State Water Resources Control Board 2010 Integrated Report Clean Water Act Sections 303(d) and 305(b)

August 4, 2010

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#### **Summary of State Water Board Staff Recommendations**

Item #	Listing Recommendation	June 15 2010	August 4 2010
1	Central Coast Region: Sedimentation – San Vicente Creek	Delist	Do Not Delist
2	Los Angeles Region: Benthic Macroinvertebrate – Santa Clara River Reaches 5 and 6	List	List
3	Central Valley Region: Chlorpyrifos – Kings River	List	List
4	Central Valley Region: Pyrethroid – Multiple water bodies	List	List
5	Central Valley Region: EC listing – San Joaquin River	Delist	Do Not Delist
6	Central Valley Region: Toxaphene – Kings River	List	List
7	Central Valley Region: Toxicity – Kings River	List	List
8	Central Valley Region: Temperature – San Joaquin River	List	List
9	Lahontan Region: Multiple water body – pollutant combinations		List – 22 Do Not List – 9
10	Santa Ana Region: E. coli – Multiple water bodies	List	List
11	Santa Ana Region: Metal – Multiple water bodies	List	List

- State Water Board staff reevaluate all data
- Available data Does Not Support Delisting because:
  - Data did not include QA
  - Data was equivocal regarding beneficial uses
  - Data was insufficient because an acceptable numeric guideline is not available
  - Not all data was included in the submittal to the Water Board

# 1- San Vicente Creek

Staff's Sedimentation Listing Recommendation

- Change recommendation to "Do Not Delist":
  - Staff have changed our recommendation from "Delist" to "Do Not Delist" San Vicente Creek for Sedimentation
    - Based on lack of data QA
    - Need for additional data

#### • Reach 5

• Existing Water Quality Chemistry Data for Reach 5

Pollutants on 303(d) List	Pollutants Exceeded WQO		
Coliform Bacteria	DDT		
Chloride	Diazinon		
Iron	PCBs		
	Phosphates		
	Specific Conductance		

- Existing Bioassessment Data
  - Data shows four exceedances out of four samples

#### Station 29 Water Quality Data

Pollutant	Chloride	Cyanide	Enterococus	Fecal Coliform	Total Coliform	Aluminum
Exceedance	2/5	1/5	5/5	4/5	3/5	3/5
Pollutant	Dissolved Lead	Total Lead	Dissolved Copper	Total Copper	Diazinon	
Exceedance	1/5	3/5	2/5	5/5	1/5	

#### Reach 5 Additional Data

Data from Ventura Coastkeeper

Pollutant	Exceedance Per Number of Samples			
Algae (floating)	1/5			
Algae (mat)	1/5			
Total Coliform	5/5			
Ammonia	1/3			
Phosphate	3/3			
рН	1/4			
Dissolved Oxygen	1/5			

- Use of Index of Biological Integrity
  - Southern California IBI Study
    - Distribution of IBI scores at reference site and no reference sites are identical
    - Study confirmed no relationship between IBI scores and eco-region, watershed area or elevation
      - Impairment threshold may not be supported for extremely low gradient sites
    - These are not extreme low gradient and low elevation
       waters
    - Conclusion it is appropriate to use the Southern California IBI for these waters

- Continue to "List" Santa Clara Reach 5 and 6 for Benthic Macroinvertebrate Bioassessment
  - Based on reevaluation of the water quality chemistry and bioassessment data

# **3- Kings River**

**Chlorpyrifos Listing Recommendation** 

- State Water Board staff review of Central Valley Water Board listing
  - State Water Board staff corrected the Central Valley Water Boards inadvertent selection of "Do Not List" during the quality assurance check and review of the Regional Water Boards' decisions
  - State Water Board staff did not add data or make a new listing recommendation for chlorpyrifos

# **3- Kings River**

Staff's Chlorpyrifos Listing Recommendation

- Continue to recommend to "List" Chlorpyrifos in Kings River
  - Reevaluation of Water Quality Data
    - Three of the 12 samples exceeded the Basin Plan water quality objective
    - Listing Policy Section 3, Table 3.1
    - Monitoring was conducted in accordance with Central Valley Water Board's Monitoring and Reporting Program and monitoring QAPP

