

Stanislaus, Tuolumne, and Merced Working Group Meeting

2nd Revised Draft Initial Biological Goals



Division of Water Rights, March 9, 2023

Welcoming Remarks

- Staff introductions
- This meeting is being recorded
- The presentation slides and the recording will be available by contacting STM-WorkingGroup@waterboards.ca.gov
- For more information visit the Lower San Joaquin River Flows Implementation Activities webpage: bit.ly/baydelta_LSJ
- Need assistance or have questions
 - Facilitating today is Ellen Blair (ICF International consultant)
 - Raise hand, or
 - Email STM-WorkingGroup@waterboards.ca.gov

Welcoming Remarks – Agenda

- Welcome, meeting objectives, and background
- Summary of proposed changes to biological goals and facilitated discussion between STM members
- Next steps
- General Comments
- Closing remarks

STM Working Group Meeting Attendees

- California Department of Fish & Wildlife
- Central Sierra Environmental Resource Center
- Department of the Interior, US Bureau of Reclamation
- Merced Irrigation District
- Merced River Conservation Committee
- Modesto Irrigation District
- San Francisco Baykeeper
- San Francisco Public Utilities Commission
- South San Joaquin Irrigation District
- State Water Board
- Stockton East Water District
- The Nature Conservancy
- Tuolumne County Water Agency
- Tuolumne Utilities District
- Turlock Irrigation District
- US Fish & Wildlife Service
- Unaffiliated – William Martin
- Valley Water

Meeting Objectives

- Summarize recommendations on biological goals from STM Working Group members
- Describe proposed revisions to biological goals
- Provide opportunity for dialogue between STM members on:
 - Whether there is agreement with the proposed goals
 - Any agreed upon further proposed adjustments to the goals
 - Other comments
- Next steps for Board consideration of action on biological goals

Background

- 2018 Bay-Delta Plan & Lower San Joaquin River Flows
 - Requires the development of biological goals for salmonids
- Biological Goals
 - Quantitative metrics for four key goals: abundance, productivity, genetic and life history diversity, and spatial extent
 - Used to inform: adaptive methods, the San Joaquin River Monitoring and Evaluation Program, evaluation of the effectiveness of the program of implementation, and future changes to the Bay-Delta Plan
 - Will not be used to assess compliance with the Bay-Delta Plan
- Stanislaus, Tuolumne, and Merced (STM) Working Group
 - The State Water Board will establish a STM Working Group to assist with the implementation, monitoring and effectiveness assessment of the February through June LSJR flows
 - State Water Board will seek recommendations on biological goals from the STM Working Group and other interested persons

Background

- 2018 Bay-Delta Plan & Lower San Joaquin River Flows
 - Requires the development of Biological Goals
- 2019 Draft Biological Goals
 - STM Working Group Coordinator
 - Public comment and recommendations
- 2022 Revised Draft Biological Goals
 - Initial membership of STM Working Group
 - Public comment and recommendations
- STM Working Group Meetings
 - November 21, 2022
 - December 7, 2022
 - March 9, 2023 (today's meeting)

Goal Component	Summary of Recommendations - November 21, 2022 Meeting
Abundance	
Trend	<ul style="list-style-type: none"> • Support for/disagreement with including a positive trend
Metric	<ul style="list-style-type: none"> • Support for juvenile production (abundance) as metric • Support for/disagreement with using escapement or ocean production as metric
Value	<ul style="list-style-type: none"> • Support for a higher value • Disagreement with having a numeric goal, support only a trend
Hatchery	<ul style="list-style-type: none"> • Hatchery spawners should be excluded from assessment toward meeting goals
Timeline	<ul style="list-style-type: none"> • Trend should be evaluated no earlier than 15 years after implementation • Define measurable and substantial for the progress assessment • Support for/disagreement with timeframe (too much/not enough time)

Goal Component	Summary of Recommendations - November 21, 2022 Meeting
Genetic Diversity	
Percent Hatchery Origin Spawners (pHOS)	<ul style="list-style-type: none"> • Support for pHOS of 10% or less • Support for hatchery management improvements, e.g., including marking or exclusion weirs, as necessary to contribute to achieving the goal
Life History Diversity	
Emigration Timing & Juvenile Size Classes	<ul style="list-style-type: none"> • Support for/disagreement with standardized or tributary-specific size classification methods • Support for developing tributary-specific timing ranges • Support for using goals to maximize size-class range of outmigration timing • Concern with using emigration timing or juvenile size-class range alone as a primary performance measures
Other	<ul style="list-style-type: none"> • Consider adult diversity goal of spawner age

