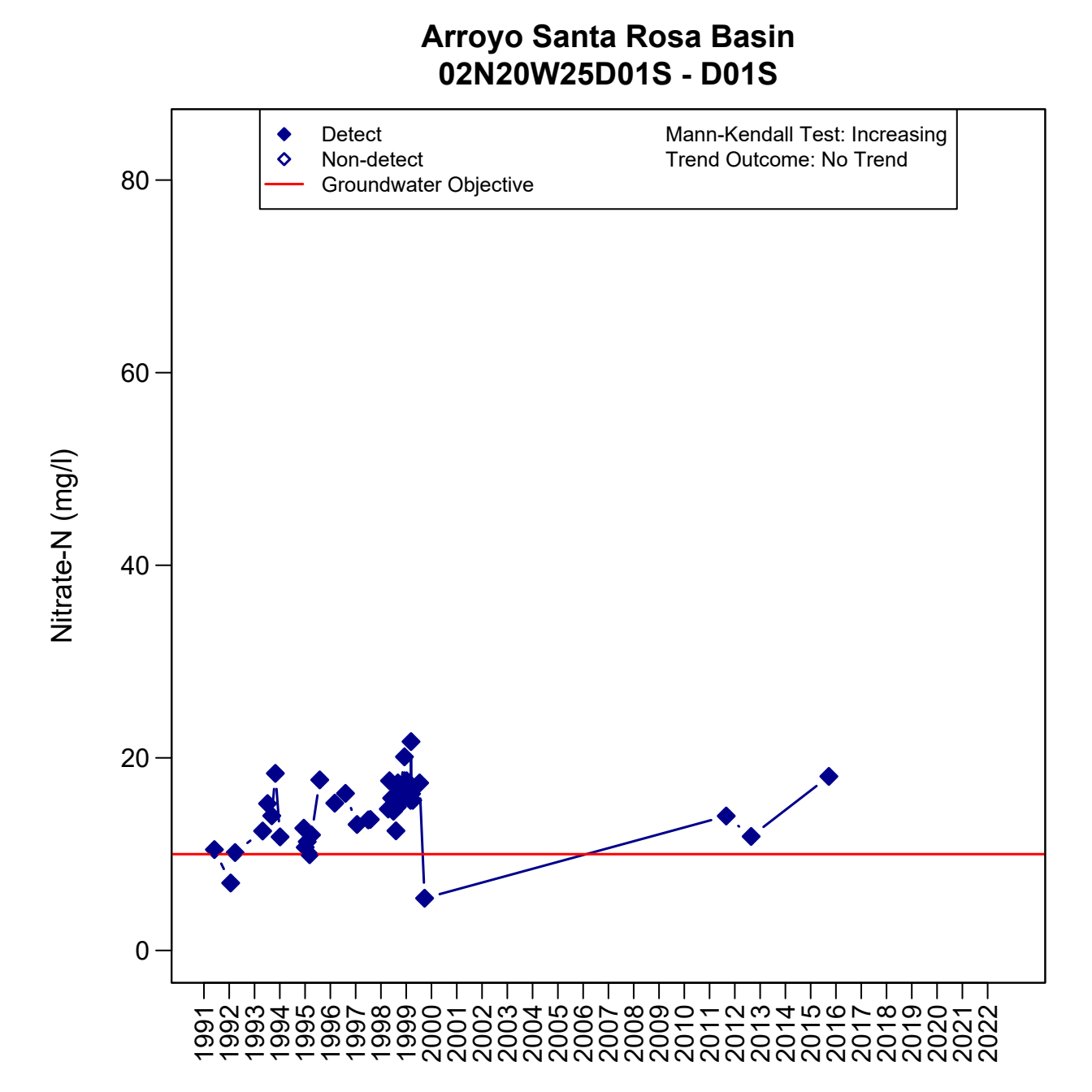
Arroyo Santa Rosa Basin
02N20W25D01S - D01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: Increasing
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
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1997
1998
1999
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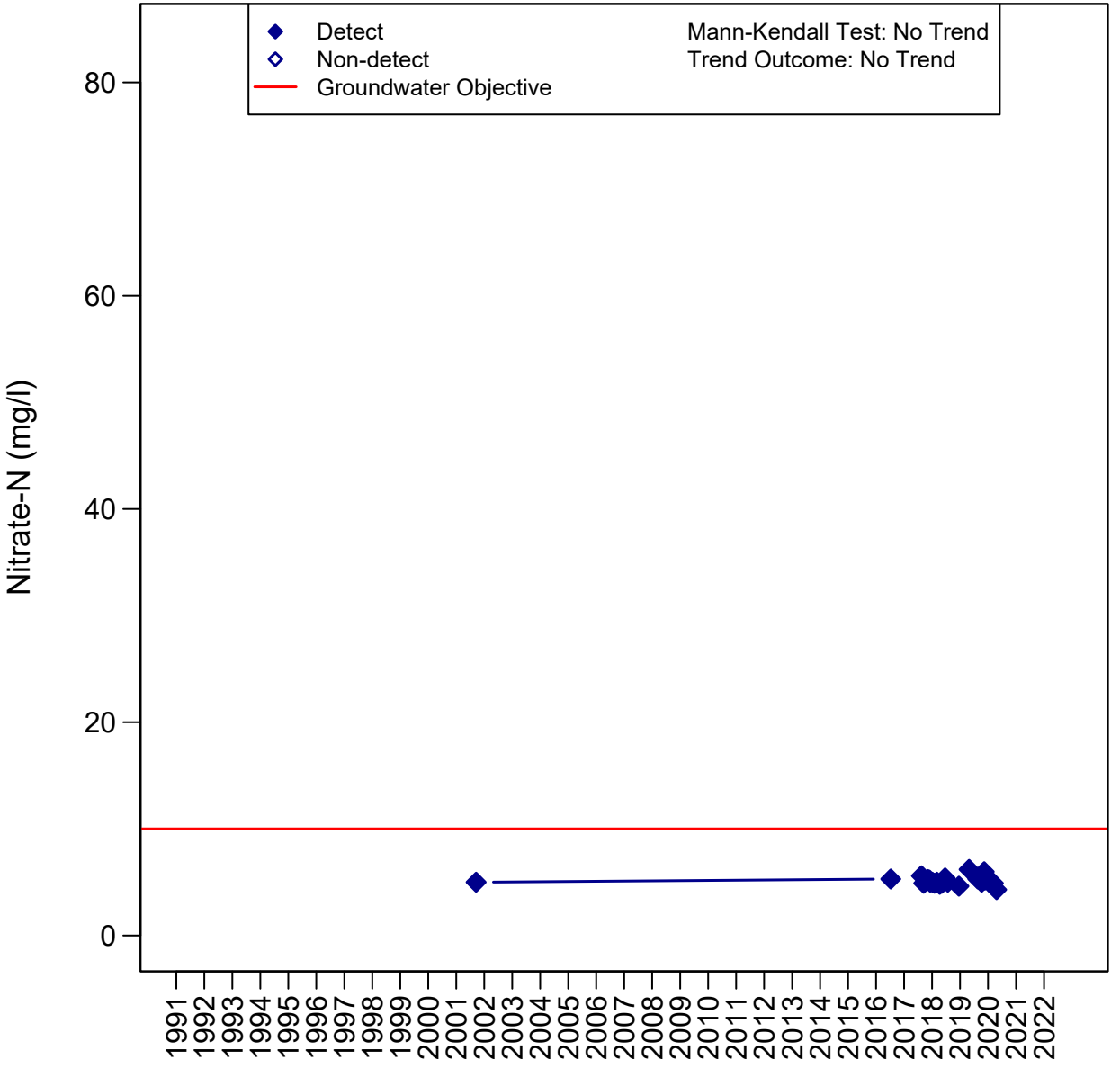
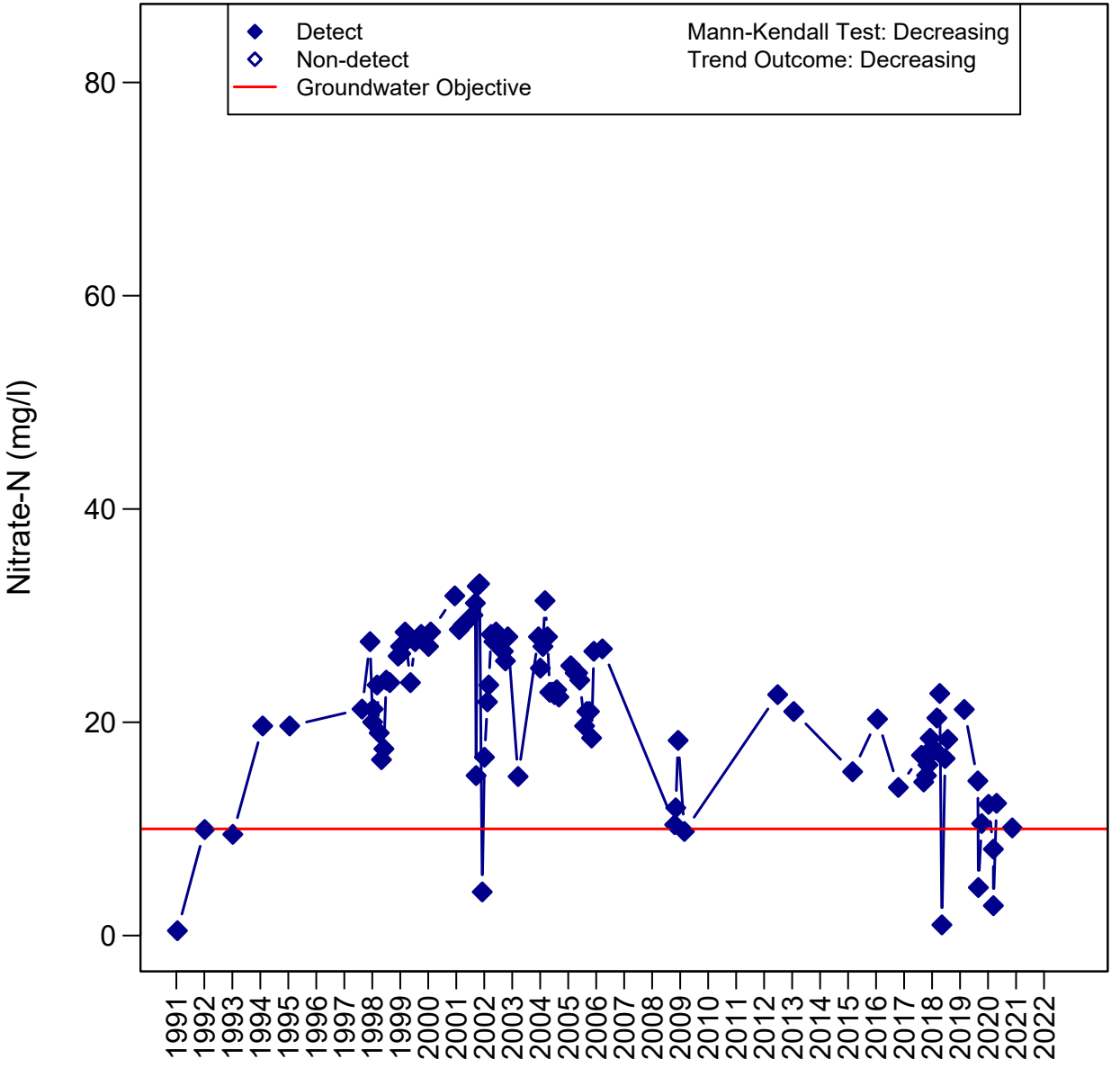
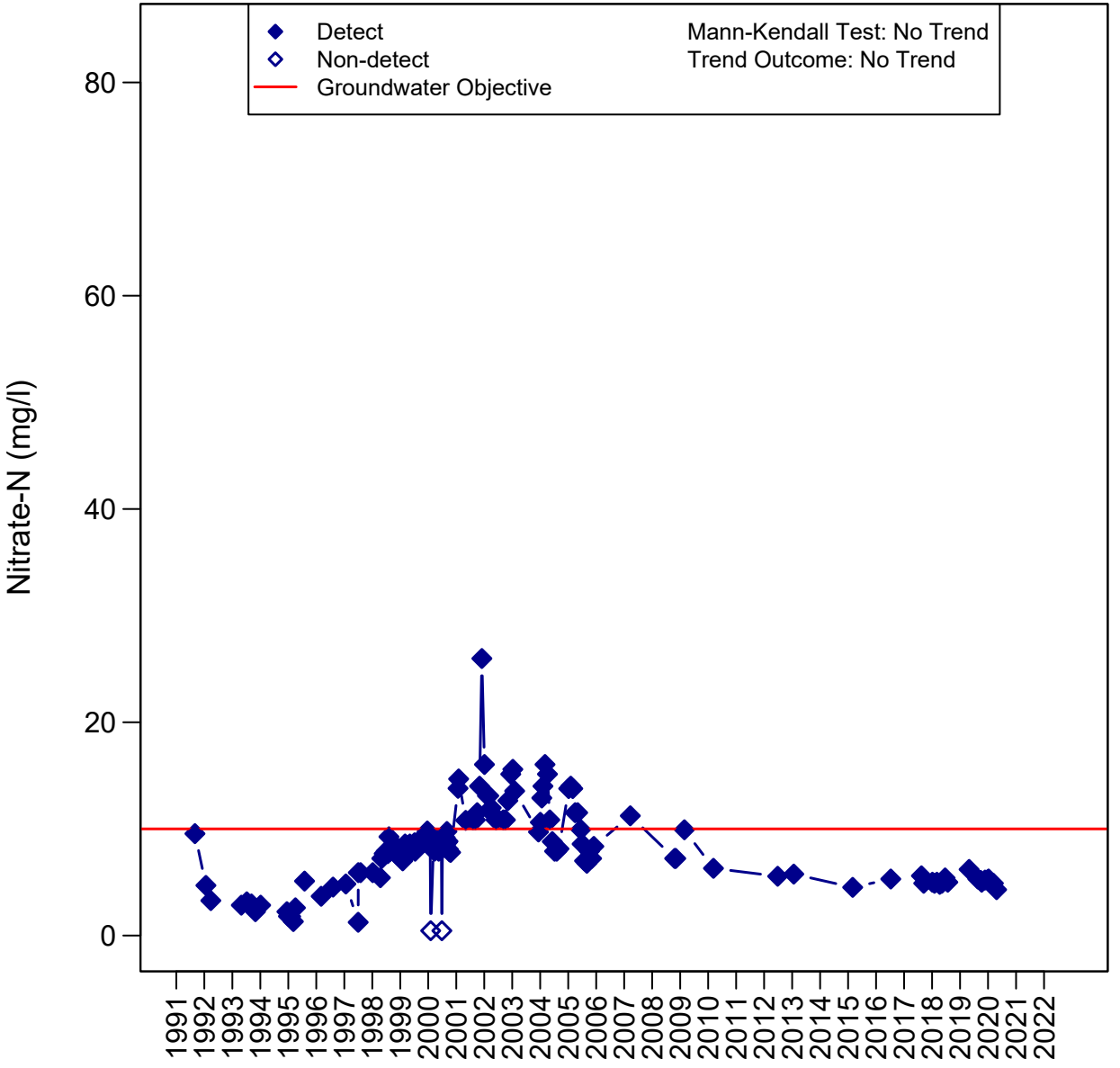
Arroyo Santa Rosa Basin
02N20W25C06S - C06S