#### 4- Thirteen Water Bodies in the Central Valley Pyrethroids and Sediment Toxicity Listing Recommendation

#### Data Evaluation

- State Water Board staff reviewed data from "An assessment of benthic communities with concurrent physical habitat, pyrethroid, and metals analysis in an urban and residential stream in California in 2006 and 2007" by Hall et al.
- State Water Board staff compared those data to a study conducted for the SWAMP program (Weston et al., 2005)
- Both studies concur that concentrations of pyrethroids in Pleasant Grove Creek and its tributaries exceed thresholds known to be toxic to sensitive aquatic species

4- Thirteen Water Bodies in the Central Valley Pyrethroids and Sediment Toxicity Listing Recommendation

- State Water Board staff determined the following additional factors
  - In Pleasant Grove Creek pyrethroid concentrations exceed thresholds known to be acutely toxic to sensitive species (confirmed by both Hall and Weston studies)
  - When those sediments are tested in the laboratory with Hyalella they cause mortality (Weston study only; not addressed by Hall).
  - Hyalella lives in cleaner portions of the creeks but not in those reaches containing pyrethroids (confirmed by both Hall and Weston studies)

#### 4- Thirteen Water Bodies in the Central Valley Staff's Pyrethroids and Sediment Toxicity Listing Recommendation

- Continue to "List" the 13 water bodies for sediment toxicity and pyrethroids
  - Data Evaluation Conclusion
    - Sufficient information to make a compelling case that pyrethroids are a cause for absence of *Hyalella*
    - Data shows exceedence of sediment toxicity and pyrethroid criteria
    - Based on the weight of evidence, including the presence of toxicity in sediment and exceedance of the water quality standard for pyrethroids

# 5- San Joaquin River EC Listing Recommendation

#### Reevaluation of Listing Recommendation

- State Water Board directed staff to reevaluate this listing recommendation on June 15
- Staff reevaluated data for Lower San Joaquin River

#### Result of Reevaluation

- There was no recent exceedance of water quality objective but data included only one critically dry year
- Successive critically dry years prior to 1995 resulted in exceedance of EC objective of 700  $\mu\text{S/cm}$

5- San Joaquin River
Staff's EC Listing Recommendation
Change to "Do Not Delist" Lower San Joaquin River for Electrical Conductivity

 Change in recommendation based the Weight of Evidence approach established in the Listing Policy

## **6- Kings River**

#### **Toxaphene Listing Recommendation**

- Reevaluation of Water Quality Data
  - Water Chemistry data collected from 2004-2007
- Evaluation of Fish Tissue samples collected by Conservation District – submitted in Aug 2009
  - Data didn't include QA
  - The Fish Tissue samples were reported as "Non-detected" for toxaphene at reporting limit higher than the numeric guidelines

(The original listing was based on fish tissue data collected in 1986)

#### 6- Kings River Staff's Toxaphene Listing Recommendation

 Continue to recommend "Do Not Delist" toxaphene in Kings River based on the available data

### 7- Kings River Toxicity Listing Recommendation

Reevaluation of Water Quality Data

- Water Quality data, including 41 of 50 samples, exceeded the Basin Plan narrative toxicity objective
  - These samples showed toxicity to Selanastrum capricornutum (green algae) test species
  - Samples also showed toxicity to other test species
  - Monitoring was conducted in accordance with the Central Valley Water Board Monitoring and Reporting Program and the monitoring QAPP

### 7- Kings River Staff's Toxicity Listing Recommendation

- Continue to recommend to "List" the Kings River for unknown toxicity
  - After reevaluation of data, there is clear evidence that toxic pollutants are contributing to the toxicity as 41 samples exhibited toxicity

### 8- San Joaquin River

**Temperature Listing Recommendations** 

- Central Valley Basin Plan Objective has two parts:
  - Part 1: "The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses."
  - Part 2: "At no time or place shall the temperature of cold or warm intrastate waters be increased more than 5 degrees F above natural receiving water temperature."