Goal Component | Summary of Recommendations - December 7, 2022 Meeting

Full Life-Cycle Productivity

Trend	<ul style="list-style-type: none"> • Support for inclusion of a positive trend and use of a 5-year geometric mean, but also needs to have a floor to ensure success
Metric	<ul style="list-style-type: none"> • Support for/disagreement with using a productivity metric • Suggestion for using cohort replacement rate (CRR) in a two-tier system as a tracking metric only • Disagreement with using full life-cycle goal due to out of basin factors
Value	<ul style="list-style-type: none"> • Disagreement with >1; support for a higher value • Suggestion to use caution in drawing conclusions from data
Calculation	<ul style="list-style-type: none"> • Reserve support for until further evaluation of methods • Suggestion to refine CRR estimate by incorporating age structure and hatchery spawners
Timeline	<ul style="list-style-type: none"> • Define measurable and substantial for the progress assessment • Support for/disagreement with timeframe (too much/not enough time)

Goal Component	Summary of Recommendations – December 7, 2022 Meeting
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Juvenile Productivity	
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| Trend | <ul style="list-style-type: none"> • Support for/disagreement with including a positive trend • Suggestion for the trend to have a floor to ensure success |
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| Metric | <ul style="list-style-type: none"> • Suggestion for an additional productivity metric within tributaries • Support/disagreement with tracking only • Concerns regarding Mossdale data |
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| Value | <ul style="list-style-type: none"> • Support for/disagreement with range • Suggestion for a collaborative evaluation of data and setting of numeric goal |
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| Timeline | <ul style="list-style-type: none"> • Support for/disagreement with timeframe (too much/not enough time) • Suggestion to define intermediate progress assessments designation |
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Goal Component

Summary of Recommendations - December 7, 2022 Meeting

Spatial Extent

- Suggestion to develop a numeric spatial extent goal

Stock-Recruitment Tools

- Concern that data quality/quantity is lacking
- Suggestion to refine models and development for Merced River

Other

- Suggestion to meet again to discuss biological goals
- Suggestion to move forward and use structured decision making, hypothesis testing, etc. to address uncertainties
- Support for use of viable salmonid population (VSP) parameters
- Suggestion to use a two-tier system (e.g., performance & tracking metrics)
- Suggestion investigate data availability and reliability, including Mossdale monitoring

Facilitated Discussion Format

- Staff will review the proposed change to a biological goal and rationale for the change
- Facilitator will solicit discussion among and between STM members
 - Is there agreement with the proposed changes?
 - Is there a different proposal from a STM member(s) that members agree with that is consistent with the Bay-Delta Plan?
 - Are there other comments?
- Non-STM members will have a chance to provide input
- Raise hand feature can be used to ask questions or identify interest in making a comment
- Keep comments on point and concise
 - Keep comments succinct and specific to the biological goals
 - Respect staff and fellow attendees, even if their ideas differ from yours

Bay-Delta Plan Requirements for Biological Goals

- Biological goals will specifically be developed for abundance, productivity, genetic and life history diversity, and spatial extent
- “The salmonid biological goals for this program of implementation will be specific to the LSJR and its tributaries and will contribute to meeting the overall goals for each population including the salmon doubling objective established in state and federal law.”
- “Biological goals should be specific, measurable, achievable, result-focused, and include a time frame for when they will be achieved.”
- “consistent with the best available science”
- Used to inform: adaptive methods, the San Joaquin River Monitoring and Evaluation Program, evaluation of the effectiveness of the program of implementation, and future changes to the Bay-Delta Plan

