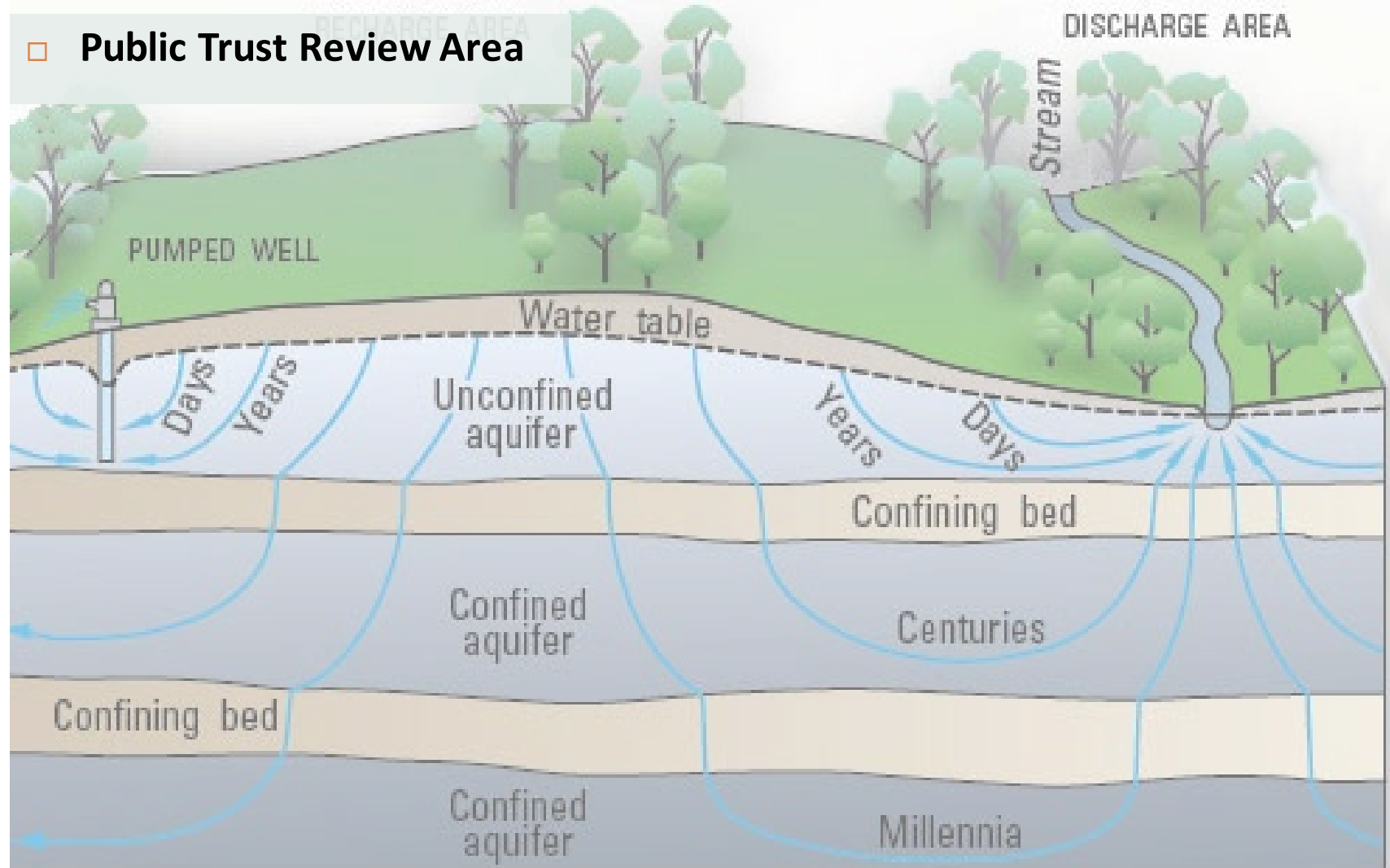


WELL ORDINANCE POLICY WORKING GROUP MEETING

Robert Pennington, Professional Geologist, Permit Sonoma
January 11, 2023

Presentation Topics

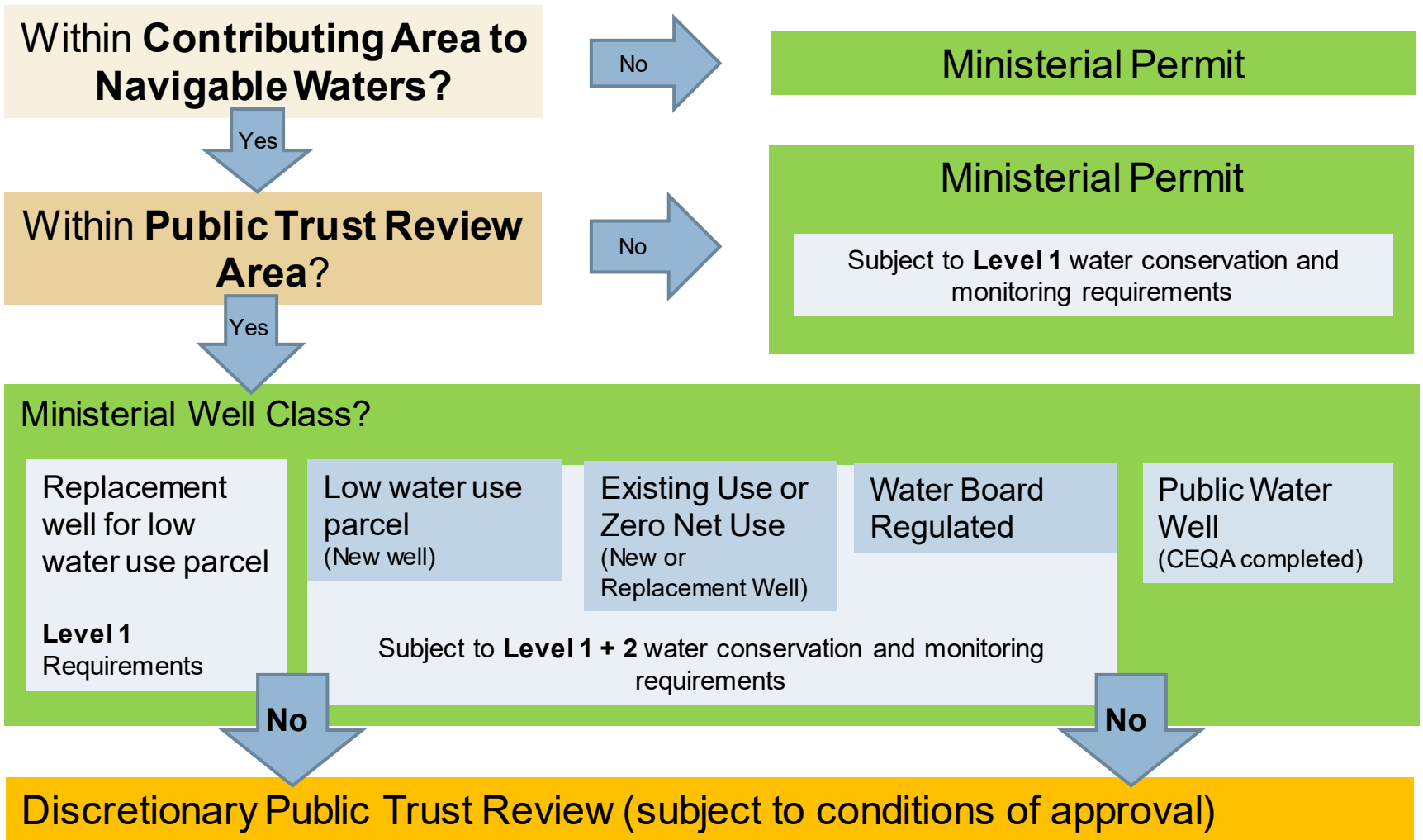
Public Trust Review Area



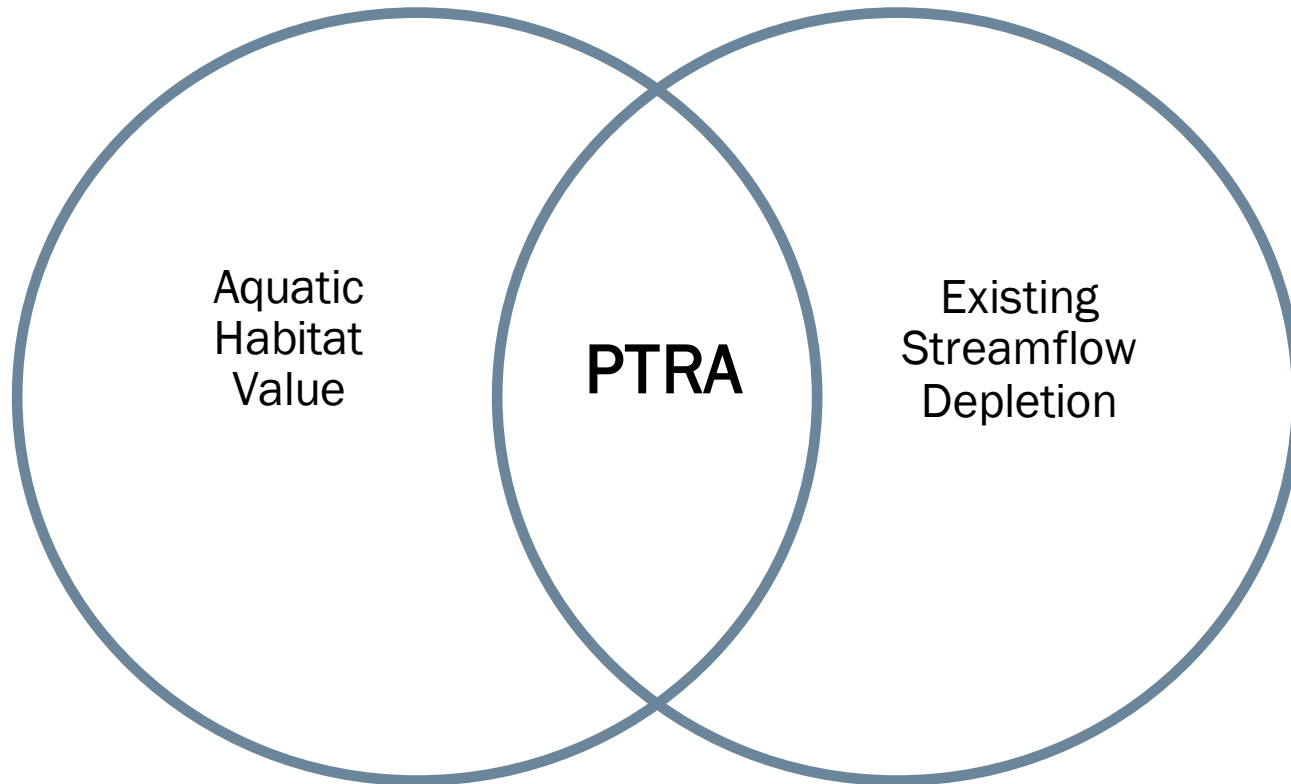
Revised Permit Screening Flow Chart

(Working Proposal)

3



Approach to Defining the Public Trust Review Area (PTRA)



How Sensitive is the Resource?

How Much Stress is Acting on the Resource?

Public Trust Review Area Matrix

(Informs areas included in the Public Trust Review Area)

5

	Low SFD (0 – 10%)	Medium SFD (10 – 20%)	High SFD (>20%)
Low Habitat Value (non-navigable waters not included below)	Low Risk Area Not included in PTR	Low Risk Area Not included in PTR	Low Risk Area Not included in PTR
Moderate Habitat Value (Steelhead streams)	Low Risk Area Not included in PTR	Moderate Risk Area Stream buffers included in PTR	High Risk Area Sub-watershed
High Habitat Value (Coho summer rearing)	Moderate Risk Area Stream buffers included in PTR	High Risk Area Sub-watershed included in PTR	High Risk Area Sub-watershed included in PTR

Low Habitat Value means stream reaches that are non-navigable and do not provide habitat for salmonids

Moderate Habitat Value means stream reaches identified by NMFS as critical habitat for Steelhead

High Habitat Value means stream reaches identified by CDFW or NMFS as existing summer rearing habitat for Coho