8- San Joaquin River Temperature Listing Recommendations

- State Water Board Staff Reevaluation
  - Data Analysis:
    - Continuous monitoring collected over several years (10 years in two reaches and 4 years in one reach) showing a sufficient number of exceedances of the evaluation guideline to list for temperature
    - Historical information about declining salmon populations in the San Joaquin watershed

8- San Joaquin River Staff's Temperature Listing Recommendations

- Continue to recommend to "List" San Joaquin River for Temperature
  - Available data shows that beneficial uses of the waters are impaired due to elevated temperature
  - The methodology used by the Regional Water Board staff in these assessments complies with the Listing Policy

### **9- Lahontan Water Board** Multiple Pollutant Listings

- Reevaluation of Data
  - Staff determined
    - Weaker listing
      - Mojave River (Forks to Upper Narrows)
      - East Fork Carson River Boron
      - Little Rock Reservoir Boron
      - Mammoth Creek (Old Mammoth Rd to 395) Phosphate
      - West Walker River Boron
    - Temporal representation
      - Three water body segments show seasonal exceedances of annual average water quality objectives
        - Mammoth Creek (Headwaters to Twin Lakes) iron and TDS
        - Mammoth Creek (Twin Lakes to Old Mammoth Road) iron
        - Mammoth Creek (Old Mammoth Road to 395) iron

**9- Lahontan Water Board** Staff's Multiple Pollutant Listing Recommendation

 Continue to "List" 22 of 31 water bodypollutant combinations

 Change to "Do Not List" for nine water body pollutant combinations

### **10 - Santa Ana Region** E. Coli Listing

- Available Objectives/Criteria for protection of beneficial uses:
  - Water Quality Control Plan, Santa Ana Region Basin, 1995, updated February 2008
  - USEPA Ambient Water Quality Criteria for Bacteria– USEPA 1986
  - Santa Ana Regional Water Board (Resolution Number R8-2005-0001) the Middle Santa Ana Watershed Water Bodies TMDL/Basin Plan amendment

### **10 - Santa Ana Region** E. Coli Listing

#### Data Analysis

- For each water body, a total of 26 to 150 surface water samples were available
- State Water Board staff assessed the data using the Basin Plan fecal coliform criteria and the USEPA
   e. coli criteria and determined
  - The USEPA e. coli ambient water quality criteria would result in all twelve water bodies being Listed for e. coli
  - The Basin Plan Fecal Coliform criteria would result in eleven water bodies being Listed for e. coli

#### **10 - Santa Ana Region** Staff's E. Coli Listing Recommendation

- Continue to recommend to "List" the 12 water bodies for e. coli using the USEPA coli criteria of 235 MPN/100 ml based on the following:
  - Consistency other Regional Water Boards have used the USEPA criteria of 235 MPN/100 ml for their water quality assessments
  - The USEPA concurs that all data must be assessed and, in the absence of an e. coli numeric objective in the Basin Plan, it is appropriate to use the USEPA criteria of 235 MPN/ 100ml
  - The USEPA e. coli criteria is used in the Middle Santa Ana River Watershed Water Bodies TMDL based on scientific peer review and public comments

### **11- Santa Ana Region** Multiple Metals Listings

#### Data Reevaluation

- Totals metals data were collected for 3 water body-pollutant combinations in the Santa Ana Region
- CTR numerical objectives for metals are expressed in the dissolved form
- CTR included default metal translators to convert metals data expressed in the total form
- Santa Ana Region used a site-specific translator developed in the 1990s in their 2008 Integrated Report
- USEPA approved this translator for use in NPDES permits only it is inappropriate to use the NPDES translator for ambient water quality data

### **11- Santa Ana Region**

Staff's Multiple Metals Listings Recommendation

- Continue to recommend to "List" the multiple water body segments for metals based on the use of the CTR default translators and the Listing Policy
  - The CTR default translator for assessing ambient water quality is the appropriate translator
  - The site-specific NPDES translator used for effluent limits is not applicable or approved for ambient water quality assessment

# **Questions?**

Beyond this are extra slides to be used to answer questions if needed.