Role of Biological Goals

Table New. Role of Biological Goals

Role of Biological Goal	Biological Goal / Goal Component
<p>Use in evaluation of criteria for approving adaptive implementation adjustments, expected or documented achievement, or furtherance of achievement, of criteria for approving adaptive adjustments, including:</p> <ul style="list-style-type: none"> • Change in required percent of unimpaired flow within the range of 30 – 50% • Alternative flow schedule based on total 5-month volume equal to the required percent of unimpaired flow (flow budget) • Shift some of the flow budget to July – January 	<ul style="list-style-type: none"> • Juvenile egg to confluence survival • Juvenile emigration timing at tributary confluence • Juvenile size class migration at tributary confluence • Juvenile production at tributary confluence
<p>Inform potential water diversion, water right, water quality, or other actions in the mainstem San Joaquin River and Delta to protect flows and habitat</p>	<ul style="list-style-type: none"> • Juvenile survival Mossdale to Chipps Island • Juvenile LSJR survival at Mossdale information
<p>Inform adaptive methods to the extent goals and ability to reach goals is related to adaptive methods</p>	<ul style="list-style-type: none"> • All biological goals
<p>Evaluate effectiveness of program of implementation</p>	<ul style="list-style-type: none"> • All biological goals
<p>Evaluate effectiveness of SJRMEP</p>	<ul style="list-style-type: none"> • All biological goals
<p>Inform future changes to the Bay-Delta Plan</p>	<ul style="list-style-type: none"> • All biological goals

Review and Update of Biological Goals

Proposed new text in next version of biological goals report

The Bay-Delta Plan requires biological goals for salmonid populations to be consistent with best available scientific information, including information regarding viable salmonid populations, recovery plans for listed salmonids, or other appropriate information. The approved biological goals will be reviewed at least every five years and revised, if needed, to reflect updated scientific knowledge.

Productivity Goal

Table 3. LSJR Fall-Run Chinook Salmon Juvenile Survival Goals for Each Tributary

Productivity Metric	Goal, measured as a 5-year geometric mean	Progress Assessment / Attainment Target
Juvenile Productivity Trend	Positive trend in juvenile survival until abundance juvenile productivity goal is met, measured as a 5-year geometric mean	Assessed annually / until when numeric abundance goals juvenile productivity goals are met (year 15)
LSJR tributary (egg) to Mossdale survival (SJRS)	SJRS 5.5–20% as a 5-year geometric mean	Year 6, measurable progress Year 9, substantial progress Year 15, achieve the goal
LSJR at Mossdale to Chipps Island (Through-Delta) Survival (SJDS)	SJDS 20–50% as a 5-year geometric mean	Year 6, measurable progress Year 9, substantial progress Year 15, achieve the goal
Freshwater juvenile survival (egg to Chipps Island)	$\geq 1.5\%$	Assessed annually / Year 5, achieve the goal
LSJR at Mossdale to Chipps Island (Through-Delta) Survival (SJDS)	$\geq 20\%$	Assessed annually / Year 5, achieve the goal
Egg to tributary confluence with LSJR	$\geq 10\%$	Assessed annually / Year 5, achieve the goal

Productivity Goal

Table New2. LSJR Fall-Run Chinook Salmon Juvenile Production Goals

<u>Productivity Metric</u>	<u>Goal, per cohort year</u>	<u>Progress Assessment / Attainment Target</u>
<u>Stanislaus River</u>		
<u>Confluence Juvenile Production</u>	<u>2,700,000</u>	<u>Assessed on an ongoing basis</u>
<u>Delta exit (Chipps Island) Juvenile Production</u>	<u>400,000</u>	<u>Assessed on an ongoing basis</u>
<u>Tuolumne River</u>		
<u>Confluence Juvenile Production</u>	<u>4,700,000</u>	<u>Assessed on an ongoing basis</u>
<u>Delta exit (Chipps Island) Juvenile Production</u>	<u>700,000</u>	<u>Assessed on an ongoing basis</u>
<u>Merced River</u>		
<u>Confluence Juvenile Production</u>	<u>2,200,000</u>	<u>Assessed on an ongoing basis</u>
<u>Delta exit (Chipps Island) Juvenile Production</u>	<u>300,000</u>	<u>Assessed on an ongoing basis</u>

Abundance Goal

Table 1. LSJR Fall-Run Chinook Salmon Escapement Goals

River	Escapement Goal, measured as a 5-Year Running Average	Progress Assessment / Attainment Target
All	Positive generational trend in escapement, measured as a 5-year geometric mean	<u>Assessed annually</u> / until when numeric abundance goals are met
Stanislaus River	9,600 <u>7,800</u>	Year 6, measurable progress Year 9, substantial progress <u>Assessed annually</u> / Year 15 achieve the goal
Tuolumne River	17,800 <u>15,500</u>	Year 6, measurable progress Year 9, substantial progress <u>Assessed annually</u> / Year 25 <u>15</u> achieve the goal
Merced River	8,000 <u>7,300</u>	Year 6, measurable progress Year 9, substantial progress <u>Assessed annually</u> / Year 15 achieve the goal