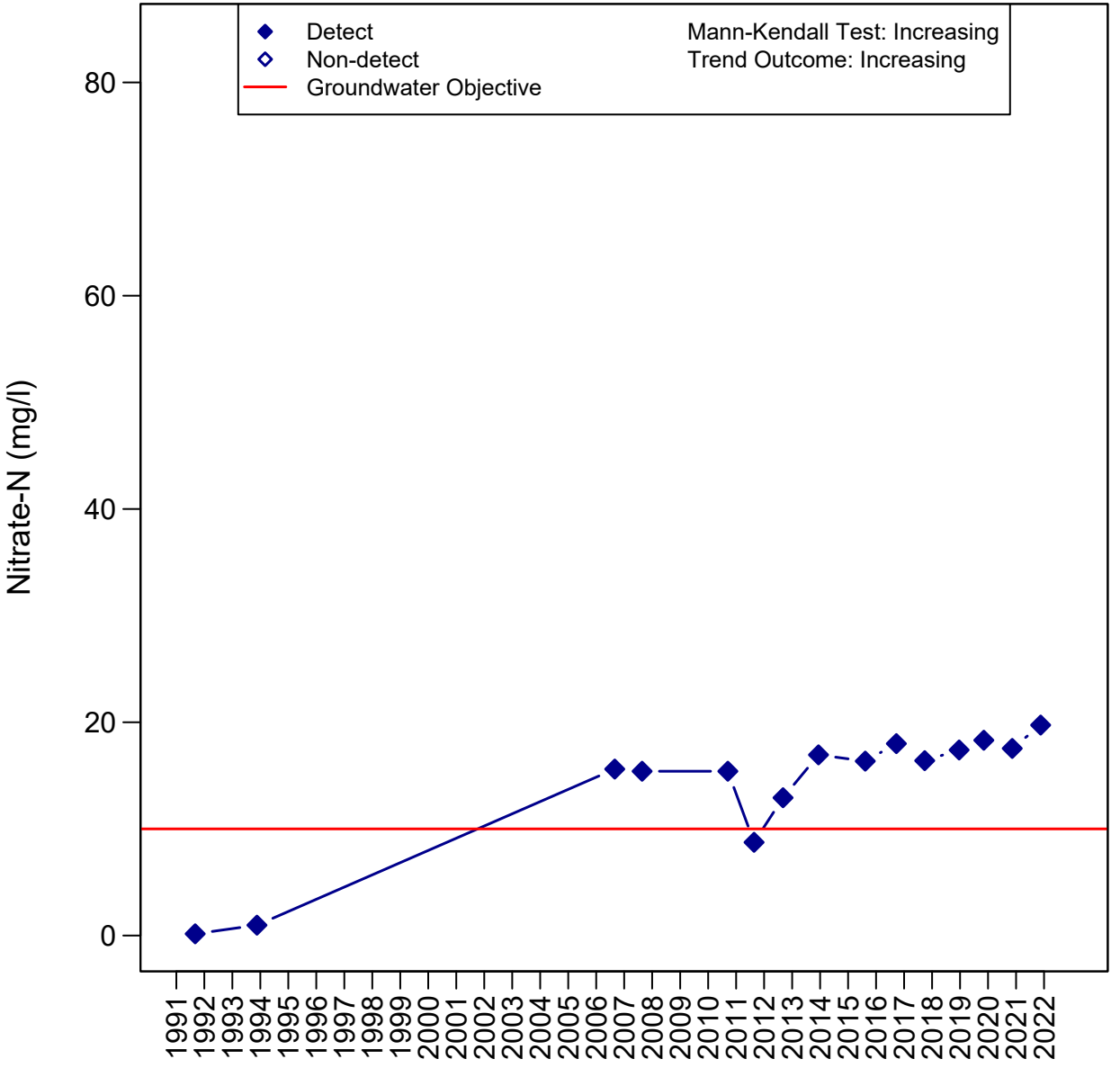
Arroyo Santa Rosa Basin
02N20W25C02S - C02S



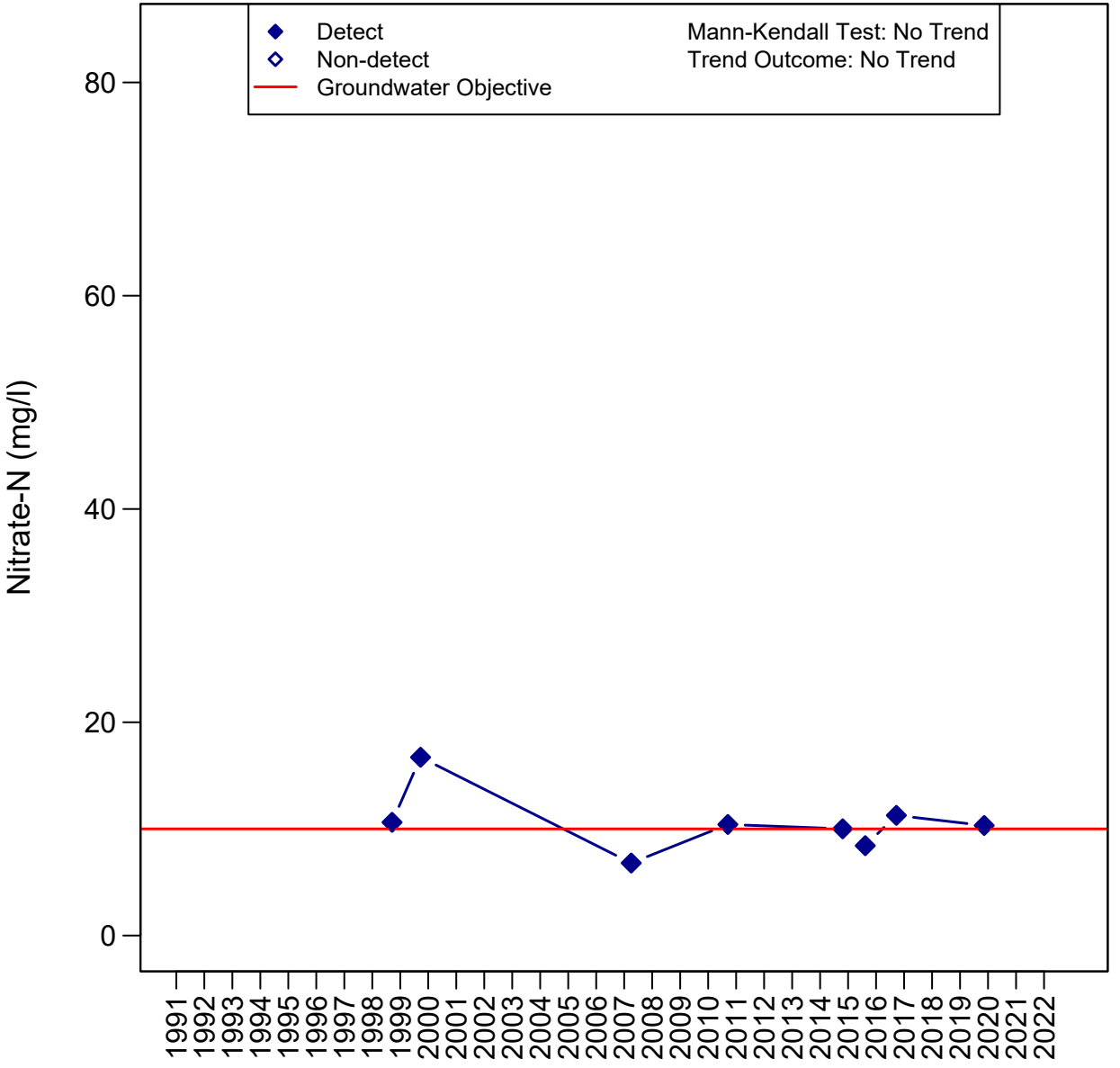
Arroyo Santa Rosa Basin
02N20W25C04S - C04S



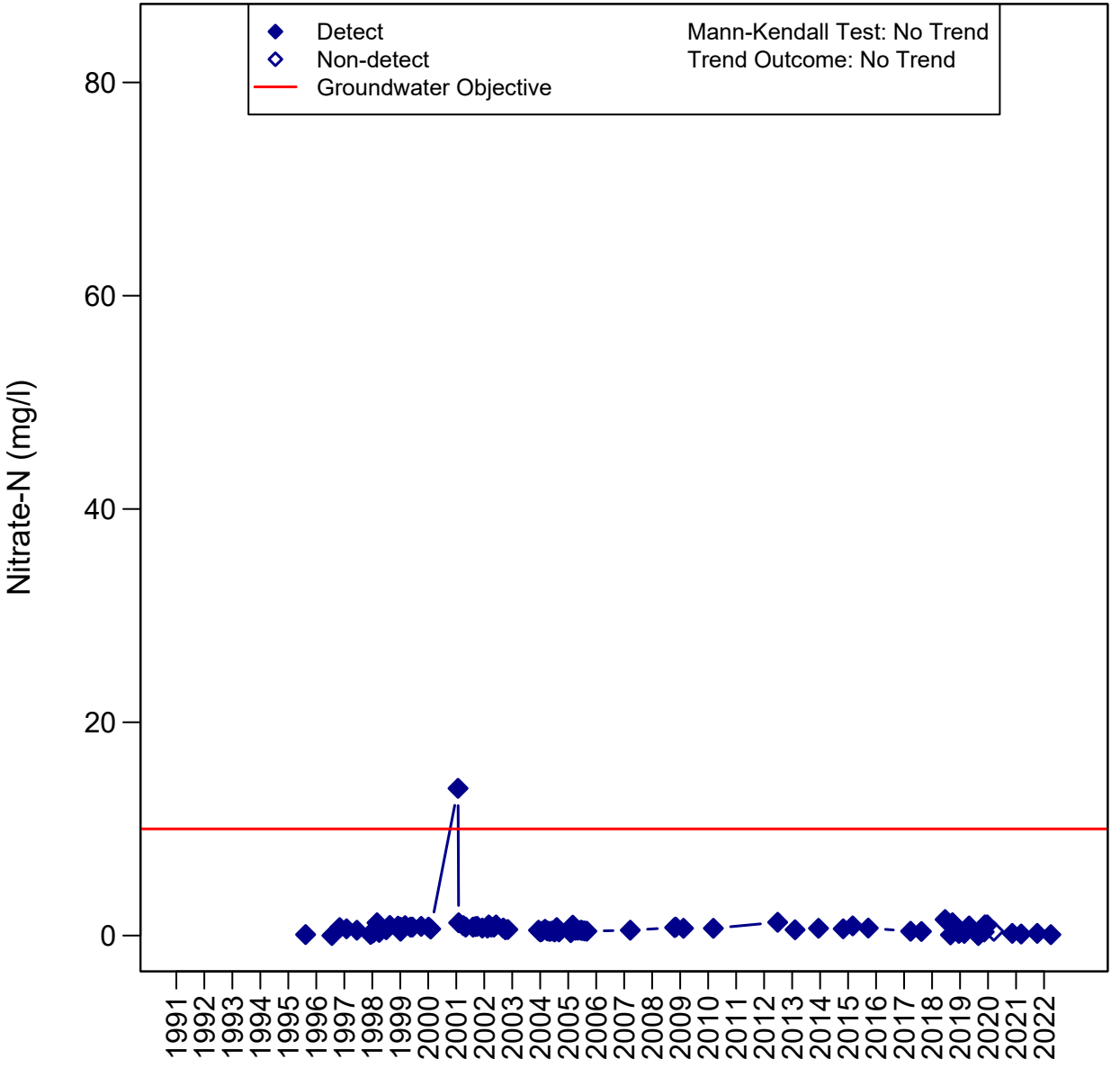
Arroyo Santa Rosa Basin
02N20W23G03S - G03S