Stream Flow Depletion (SFD) means reduction in flow relative natural flow conditions during the dry season (July – Sept, estimated from from best available information and models

Low / medium / high SFD from Richter, Davis, M. M., Apse, C., & Konrad, C. (2012). A PRESUMPTIVE STANDARD FOR ENVIRONMENTAL FLOW PROTECTION. River Research and Applications, 28(8), 1312–1321. <https://doi.org/10.1002/rra.1511>

Stream Buffers: Under discussion with Technical Working Group

DRAFT Public Trust Review Area

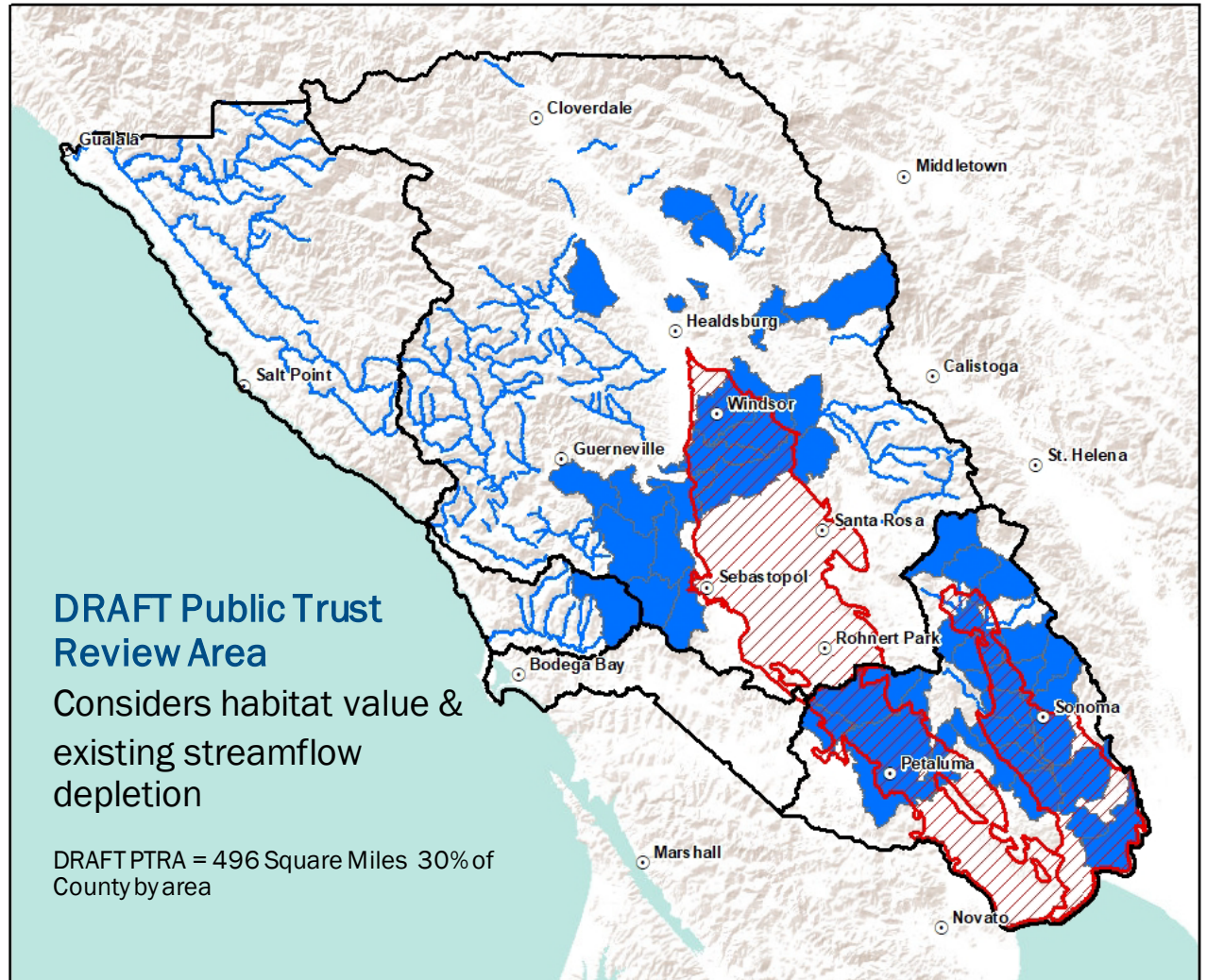
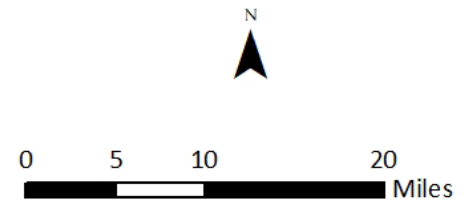
DRAFT Public Trust Review Area