### **Detailed Presentation?**

- If the Board wishes staff has prepared a detailed presentation that will:
- Present the additional data evaluation on the eleven listing recommendations
- Summarize of staff recommendations
- Present data evaluation and reason(s) for the change/no change in staff recommendations

### History

- San Vicente Creek was listed on the 303(d) List for sedimentation in 2006.
- The water body was added to the list during the State Water Board meeting; staff didn't have the opportunity to review data

- Regional Water Board 2008 Integrated Report
  - Central Coast Water Board released their Draft 2008 Integrated Report with no new data or recommendation
  - Additional data submitted to Central Coast Regional Water Board after release of their Draft 2008 Integrated Report
  - Central Coast Water Board staff proposed to "Delist" San Vicente Creek for sedimentation based on the data

#### Central Coast Water Board

- Decided there was not enough time for public review and comments
- Board members commented on delaying the change to "Delist"
- Central Coast Water Board's conclusion was that this listing should be reviewed at a later date
- Central Coast staff's interpretation was that State Board staff will review and evaluate this listing before releasing the draft Statewide Integrated Report

# 1- San Vicente Creek Sedimentation Listing Recommendation

#### 2010 Integrated Report

- Central Coast Water Board staff asked State Water Board staff to "Delist"
- State Water Board staff evaluated the data submitted by Central Coast Water Board staff
- State Water Board staff recommend to "Delist" San Vicente Creek based on data submitted by Central Coast Water Board staff
- Several comment letters opposing this delisting were received

#### 2- Santa Clara River Reach 5 and Reach 6 Bioassessment Listing Recommendation

#### History

- Santa Clara River Reaches 5 and 6 were listed by the Los Angeles Water Board in their 2008 listing
- State Water Board staff recommended to list these water body segments in 2010 Integrated Report
- As directed by State Water Board on June 15, staff reevaluated the listing recommendation, including
  - Existing and additional water quality chemistry data
  - Benthic Macroinvertebrate data

2- Santa Clara River Reach 5 and Reach 6 Bioassessment Listing Recommendation

#### Reach 5 Additional Data

- Santa Clara River Watershed Amphibian and Macroinvertebrate Project
  - Significant decline in diversity and density of organisms between late spring and mid summer as flows became shallower
  - The summary of survey results states
    - "The near-disappearance of native invertebrates may reflect higher levels of organic enrichment"
    - "Increased chemical concentrations may possibly result in a decrease of native aquatic species"

# **3- Kings River**

# **Chlorpyrifos Listing Recommendation**

# • History

- Central Valley Water Board staff
  - Recommended to "List" for chlorpyrifos
  - However, staff mistakenly entered an incorrect assessment of "Do Not List" into the chlorpyrifos fact sheet in the centralized database
  - The staff recommendation for listing chlorpyrifos was not brought to the Central Valley Water Board for their approval due to this error

- History
  - Central Valley Water Board staff
    - Listed 13 water bodies for pyrethroids and sediment toxicity
    - Mistakenly combined the sediment toxicity data with the pyrethroid data in the pyrethroid line of evidence
    - Listing for sediment toxicity was omitted from the Central Valley Water Board 2008 Integrated Report

- State Water Board staff
  - Prepared a separate line of evidence for sediment toxicity during review and quality assurance check of the Central Valley Water Board list
  - Recommended to "List" for sediment toxicity based on existing data
  - The staff recommendation is not based on new data

- Additional Data
  - State Water Board staff reviewed data from "An assessment of benthic communities with concurrent physical habitat, pyrethroid, and metals analysis in an urban and residential stream in California in 2006 and 2007" by Hall et al.

# **3- Kings River**

**Chlorpyrifos Listing Recommendation** 

- Reevaluation of Water Quality Data
  - Three of the 12 samples exceeded the Basin Plan water quality objective
  - Listing Policy Section 3, Table 3.1
  - Monitoring was conducted in accordance with Central Valley Water Board's Monitoring and Reporting Program and monitoring QAPP

#### Data Evaluation

- State Water Board staff found the Hall study did not examine the distribution of *Hyalella azteca*, in Pleasant Grove Creek
- Data from the SWAMP study confirms that *Hyallela* are not present at creek locations where there is substantial pyrethroid contamination

#### Listing Policy

 According to Listing Policy, section 3.6, a water segment is placed on the section 303(d) List if the water exhibits statistically significant water or sediment toxicity or waters may be listed for toxicity alone. If the pollutant causing or contributing the toxicity is identified, the pollutant shall be included on the section 303(d) list as soon as possible.