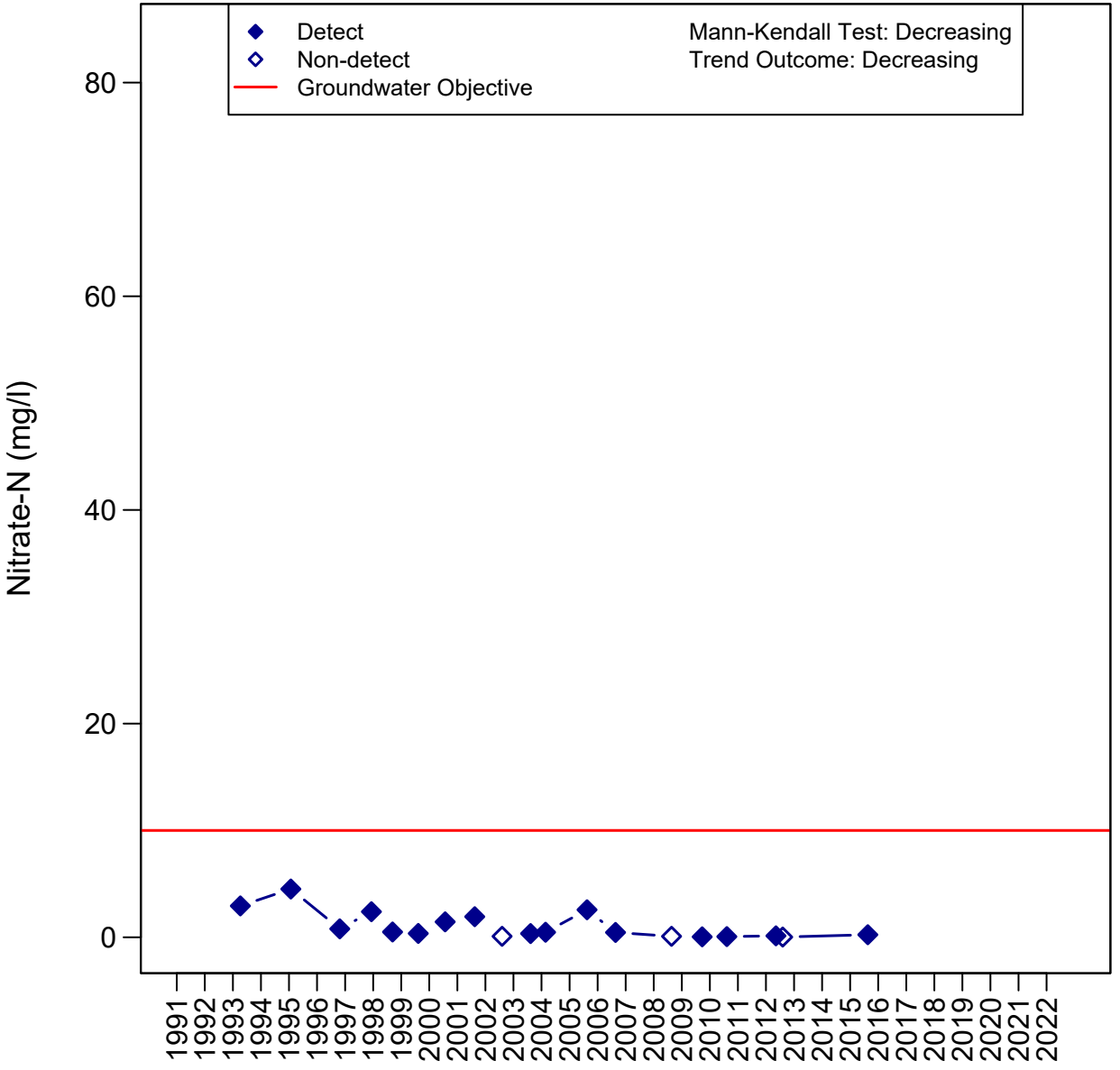
Tierra Rejada Basin
02N19W14P01S - P01S



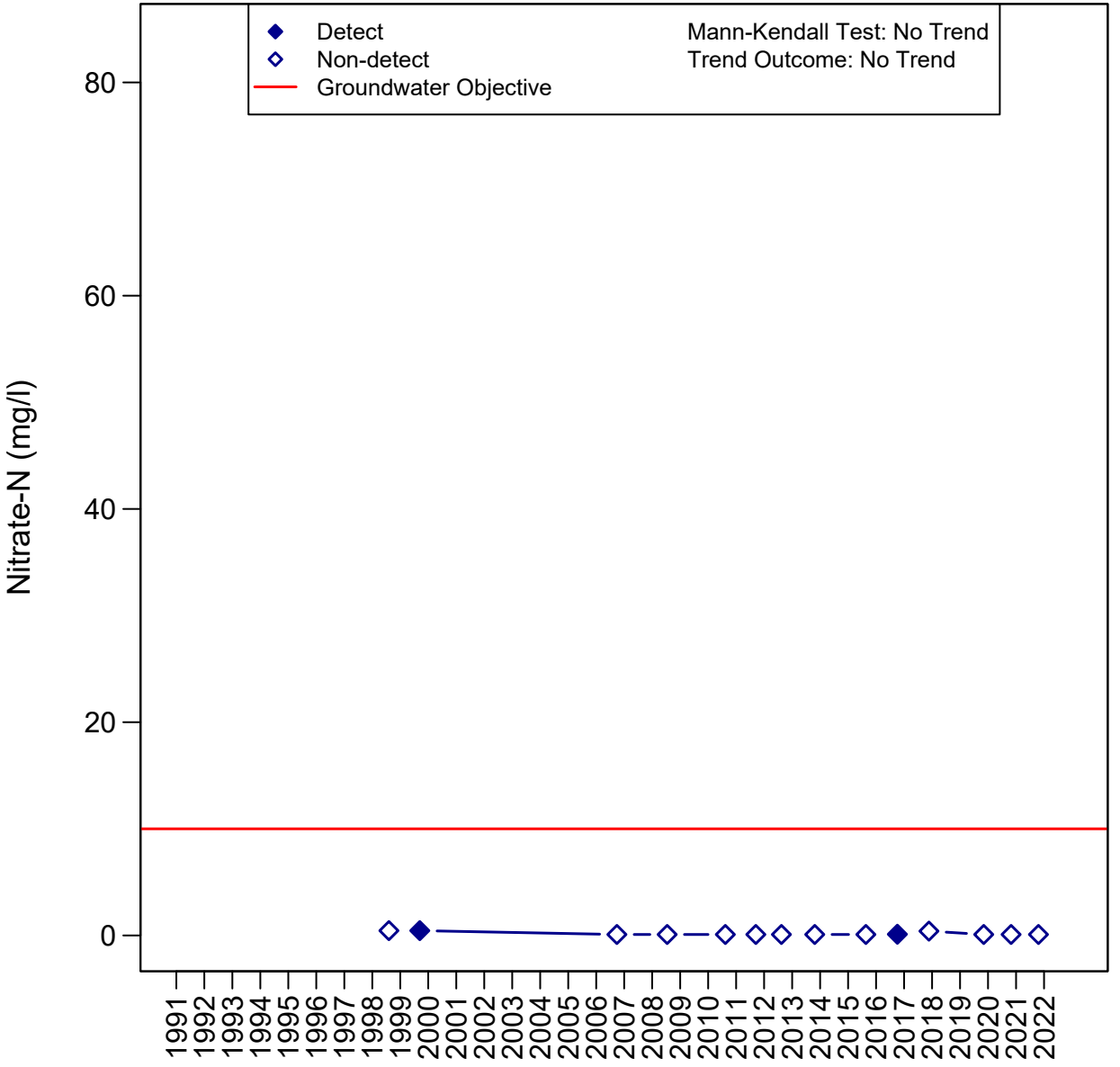
Tierra Rejada Basin
02N19W15N03S - N03S



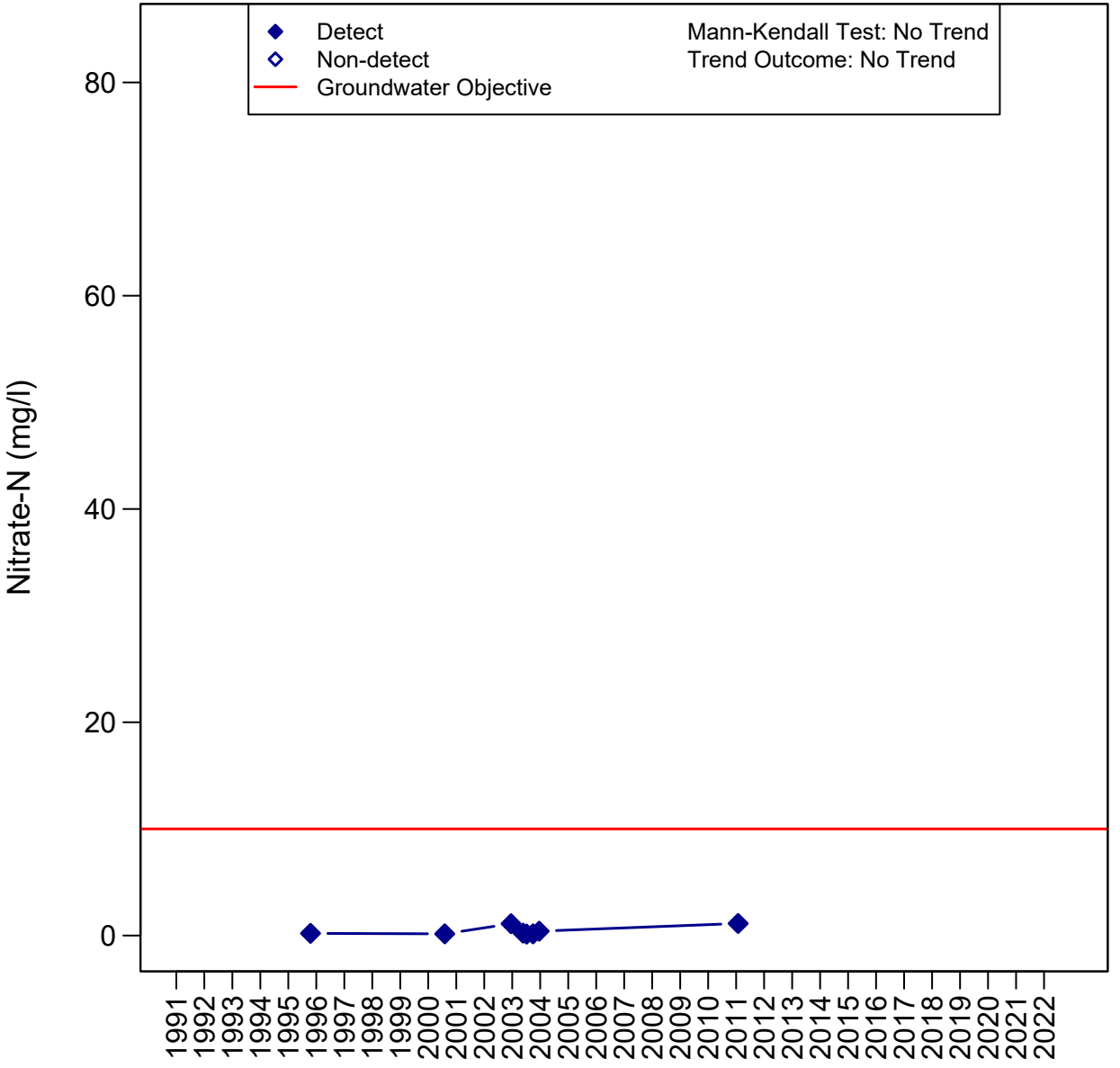
East/South Las Posas Valley Subbasin
03N20W35J01S - J01S



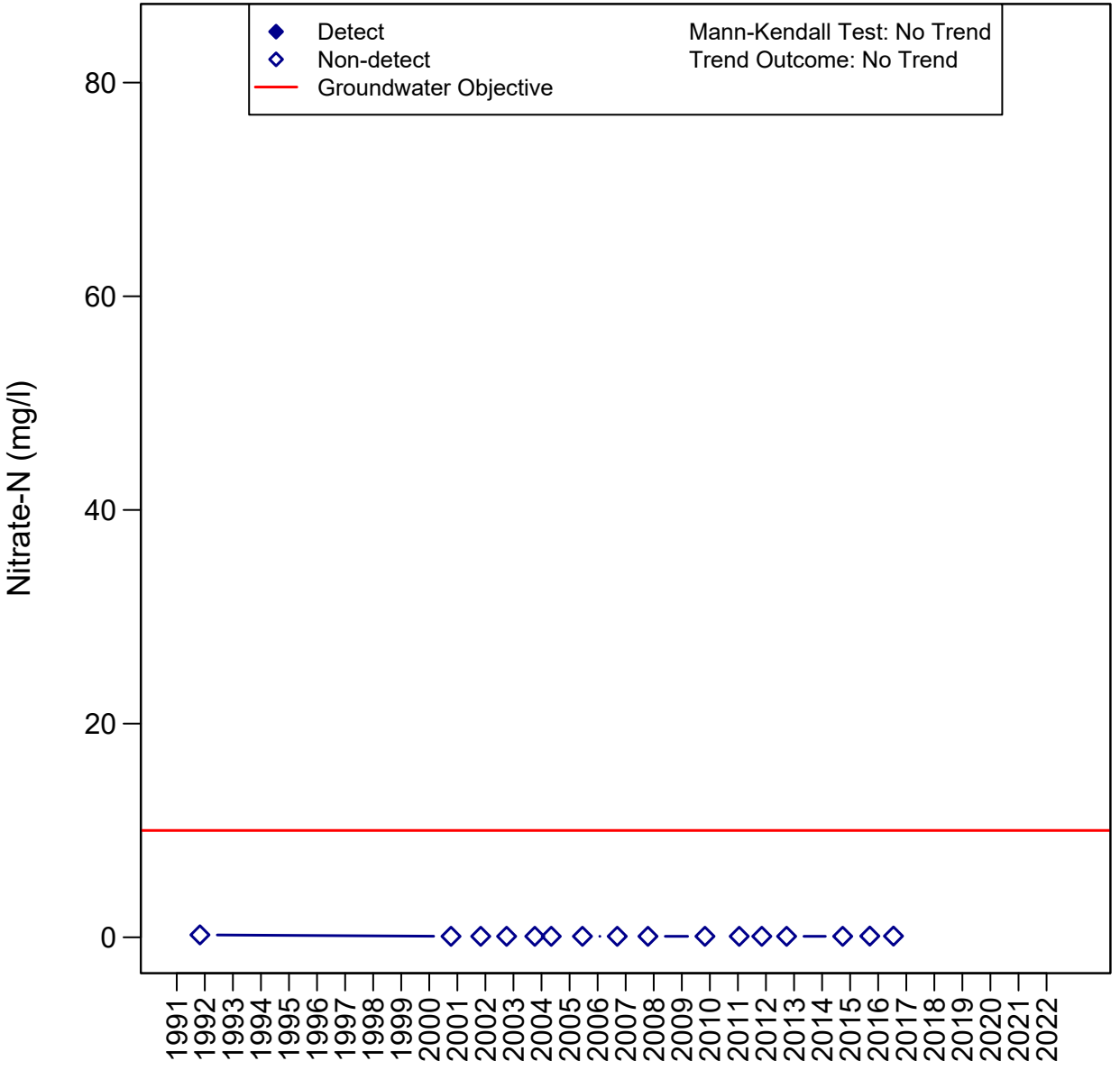
East/South Las Posas Valley Subbasin
03N20W34G01S - G01S



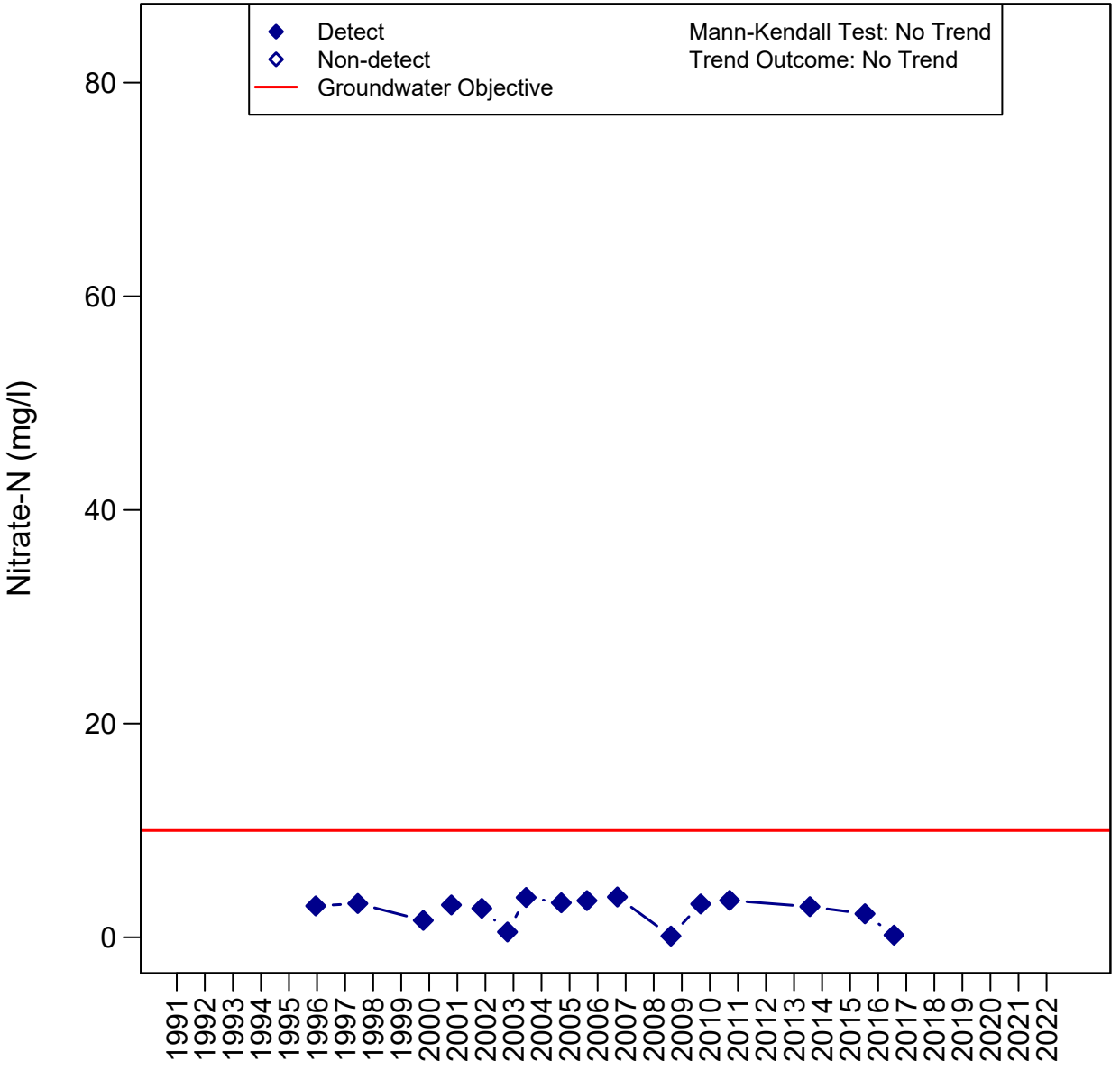
East/South Las Posas Valley Subbasin
02N20W01E01S - E01S