Considers habitat value & existing streamflow depletion

DRAFT PTRA = 496 Square Miles 30% of County by area

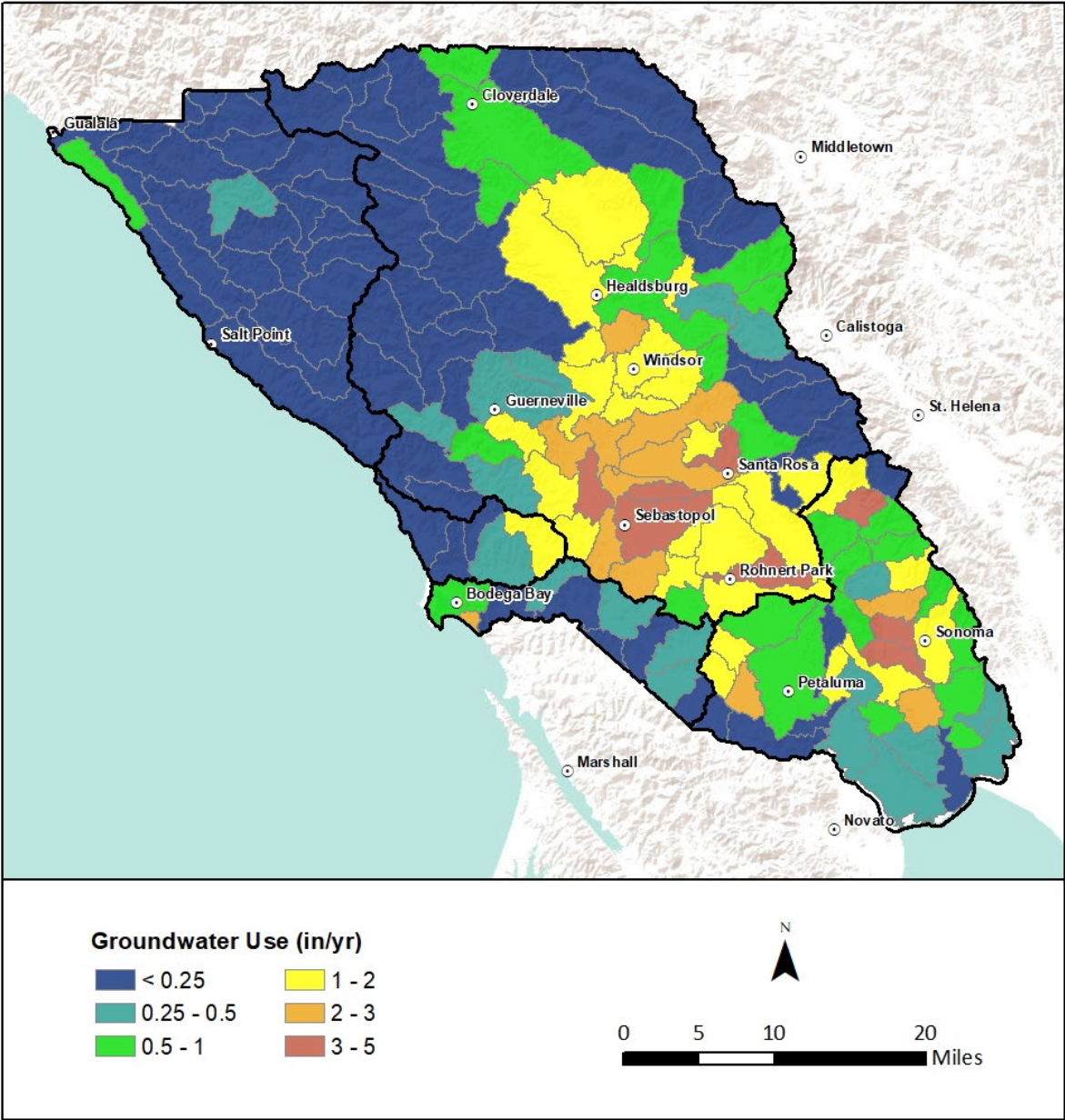