Productivity Goal

Table 2. LSJR Fall-Run Chinook Salmon Full Life Cycle Productivity Goals for Each Tributary

Productivity Metric	Goal, measured as a 5-year geometric mean	Progress Assessment / Attainment Target
CRR Trend	Positive generational trend until a CRR > 1 is met, measured as a 5-year geometric mean	Assessed annually / when until numeric productivity goals are met (year 15)
Pre-Fishing CRR	Pre-Fishing CRR > 1 and > post-fishing CRR until abundance goals met and then sustained, measured as a 5-year geometric mean	Year 6, measurable progress Year 9, substantial progress <u>Assessed annually / Year 15</u> <u>10</u> , achieve the goal
Post-Fishing CRR	Post-Fishing CRR > 1 until abundance goals met and then sustained CRR > 1, measured as a 5- year geometric mean	Year 6, measurable progress Year 9, substantial progress <u>Assessed annually / Year 15</u> <u>10</u> , achieve the goal

Genetic Diversity Goal

Table 7. LSJR Fall-Run Chinook Salmon pHOS Genetic Diversity Goals for the LSJR Basin

<u>Genetic Diversity Metric</u>	<u>Goal, measured as a 5-year running average</u>	<u>Progress Assessment / Attainment Target</u>
pHOS	Decreasing trend, as a 5-year running average	<u>Assessed annually / when the genetic diversity goal is met on an ongoing basis</u>
pHOS	≤ 50% , as a 3-year running average	<u>Assessed annually / Year 12 after beginning of implementation</u>
pHOS	≤ 20% , as a 3-year running average	<u>Year 15 after beginning of implementation</u>
<u>pHOS</u>	<u>≤ 10%</u>	<u>Assessed annually / Year 21 after beginning of implementation</u>

Life-History Diversity Goal

Table 8. LSJR Fall-Run Chinook Salmon Juvenile Emigration Timing Goals

Juvenile Size Class* (Phenotype)	Positive Detection Each Week near Mouth of Each Tributary ¹	Progress Assessment / Attainment Target
Fry	Last week of January to second week of April	Assessed annually on an ongoing basis / Year 4-10, achieve the goal Year 6, incremental progress
Parr	First week of February to last week of May	Year 9, additional incremental progress Year 15, achieve the goal
Smolt	Third week of February – first week of June	Year 6, incremental progress Year 9, additional incremental progress Year 15, achieve the goal Year 6, incremental progress Year 9, additional incremental progress

*Size classes are defined as fry < 55 millimeters (mm); parr 55 - 75 mm; smolt >75 mm

¹Migration period requirement may be truncated when Mossdale water temperatures exceed harmful thresholds (e.g., 25° Celsius).

Life-History Diversity Goal

Table 9. LSJR Fall-Run Chinook Salmon Minimum Percentage for Different Size Classes* at Migration Goals for different water-year types. These are measured as 3-year running averages at the mouth of each tributary

	Below Normal, Dry, and	Progress Assessment / Attainment
Wet and Above Normal WYs	Critical WYs	Target
Fry ≥ 20%	Fry ≥ 20%	<u>Assessed annually on an ongoing basis /</u> Year 1512, achieve the goal
Parr ≥ 20%	Parr ≥ 30%	Year 6, incremental progress
Smolt ≥ 10%	Smolt ≥ 20%	Year 9, additional incremental progress

* Size classes are defined as fry < 55 millimeters (mm); parr 55 - 75 mm; smolt >75 mm

Next Steps

- 2023 2nd Revised Draft Initial Biological Goals Report for public comment
 - March 9, 2023 – STM Working Group Meeting (today)
 - Release 2nd Revised Draft Initial Biological Goal Report (anticipated late March)
 - Board Technical Workshop (anticipated in April)
 - Additional written comments received on draft biological goals (anticipated late spring 2023)
 - Board Meeting consideration of approval (anticipated in summer 2023)

General Comments

Closing Remarks

- Thank you all for attending. Your additional input will be considered for the 2nd Revised Draft Initial Biological Goals.