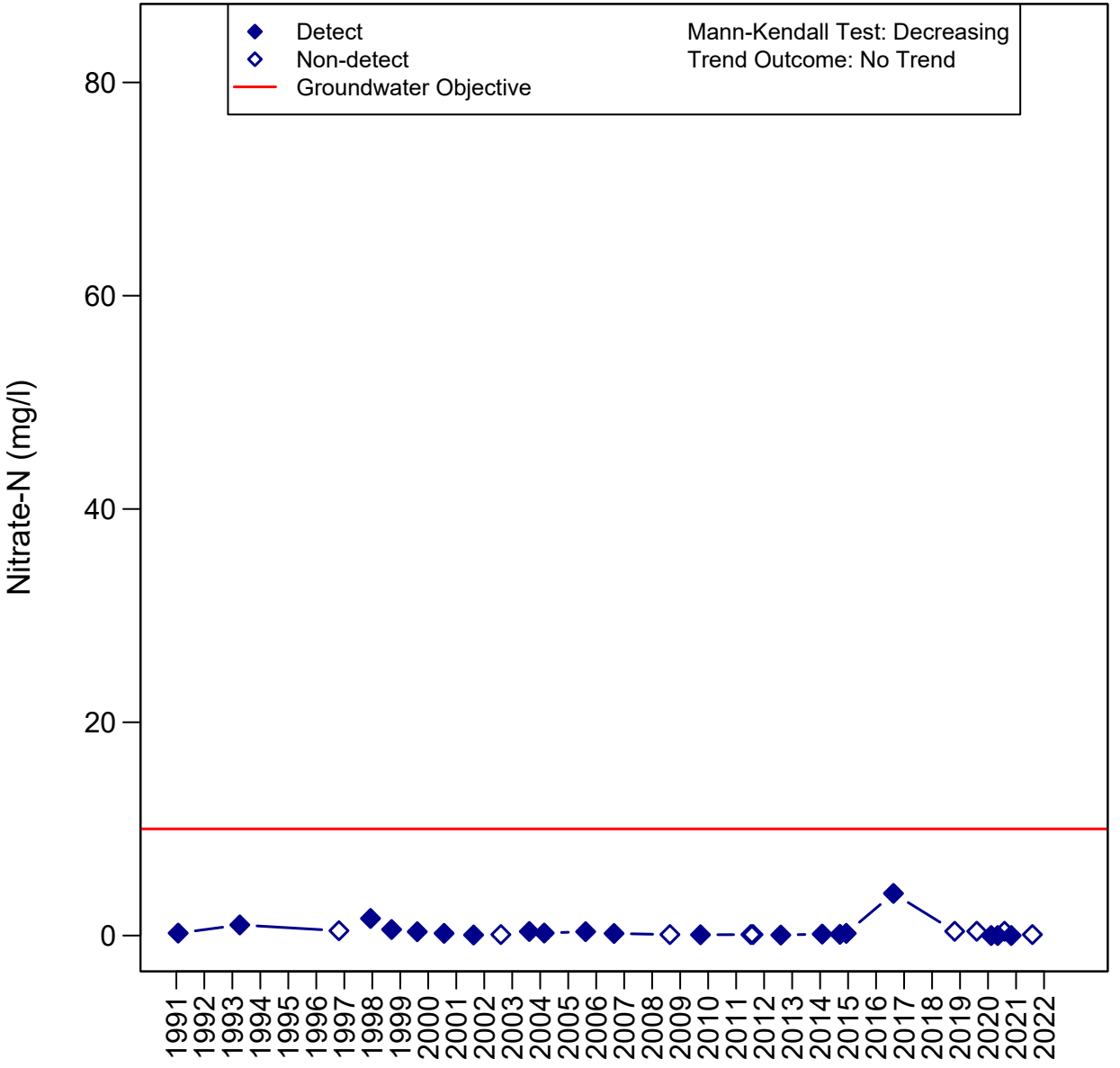
East/South Las Posas Valley Subbasin
02N20W08Q01S - Q01S



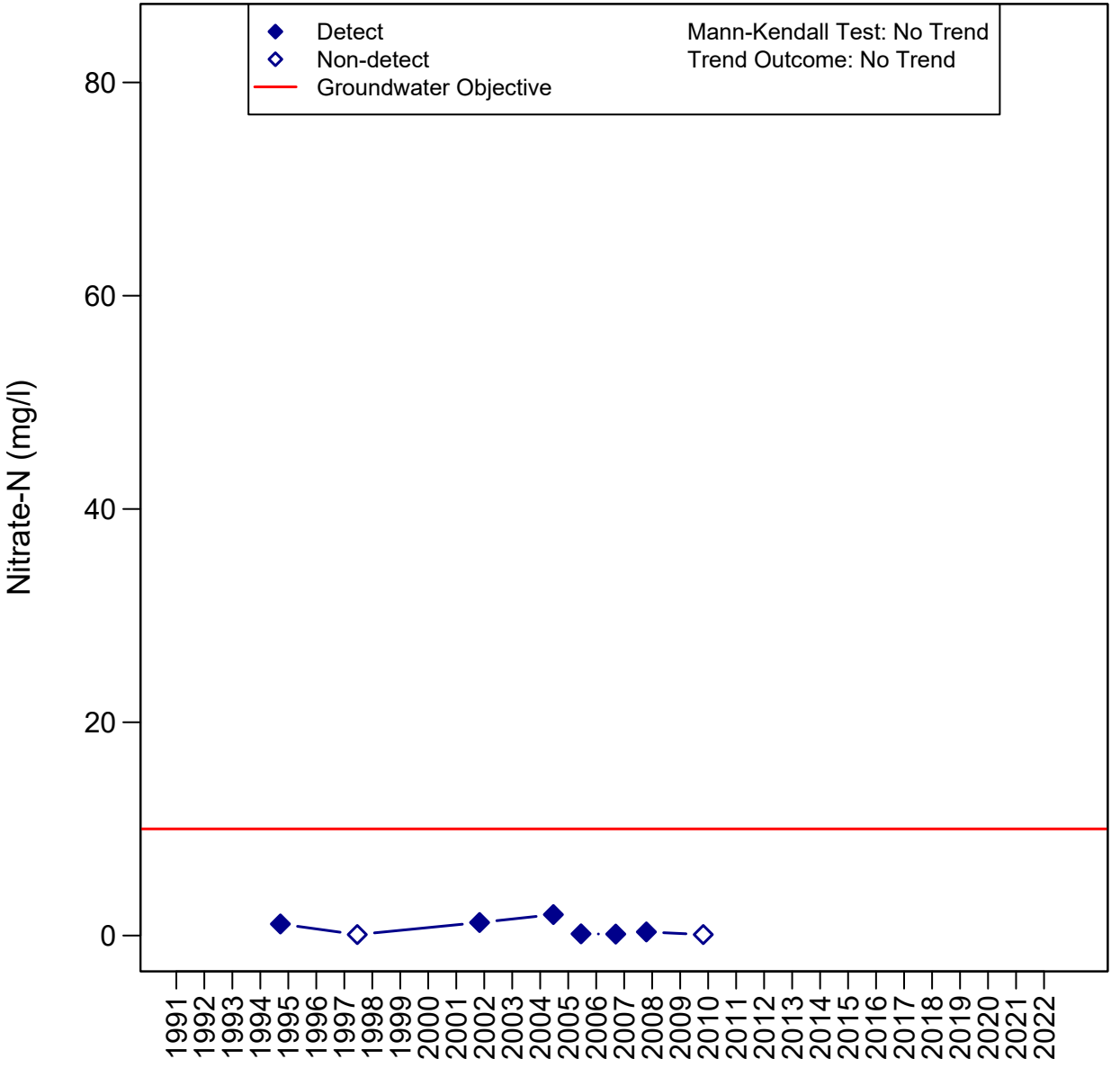
East/South Las Posas Valley Subbasin
02N20W02D02S - D02S



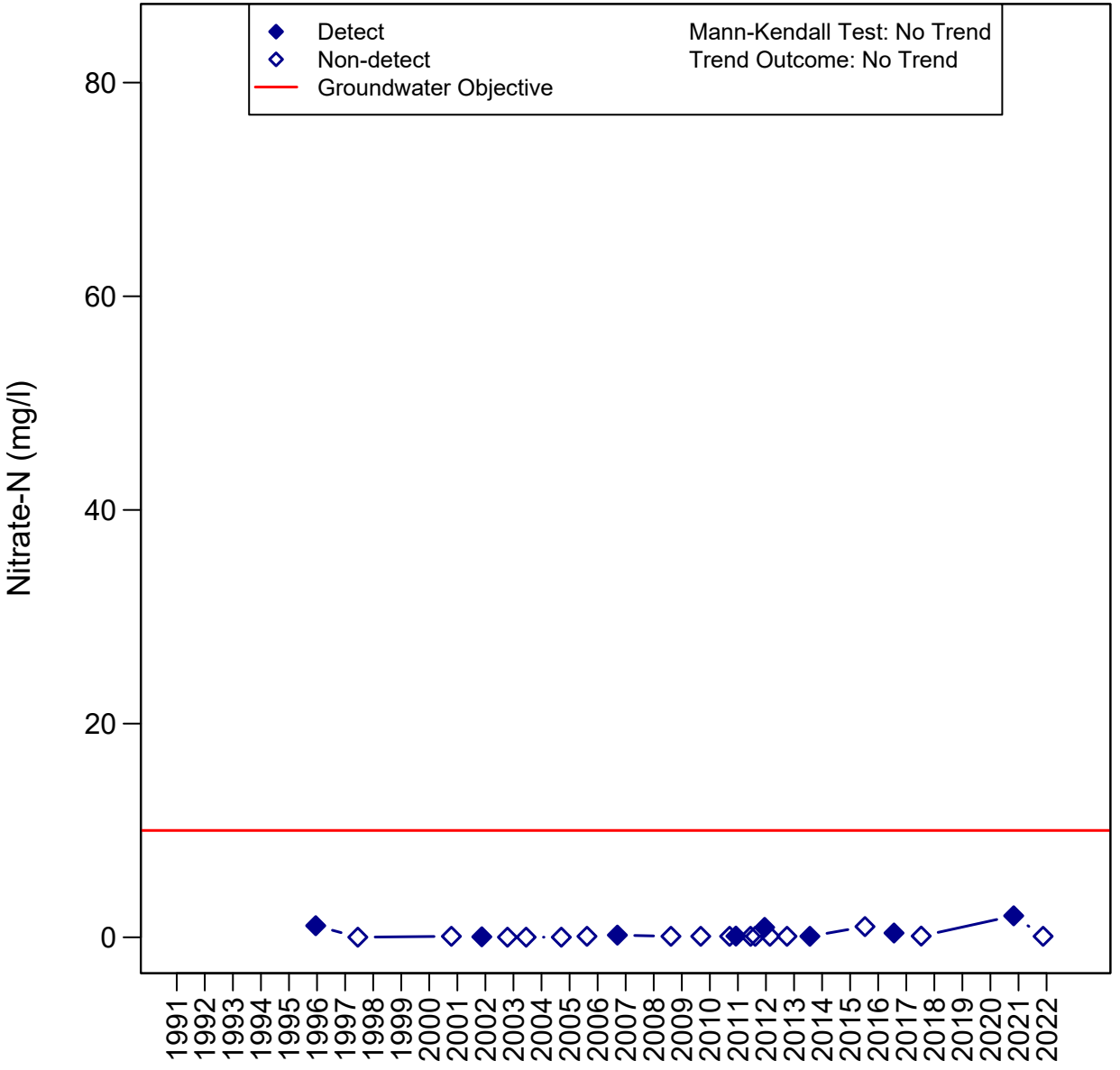
East/South Las Posas Valley Subbasin
03N20W36A02S - A02S



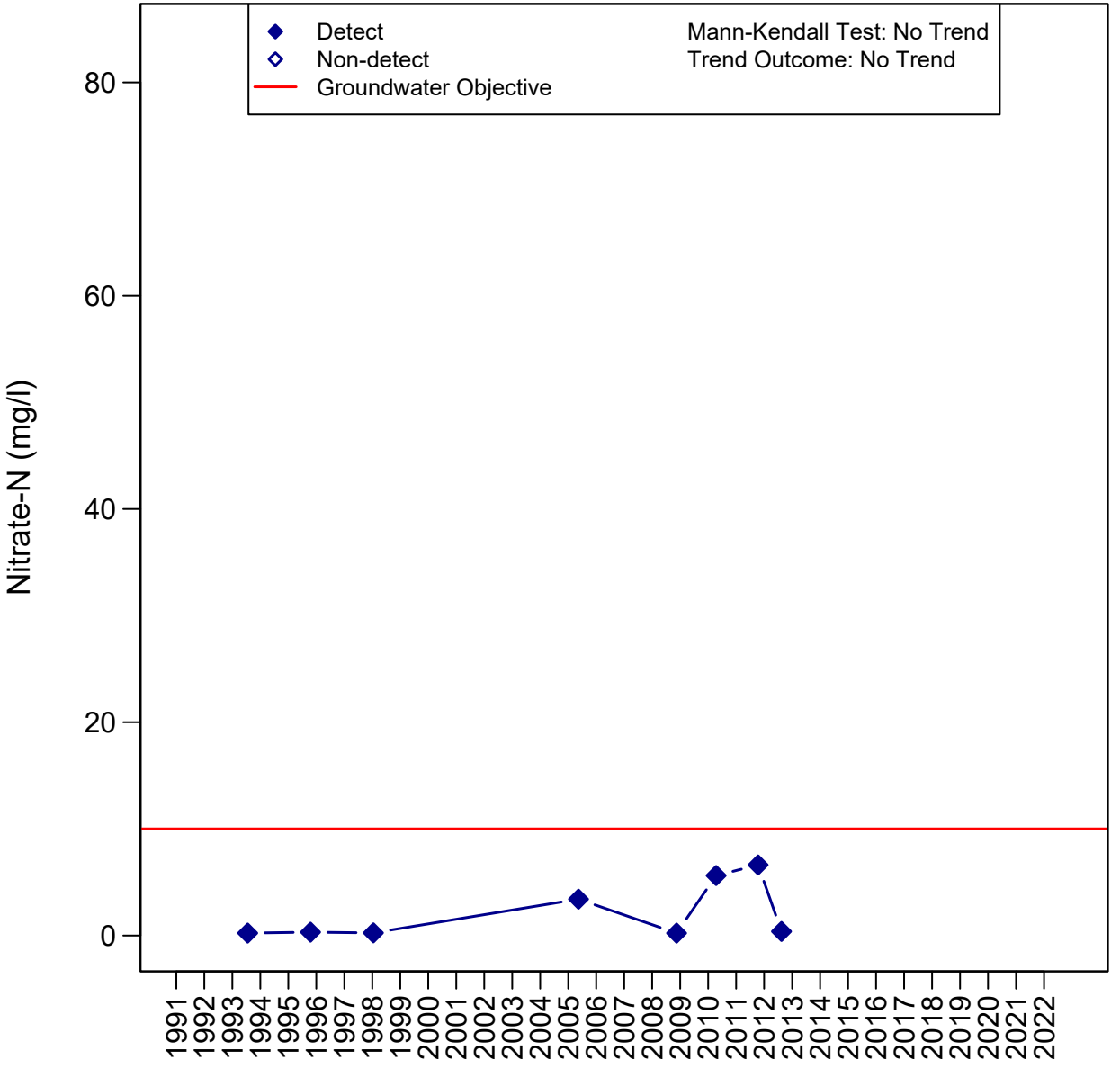
East/South Las Posas Valley Subbasin
02N20W09Q04S - Q04S



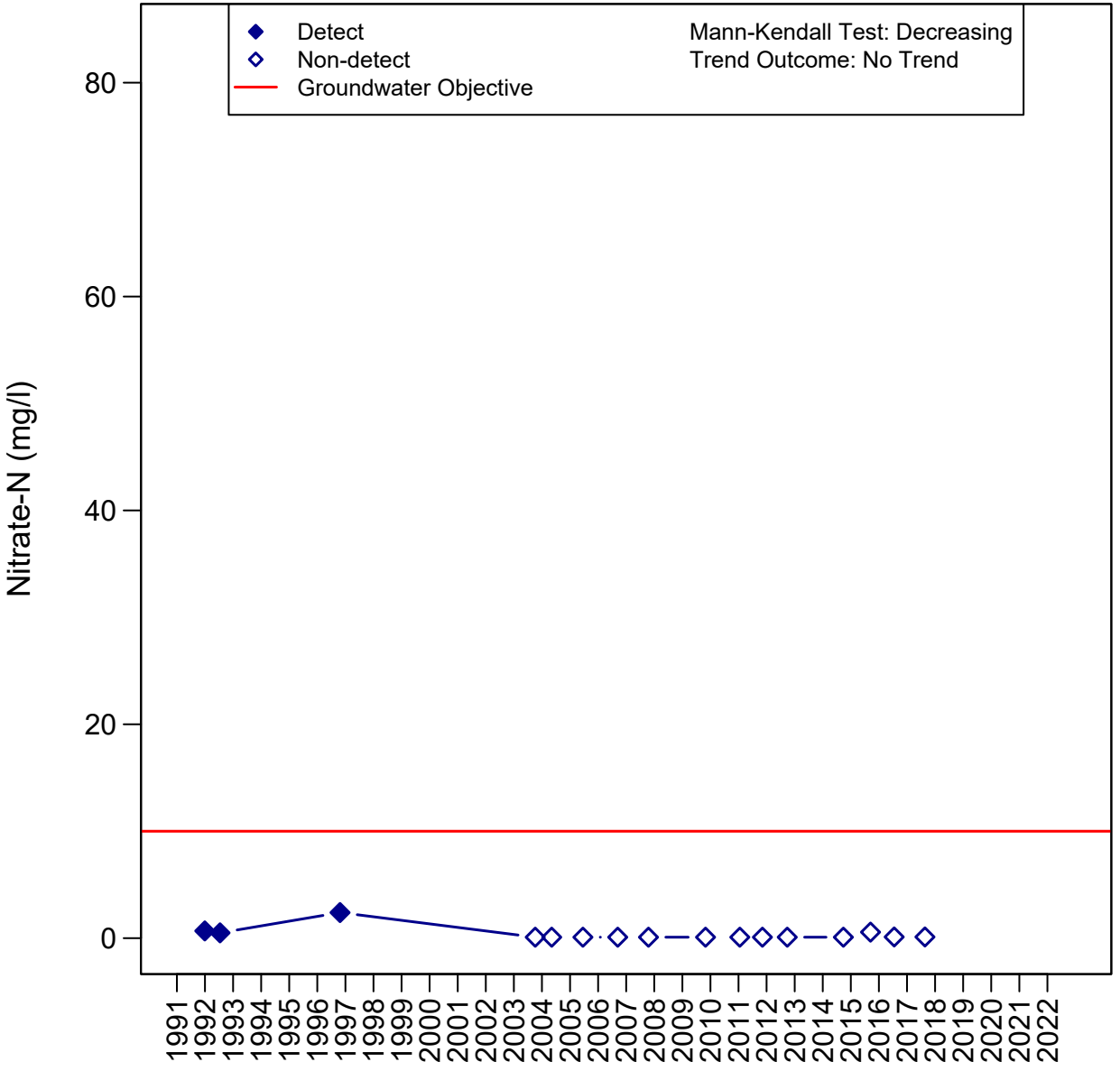
East/South Las Posas Valley Subbasin
02N20W03H01S - H01S