- Weight of evidence
  - State Water Board staff used the toxicity and pyrethroids lines of evidence for this listing recommendation
    - To protect species that could be present in the creek if they had not been affected by pollutant impairments already

#### Data Evaluation Conclusion

- Sufficient information to make a compelling case that pyrethroids are a cause for absence of *Hyalella*
- Data shows exceedence of sediment toxicity and pyrethroid criteria

# 6- Kings River

# **Toxaphene Listing Recommendation**

# History

- Kings River was listed for Toxaphene in 1986
- Central Valley Water Board approved "Do Not Delist" in their 2008 Integrated Report
- State Water Board staff recommended "Do not Delist" in 2010 Integrated Report
- State Water Board directed staff to reevaluate data

# **6- Kings River**

## **Toxaphene Listing Recommendation**

- Beneficial Uses
  - According to the Central Valley Water Board's Water Quality Control Plan for the Tulare Lake Basin, the beneficial uses for Kings River are:
    - Agricultural Supply,
    - Water Contact Recreation,
    - Non-Contact Recreation,
    - Warm Freshwater Habitat,
    - Wildlife Habitat, and
    - Freshwater Replenishment

# 6- Kings River Toxaphene Listing Recommendation

#### • Fish Tissue Numeric Guidelines:

- The National Academy of Sciences guideline (1972) for the protection of fish eating wildlife for toxaphene is 100 µg/kg
- The OEHHA screening values for protection of human health for toxaphene is 30  $\mu\text{g}/\text{kg}$
- USEPA Human Health Screening Values,17.5 g fish/day for toxaphene is 36.3 µg/kg
- USEPA Human Health Screening Values,142.4 g fish/day for toxaphene is 4.46 µg/kg

## History

- Central Valley Water Board staff recommended listing for Toxicity in their 2008 Listing
- During the June 15 Board Workshop, testimony was provided that some of the data should not be used
- State Board staff reevaluated all available water quality data

#### Basin Plan Water Quality Objective

- "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life"
- A numeric evaluation guideline was used for interpretation of the narrative water quality objective

# **6- Kings River**

**Toxaphene Listing Recommendation** 

- Evaluation of Fish Tissue samples collected by Conservation District – submitted in Aug 2009
  - Data didn't include QA
  - The Fish Tissue samples were reported as

"Non-detected" for toxaphene at reporting limit higher than the numeric guidelines

Quality Assurance of Monitoring Data

- State Water Board staff verified the earlier data
  - Data that was questioned at June 15 Board Workshop
- Central Valley Water Board staff were not aware of any quality assurance issue with the data
- Monitoring was conducted in accordance with the Central Valley Water Board Monitoring and Reporting Program and the monitoring QAPP

#### Quality Assurance of Monitoring Data

- The test species, *Selenastrum capricornutum* (green algae) was used to identify toxicity to algae
- Follow-up analyses by Kings River Conservation did not demonstrate that the data used in the Central Valley Water Board listing has QA Problem:
  - Follow up analysis was for limited number of pollutants
  - Split samples to the original lab showed toxicity and the second lab did not show reduced growth
  - A three lab split was not conducted to confirm

## Quality Assurance Review

- In the original data the control was used for all samples
- Not all samples showed toxicity
- Since several samples didn't exhibit toxicity it indicates that toxicity was not due to control

## 5- San Joaquin River EC Listing Recommendation

#### • History

- Central Valley Water Board "Delist" Lower San Joaquin River for EC in their 2008 Integrated Report
- State Water Board staff recommended to "Delist" EC in 2010 Integrated Report based on data and information used by Central Valley Water Board

### 8- San Joaquin River Temperature Listing Recommendations

## History

- Central Valley Water Board recommended to "List" three reaches of the San Joaquin River for Temperature in their 2008 Integrated Report
- Commenter opposed these three listings based on their belief that
  - The Basin Plan WQO for temperature was applied incorrectly
  - An inappropriate Evaluation Guideline was used to interpret the narrative objective

#### 8- San Joaquin River Temperature Listing Recommendations

#### Listing Policy

- Listing Policy Section 6.1.5.7 states "In the absence of necessary data to interpret numeric water quality objectives, recent temperature monitoring data shall be compared to the temperature requirements of aquatic life in the water segment."
- Central Valley Water Board staff used an evaluation guideline that met requirements of the Listing Policy to interpret the Basin Plan Objective for temperature.