Risk Level

- Low
- Medium (PTRA)
- GSA



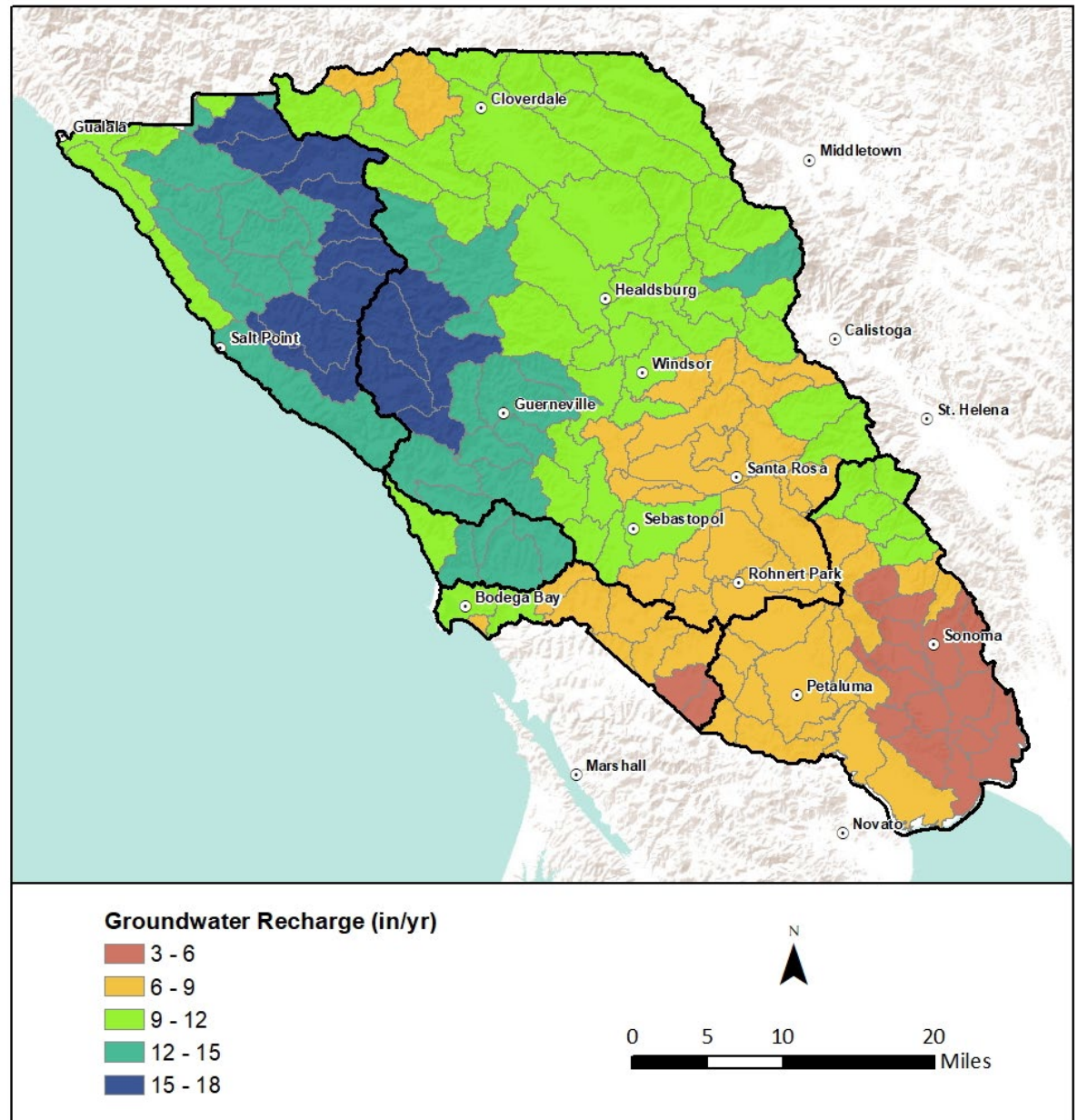
Total Groundwater Use

GSA fee study methods