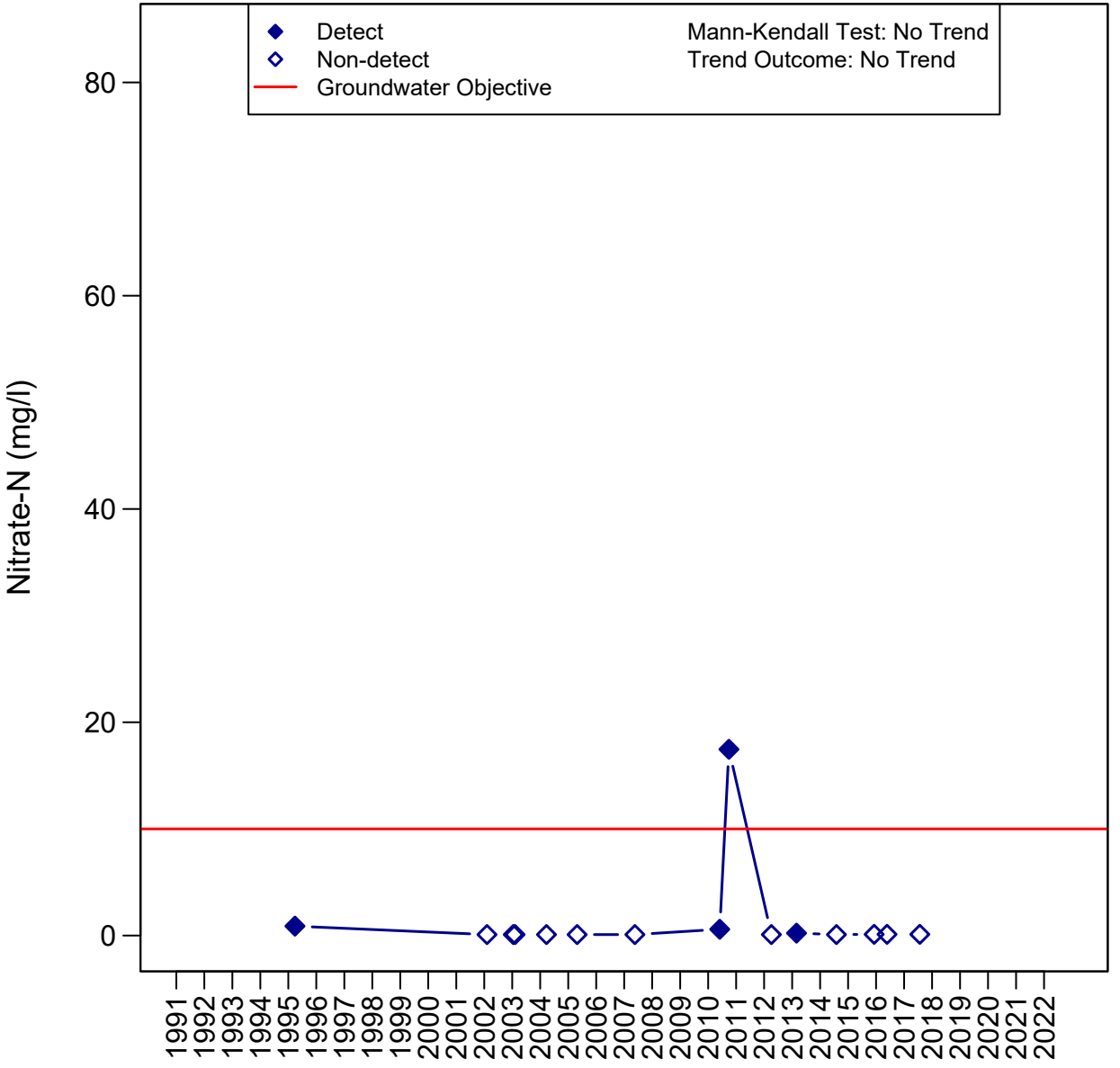
East/South Las Posas Valley Subbasin
02N20W02N03S - N03S



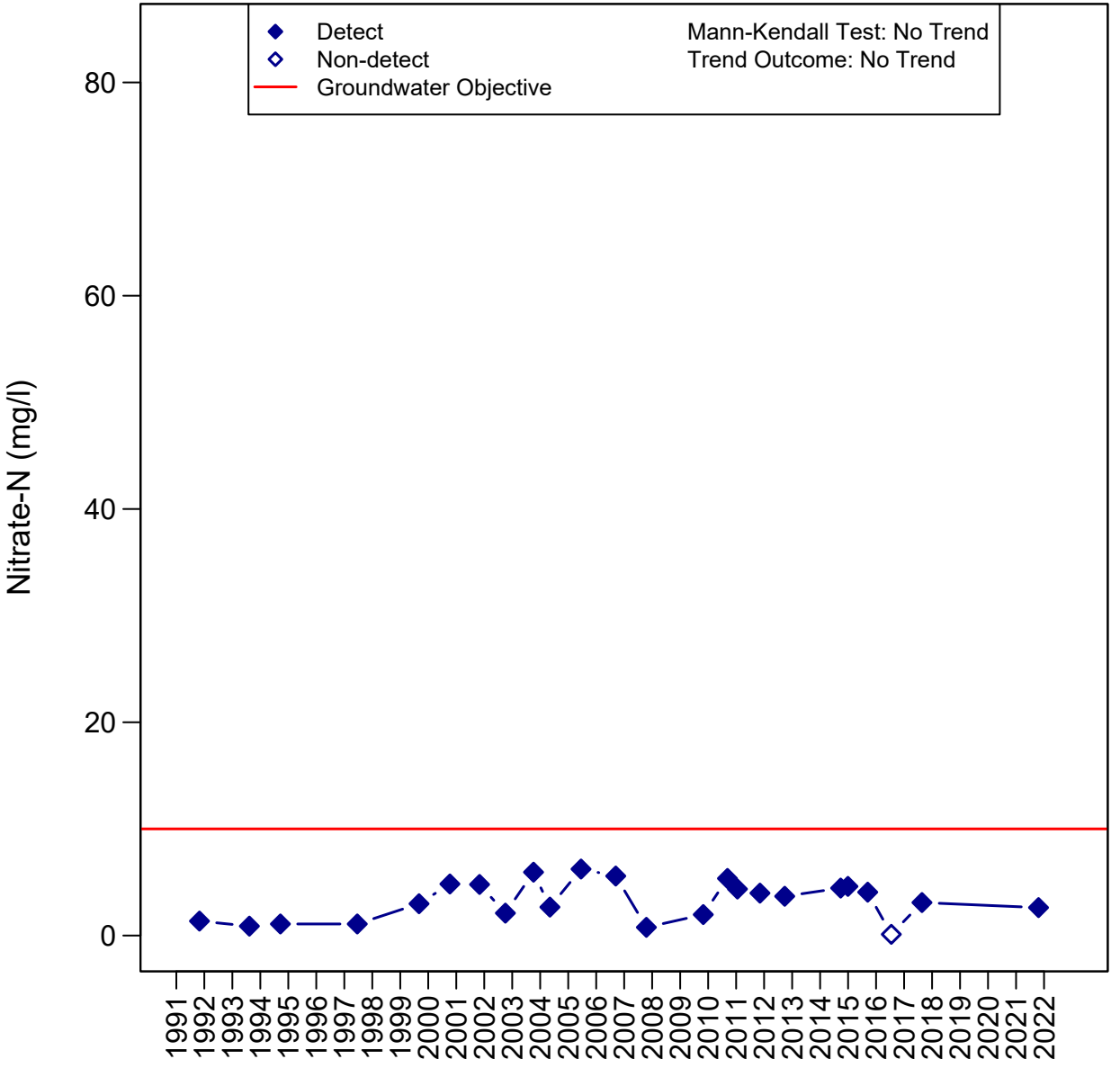
East/South Las Posas Valley Subbasin
02N20W09F01S - F01S



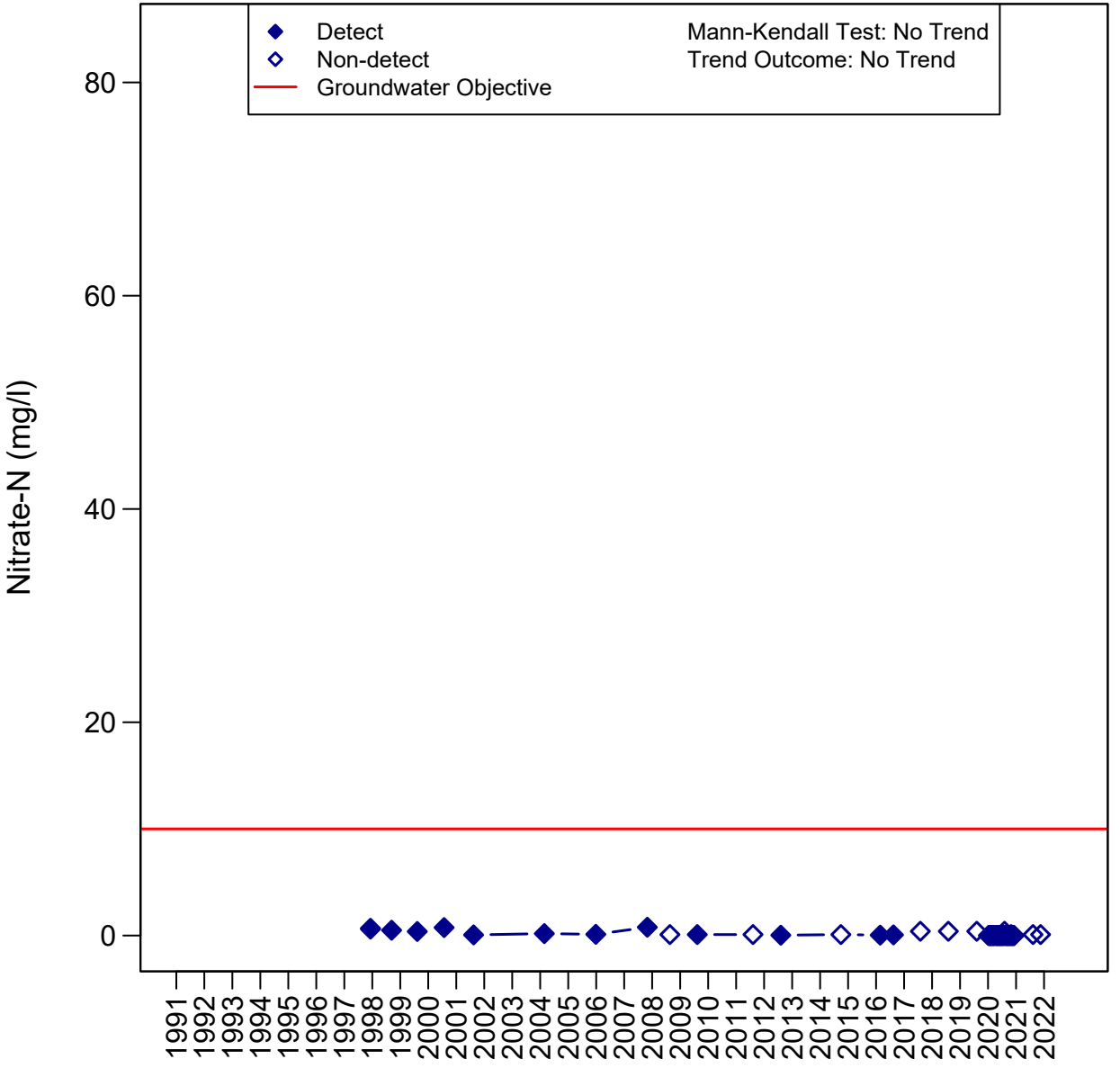
East/South Las Posas Valley Subbasin
03N20W34L01S - L01S



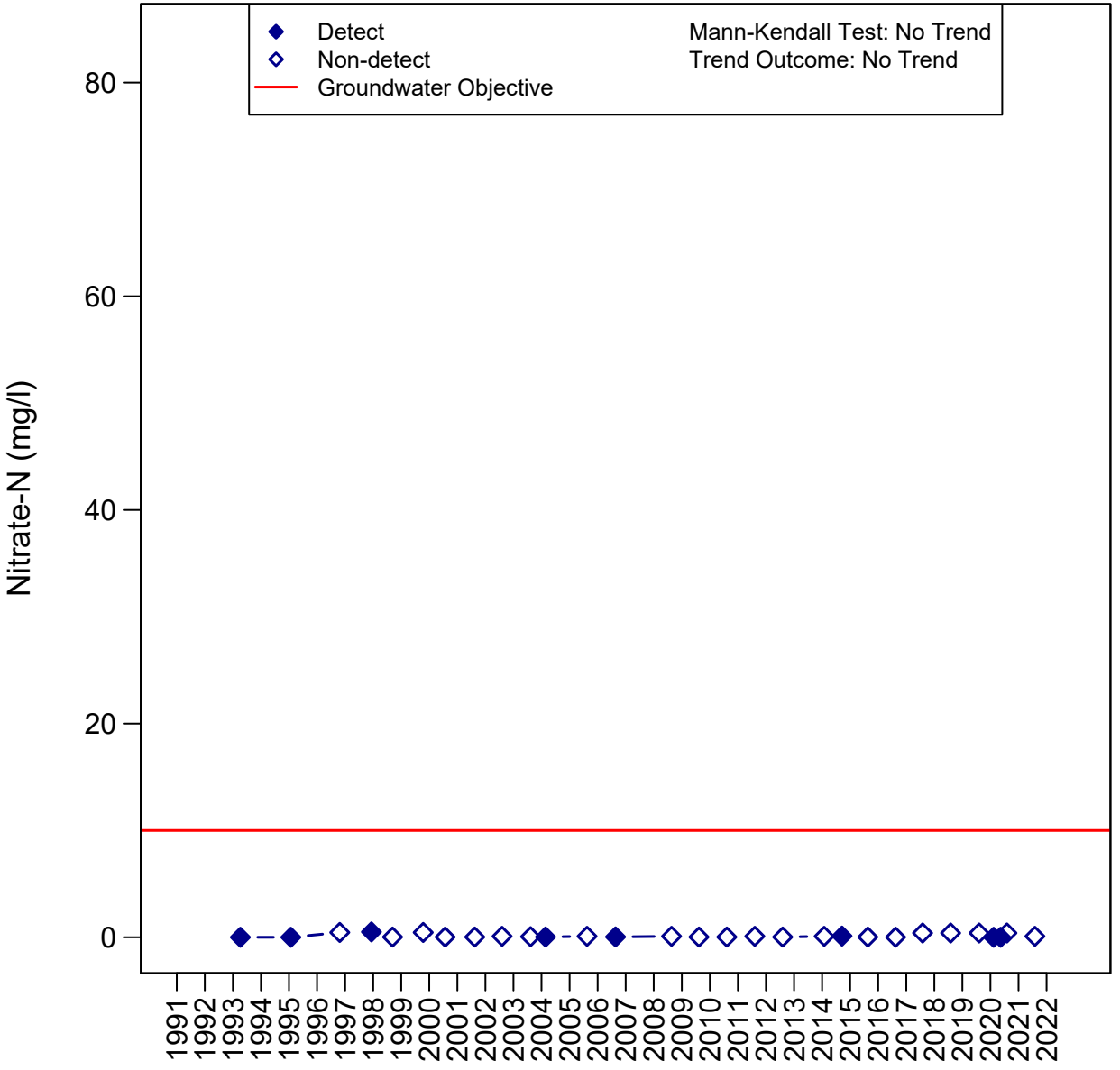
East/South Las Posas Valley Subbasin
02N20W09Q05S - Q05S