8- San Joaquin River Temperature Listing Recommendations

- 2010 Integrated Report
  - State Water Board recommended to List San Joaquin River for Temperature based on data and information
  - On June 15 the State Water Board directed staff to reevaluate the data and listing recommendation

## History

- State Water Board staff reviewed water quality data for 31 water body-pollutant combinations:
  - Data were collected during 2001 to 2005
  - Lahontan Water Board made a "Do Not List" decision for these 31 water body- pollutant combinations in their 2008 Integrated report
  - State Water Board staff recommend to "List" these 31 water body – pollutant combinations in 2010 Integrated report

#### Water Quality Objectives

- The Lahontan Region Basin Plan water quality objectives or site specific objectives were used
- When a water quality objective was not available acceptable evaluation guidelines were used

#### Listing Policy

 Listing Policy section 6.1.5.6 states that if sufficient data are not available for the stated averaging period, the available data shall be used to represent the averaging period for placement on the 303(d) List

- Reevaluation of Data
  - At the June 15th Board Workshop the Board directed staff to reevaluate the data
    - To identify "weaker" listings
    - To assess the temporal data representation

- Temporal Representation
  - Listing Policy (Section 6.1.5.3) states that samples should be representative of the critical timing
  - The water quality data show that most samples were collected over the course of two to five years, covering all seasons
  - Data collected over several months during each year demonstrates temporal representation
    - Except three water body pollutant combinations with exceedance of water quality objective only during wetter months

• Water body - pollutant combination with fewer exceedances

Water body	Pollutant	Number of samples	Number of exceedances of single sample	Number of exceedances of yearly average objective
Littlerock Reservoir	Boron	4	4	3
Littlerock Reservoir	Manganese	3	2	(not a yearly average objective)
Mammoth Creek (Old Mammoth Rd. to 395)	Iron	10	2	(not a yearly average objective)
Mammoth Creek (Old Mammoth Rd. to 395)	Phosphate	15	9	2
West Walker River	Boron	10	7	2
East Fork Carson River	Boron	9	5	2
Mojave River (Forks to Upper Narrows)	TDS	15	5	1

## History

- Santa Ana Water Board staff assessed twelve water bodies for e. coli using the USEPA criteria but recommended to Do Not List these water bodies in their 2008 Integrated Report
- State Water Board staff reviewed the e. coli data for the twelve water bodies using USEPA criteria and recommended to List these water bodies in 2010 Integrated report

#### Listing Policy

- Sections 1 and 6.1.3 requires the Regional Water Boards and State Water Board to identify evaluation guidelines that represent standard attainment or protection of beneficial uses
- The evaluation guidelines are not water quality objectives and shall only be used for the purpose of developing the Section 303(d) list.
- Section 3.3 requires the assessments of bacterial data against a water quality standard using the binomial distribution described in Table 3.2

#### Reevaluation of Data

- State Water Board directed staff at the June 15 Board Workshop
  - Reevaluate data and information
  - Reevaluate the criteria used for listing

#### Beneficial Use

- The 12 water bodies being assessed for e. coli have a designated beneficial use of Contact Recreation (REC-1)
- The Santa Ana Water Board Basin Plan REC 1 beneficial use states:
  - "waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing and use of natural hot springs."

## **11- Santa Ana Region** Multiple Metals Listings

## History

- Santa Ana Region did not List three water body segments for metals in their 2008 Integrated Report
  - Based on using the NPDES translator to convert metal data that were collected in total form
- State Water Board staff recommend to List these water body pollutant combinations for metals in the 2010 Integrated report
  - Based on using the CTR translator

## **11- Santa Ana Region** Multiple Metals Listings

- Data Analysis
  - Metals data were evaluated for 3 water body segments
  - Santa Ana Region used a site-specific translator developed in the 1990s in their 2008 Integrated Report
  - USEPA approved this translator for use in NPDES permits only
  - USEPA did not approve the NPDES translator for ambient water quality data
  - It is inappropriate to use the NPDES translator for ambient water quality data

# Summary of Staff Actions

- Staff Reevaluated data for 11 issues as directed by the Board
- Staff re-visited lines of evidence
- Staff communicated with Regional Board Staff as directed