Groundwater Recharge

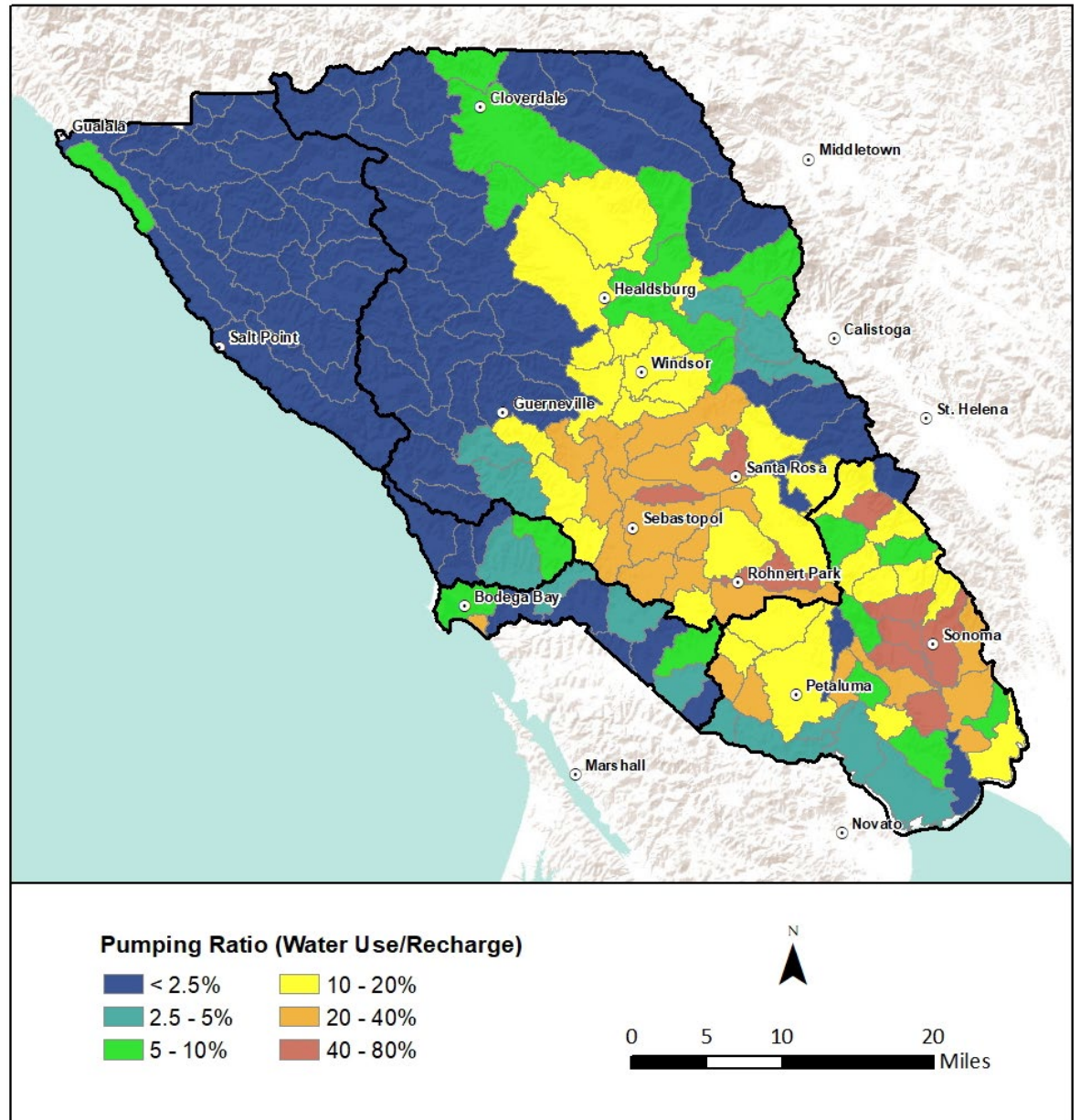
- precipitation
- solar radiation
- soils
- topography
- vegetation