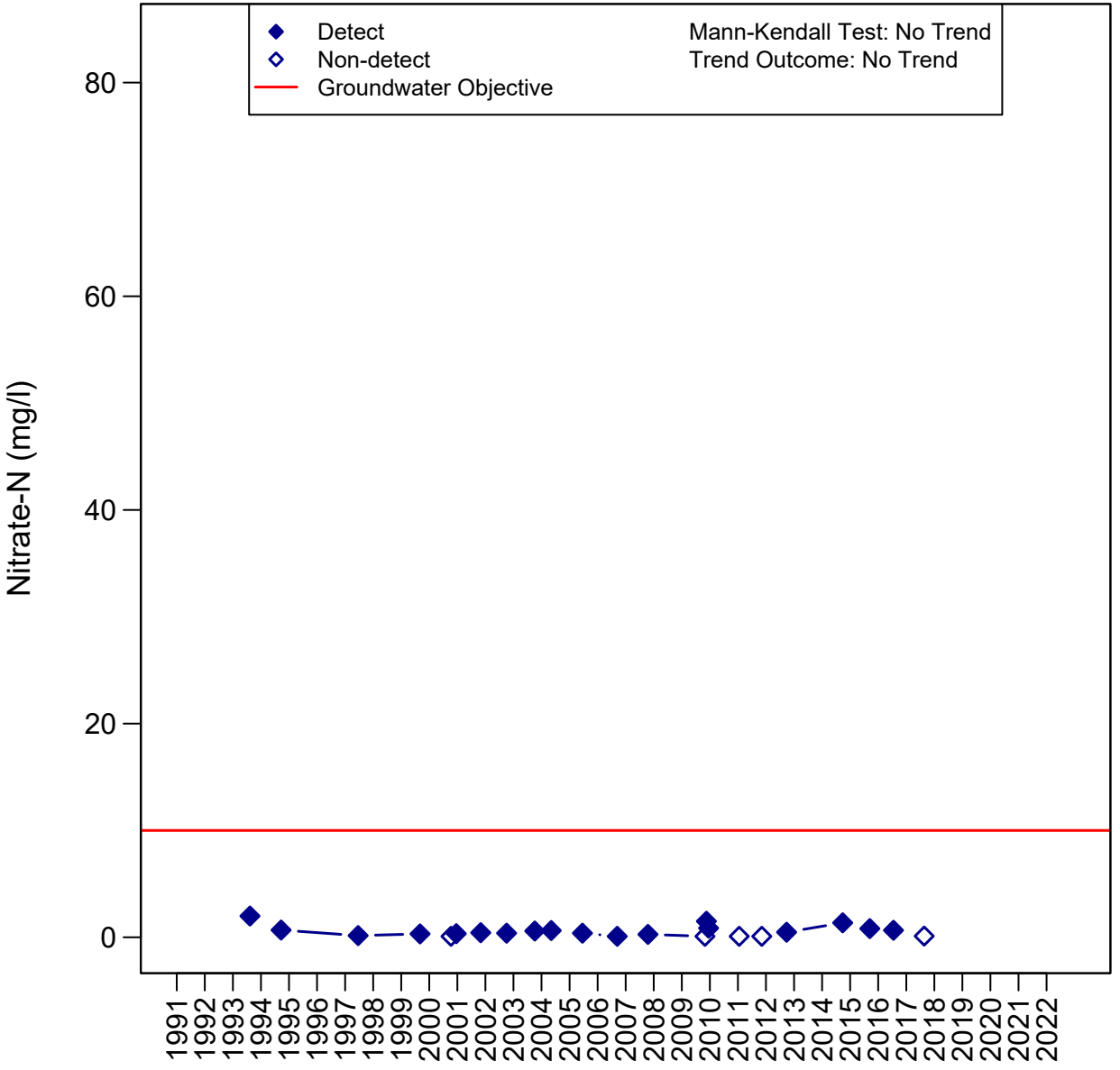
East/South Las Posas Valley Subbasin
03N19W31B01S - B01S



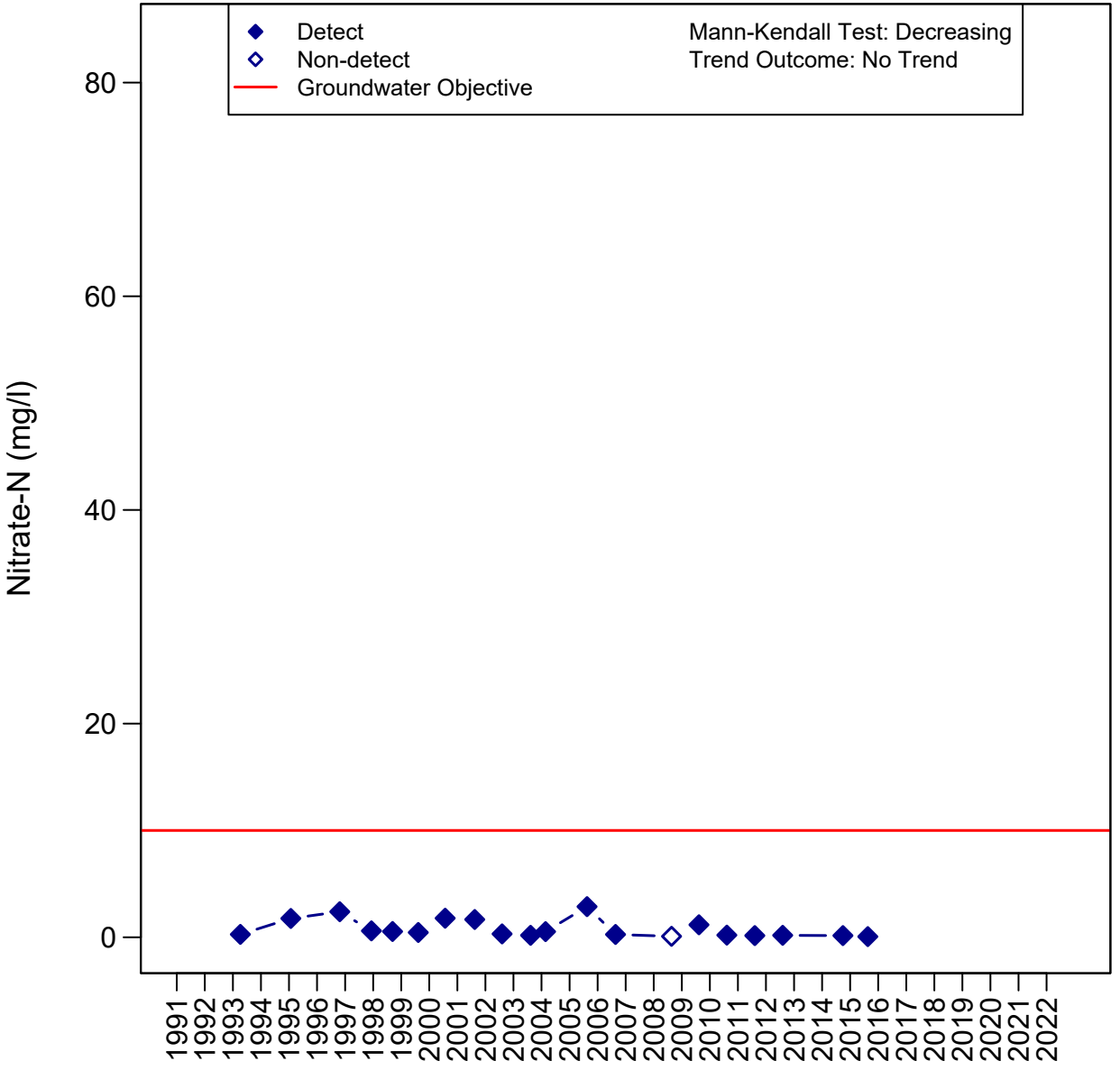
East/South Las Posas Valley Subbasin
03N20W36G01S - G01S



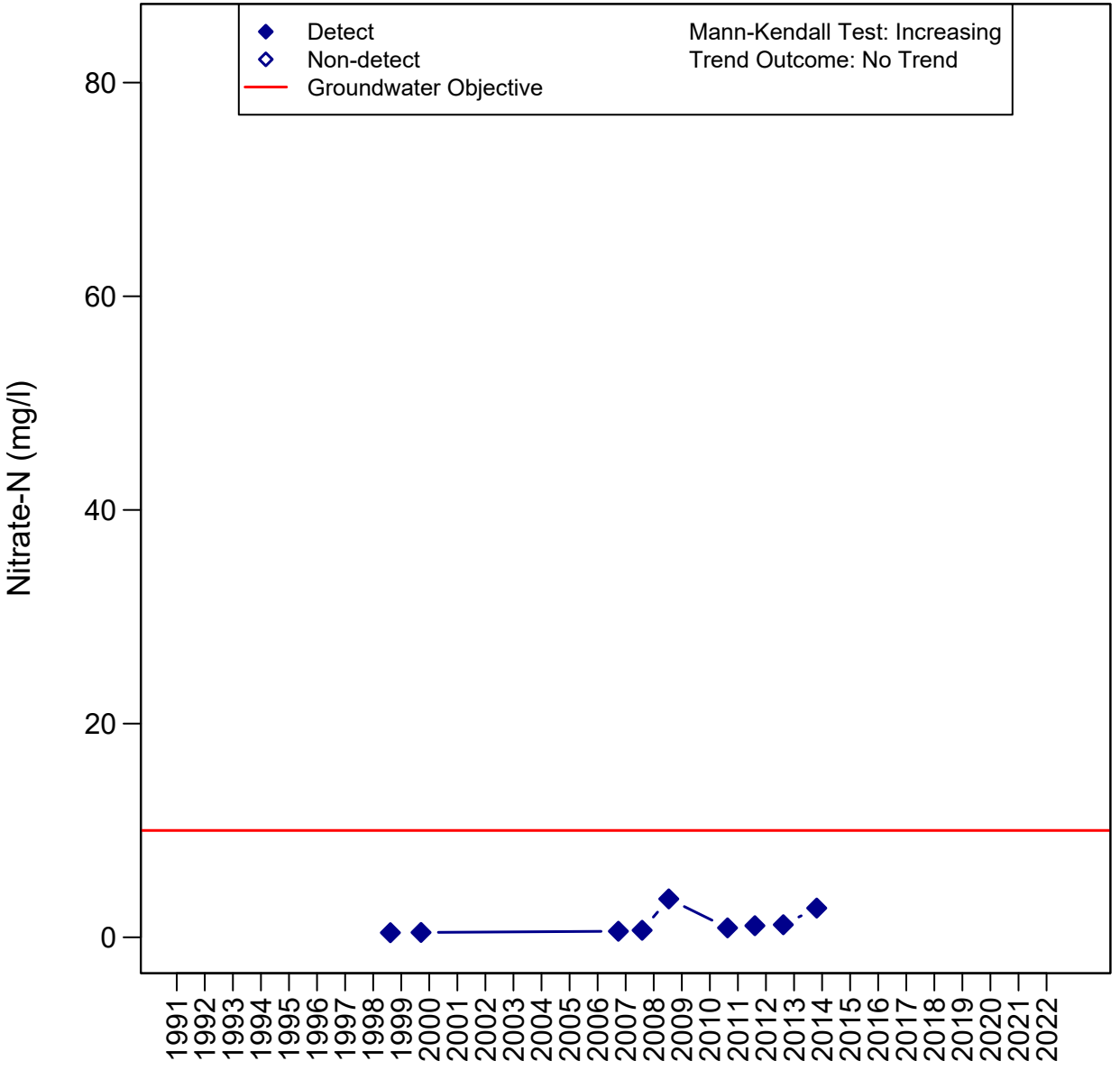
East/South Las Posas Valley Subbasin
02N20W09R01S - R01S

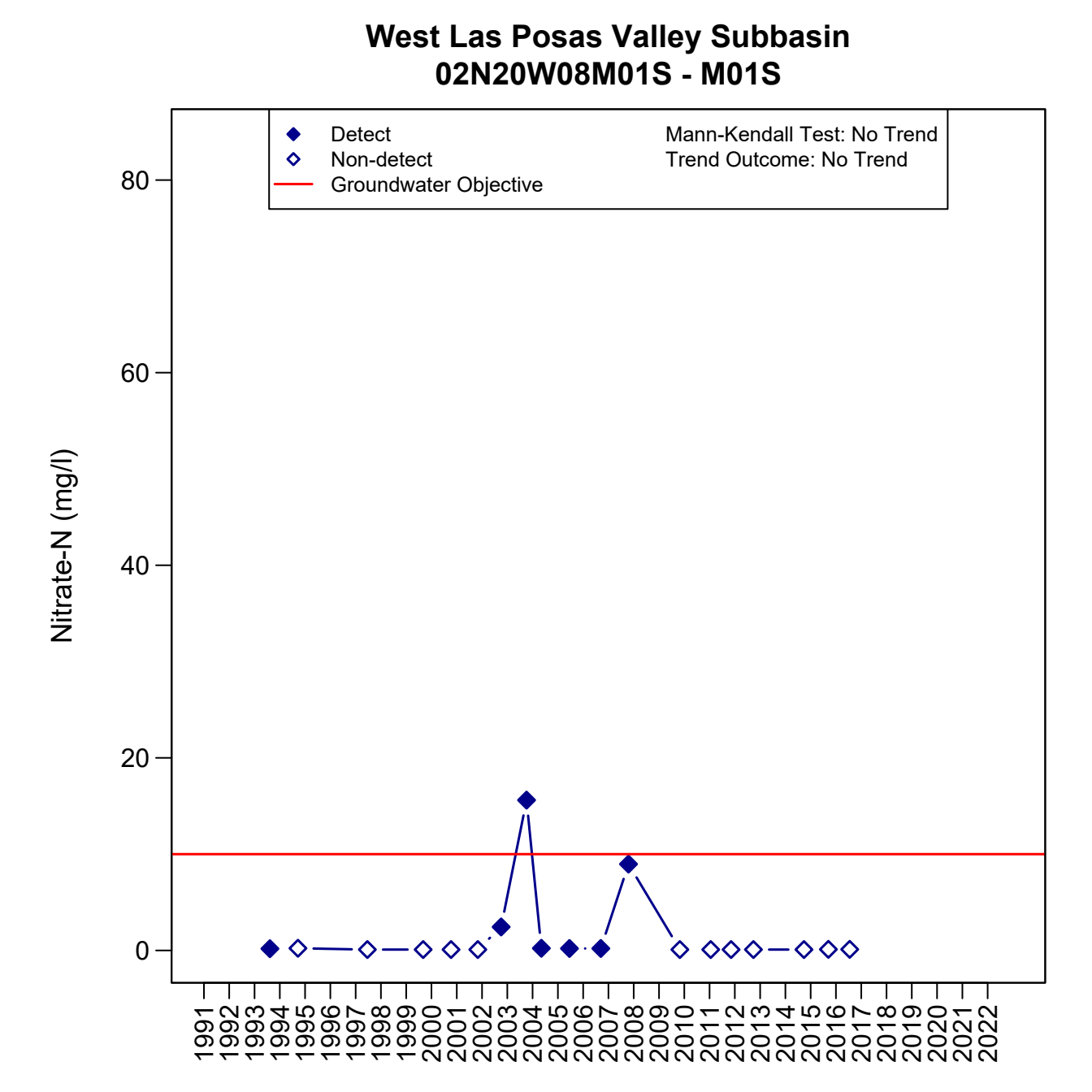


East/South Las Posas Valley Subbasin
03N20W35R01S - R01S



West Las Posas Valley Subbasin
02N20W18A01S - A01S




West Las Posas Valley Subbasin
02N20W08M01S - M01S
Detect
Non-detect
Groundwater Objective
Mann-Kendall Test: No Trend
Trend Outcome: No Trend
Nitrate-N (mg/l)
0
20
40
60
80
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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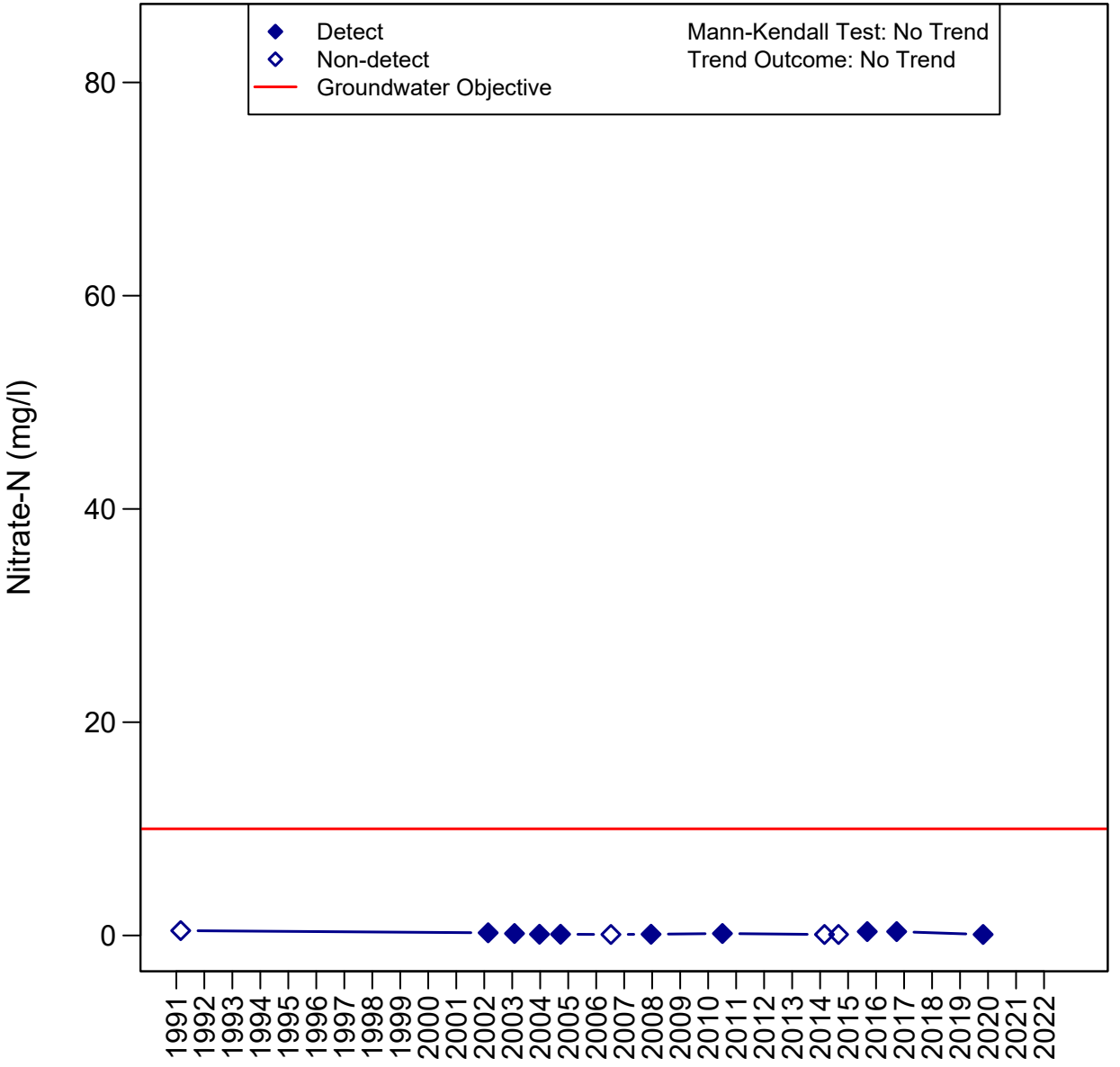
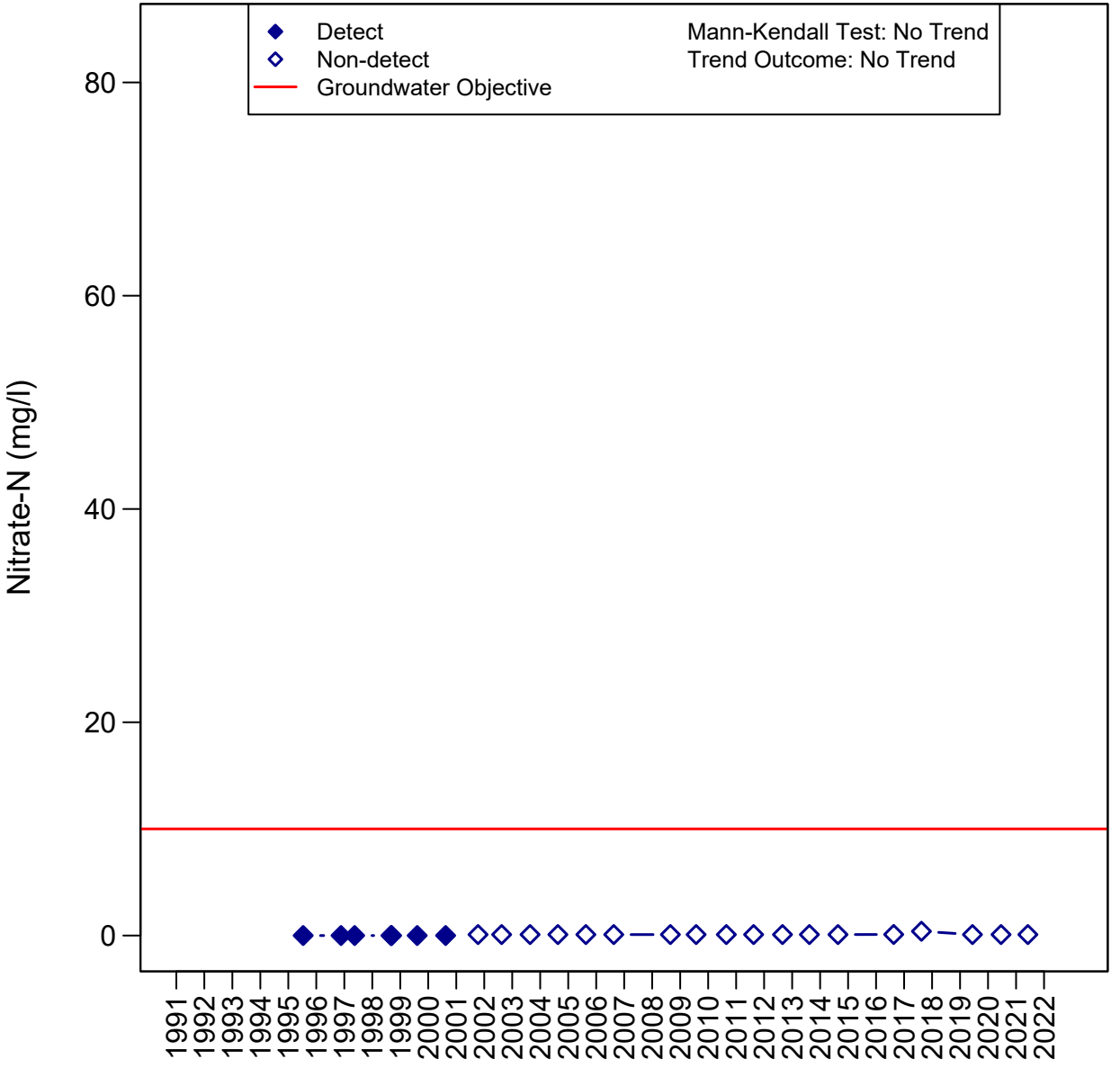
2014
2015
2016
2017
2018
2019
2020
2021
2022

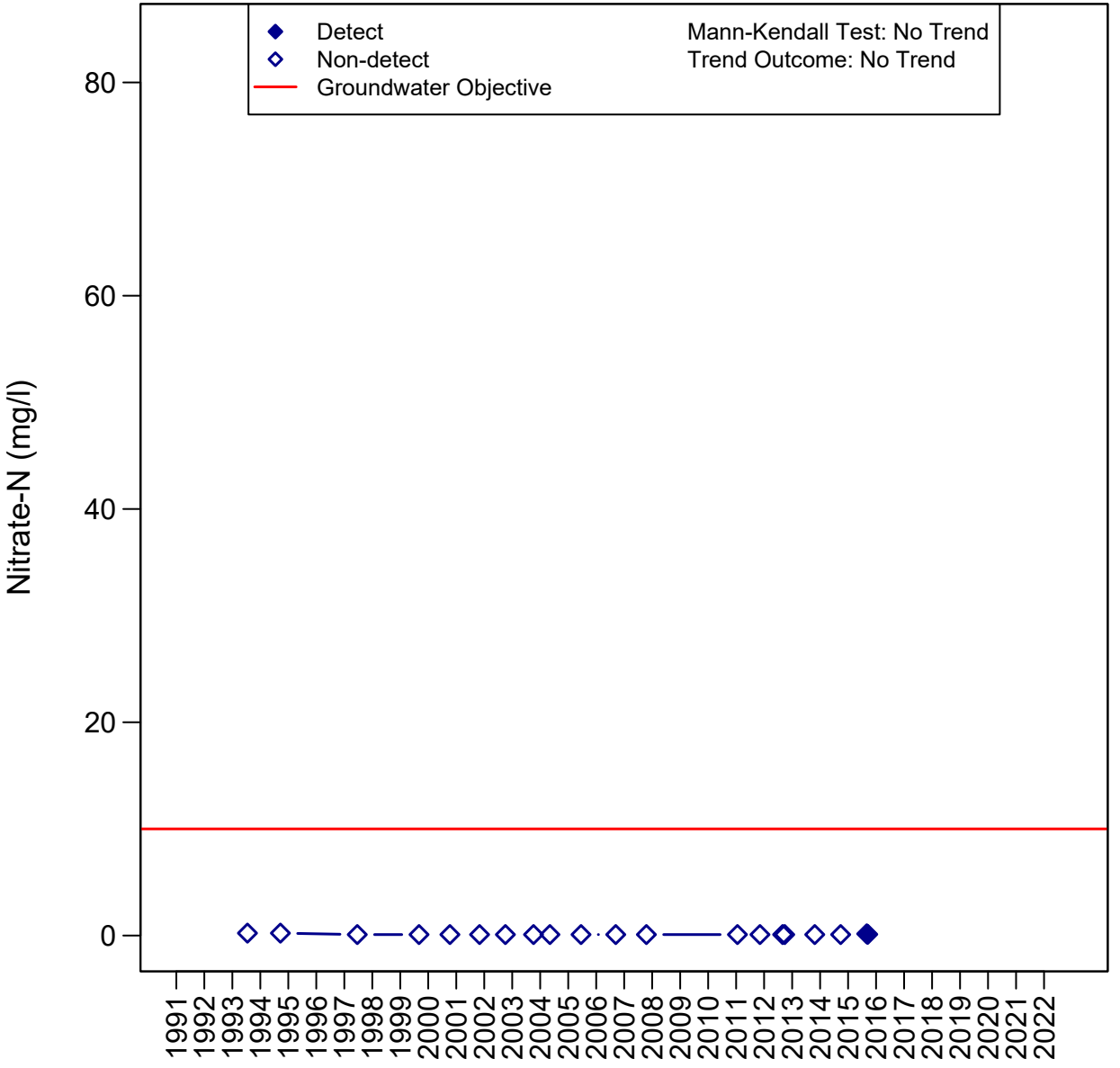
West Las Posas Valley Subbasin
02N21W18H12S - H12S



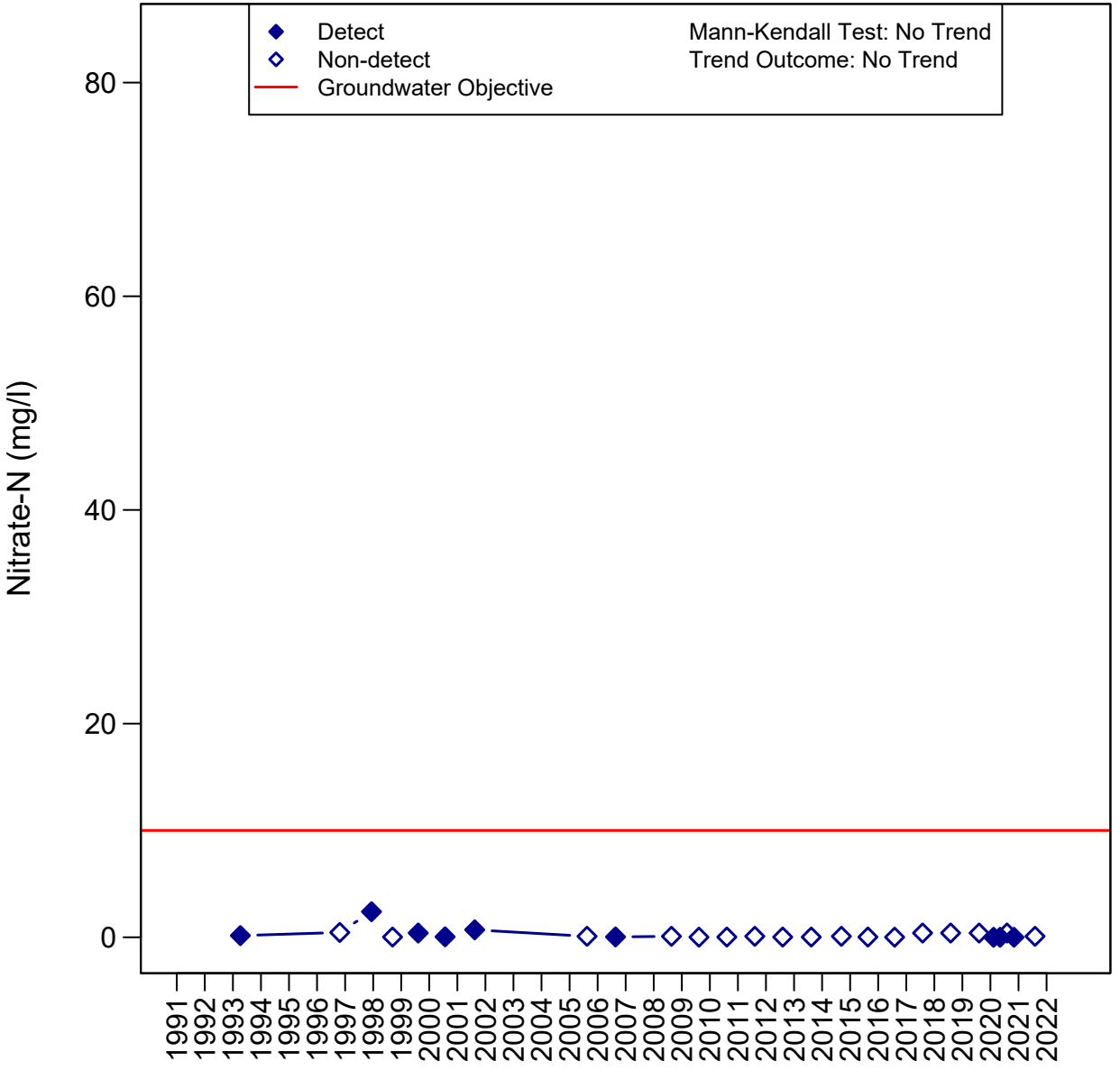
West Las Posas Valley Subbasin
02N21W22A01S - A01S



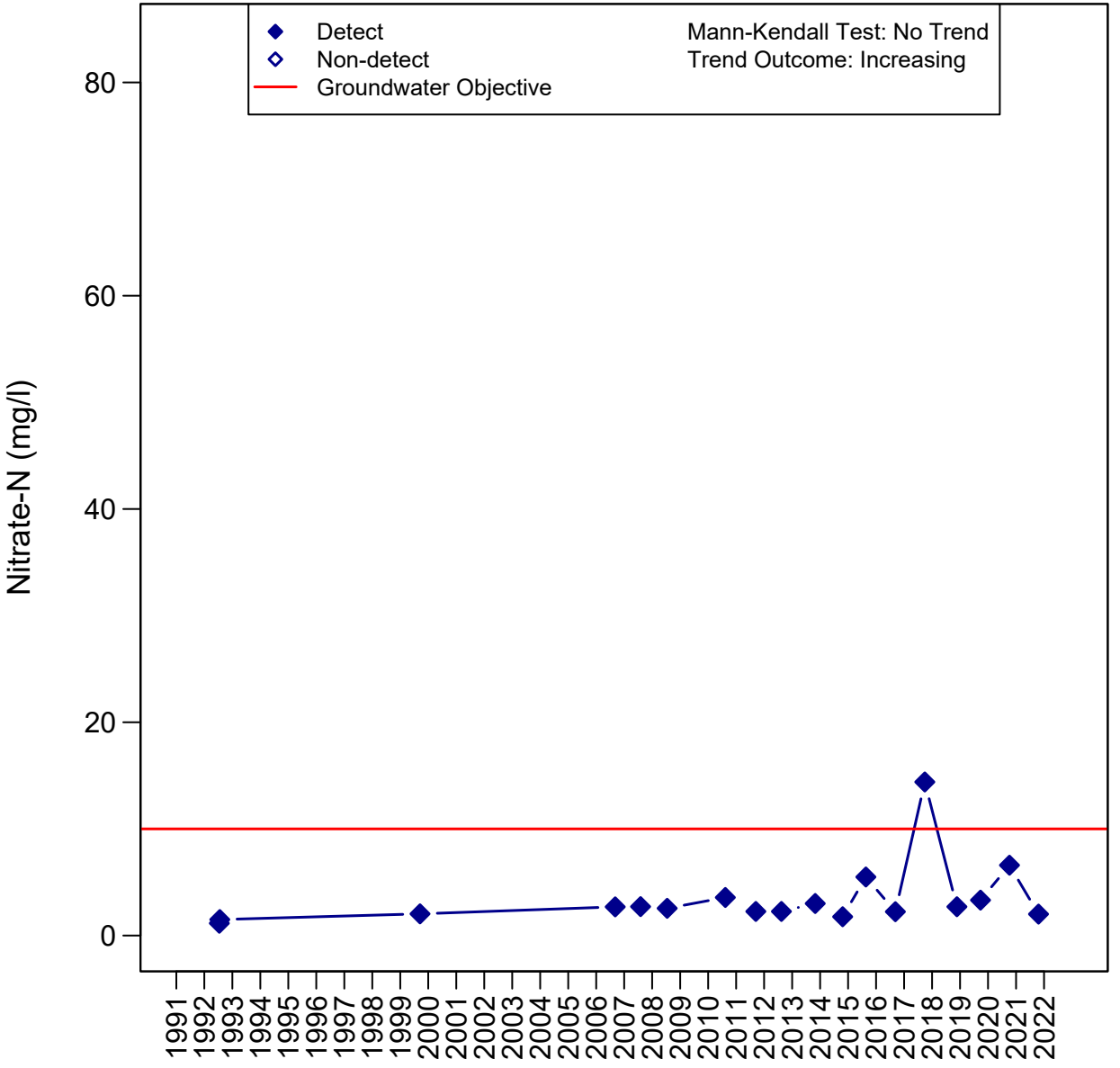
West Las Posas Valley Subbasin
02N20W07R02S - R02S



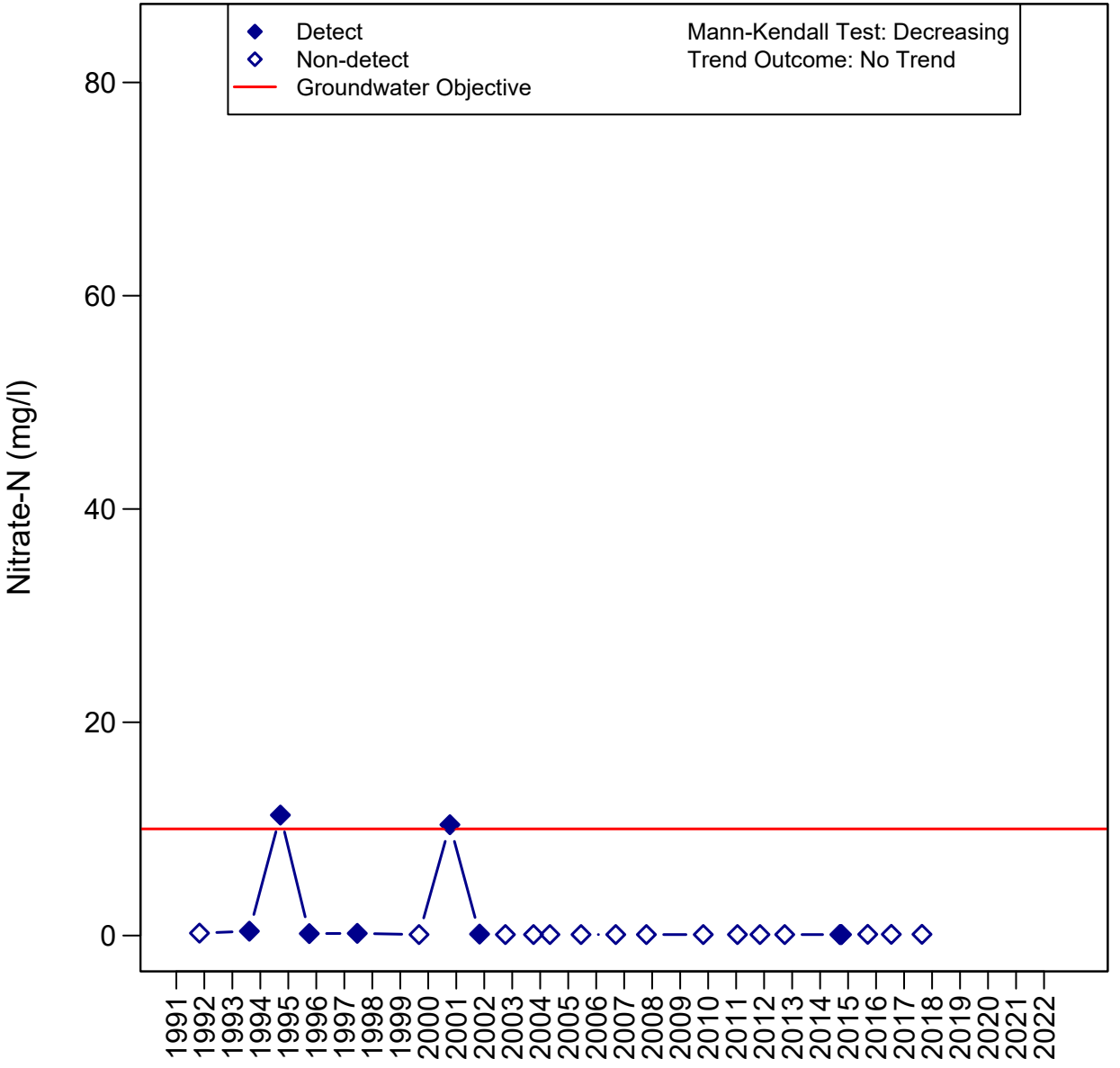
West Las Posas Valley Subbasin
02N20W08B01S - B01S



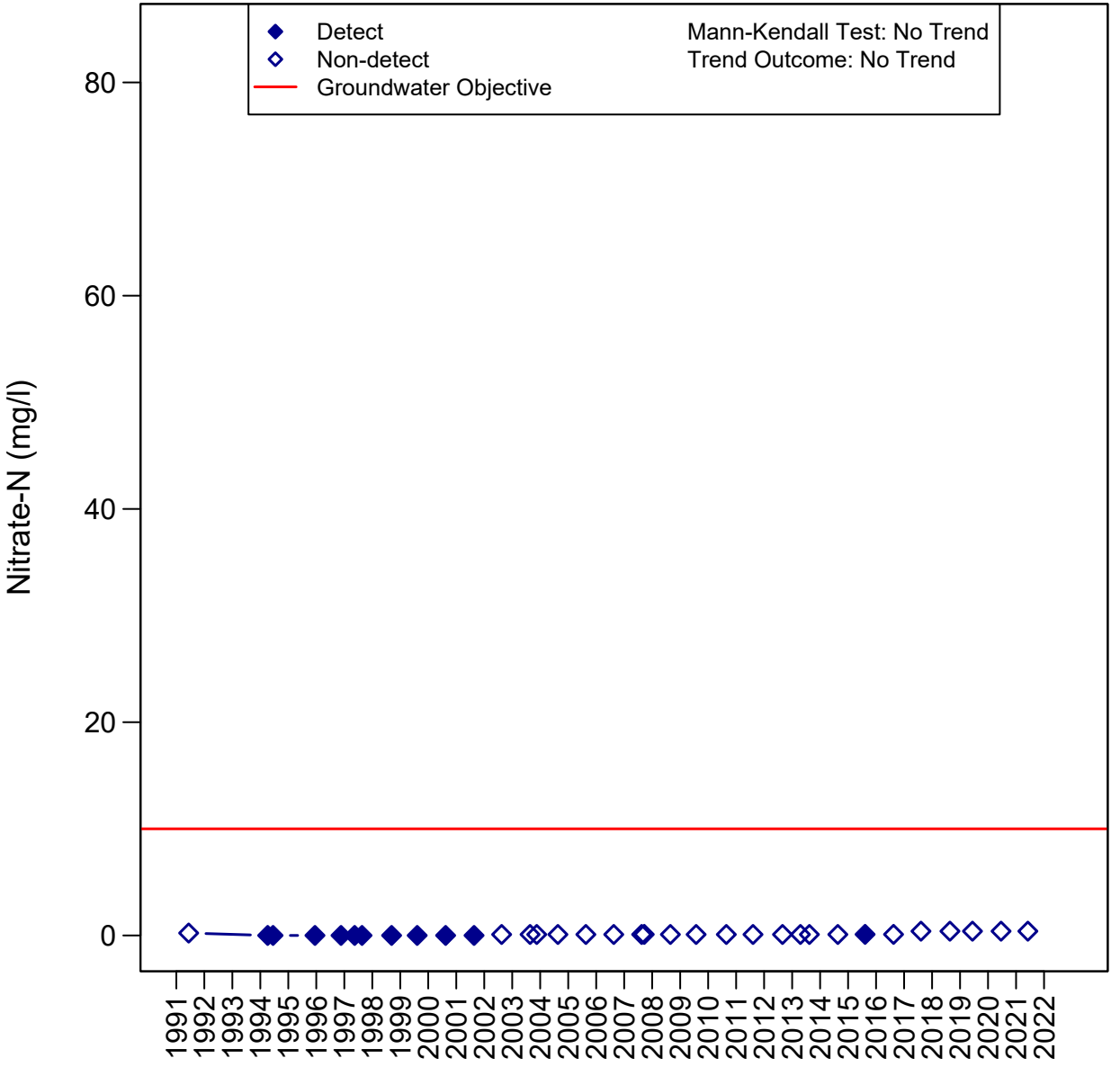
West Las Posas Valley Subbasin
02N21W15M04S - M04S



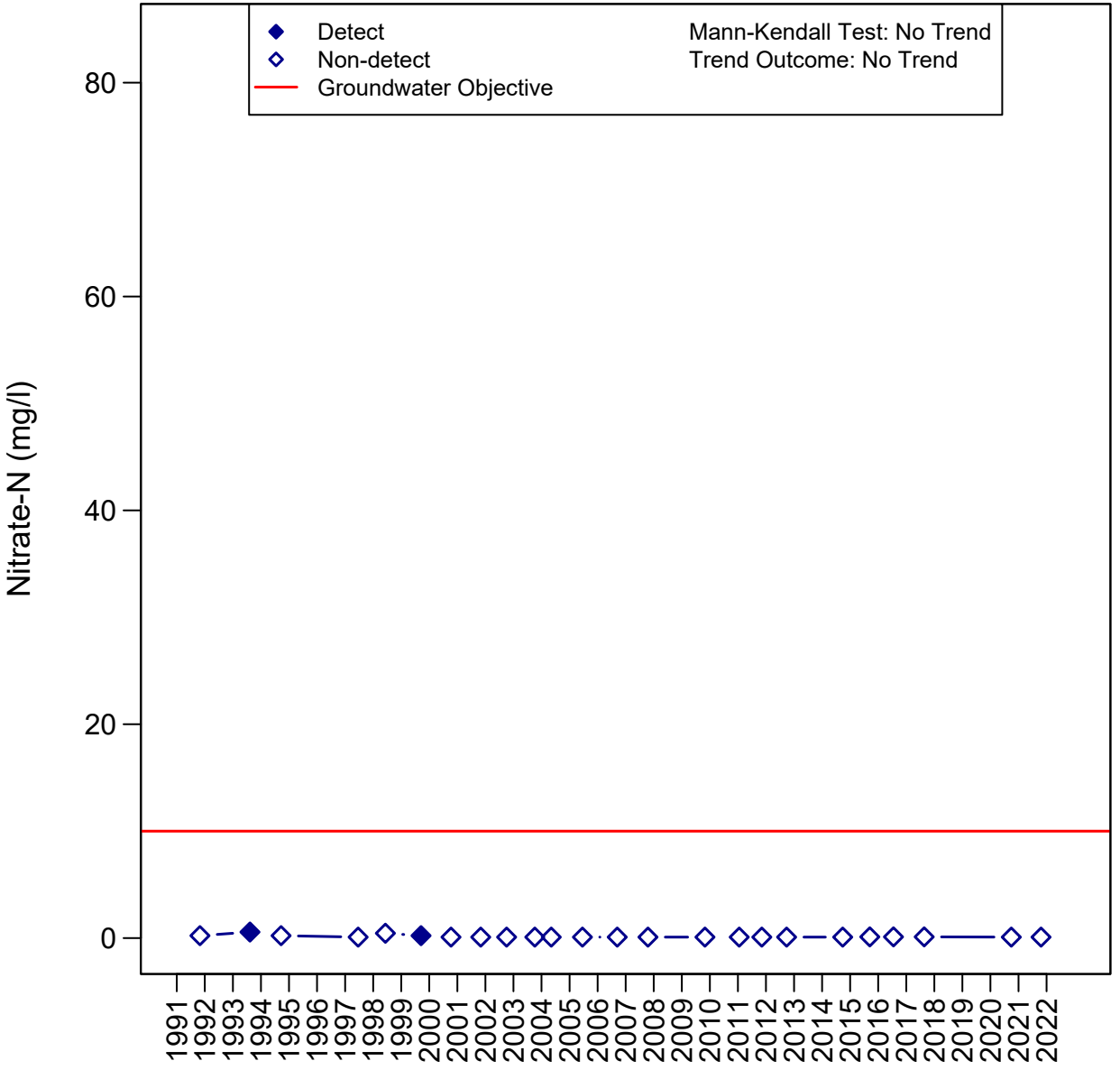
West Las Posas Valley Subbasin
02N20W08E01S - E01S



West Las Posas Valley Subbasin
02N21W22G01S - G01S



West Las Posas Valley Subbasin
02N20W08F01S - F01S



West Las Posas Valley Subbasin
02N20W06R01S - R01S