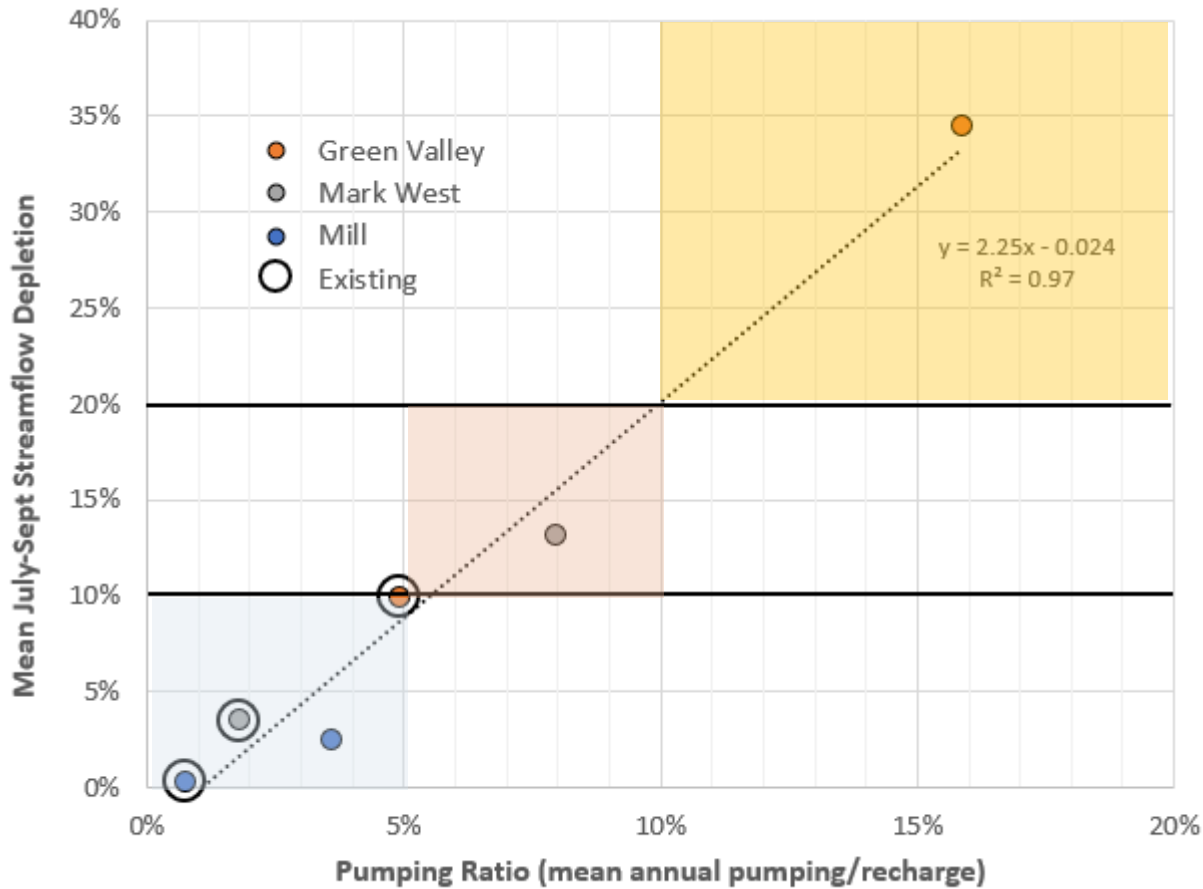
Pumping Ratio

$$\text{Pumping Ratio} = \frac{\text{Water Use}}{\text{Recharge}}$$

Used to estimate streamflow depletion



Convert Pumping Ratio to Streamflow Depletion County Wide



Low SFD (<10%) – pumping ratio <5%

Medium SFD (10-20%) – pumping ratio 5-10%

High SFD (>20%) – pumping ratio >10%

Impact Thresholds References

- Richter et al. (2012)
- Gleeson & Richter (2018)

Streamflow Depletion

Low

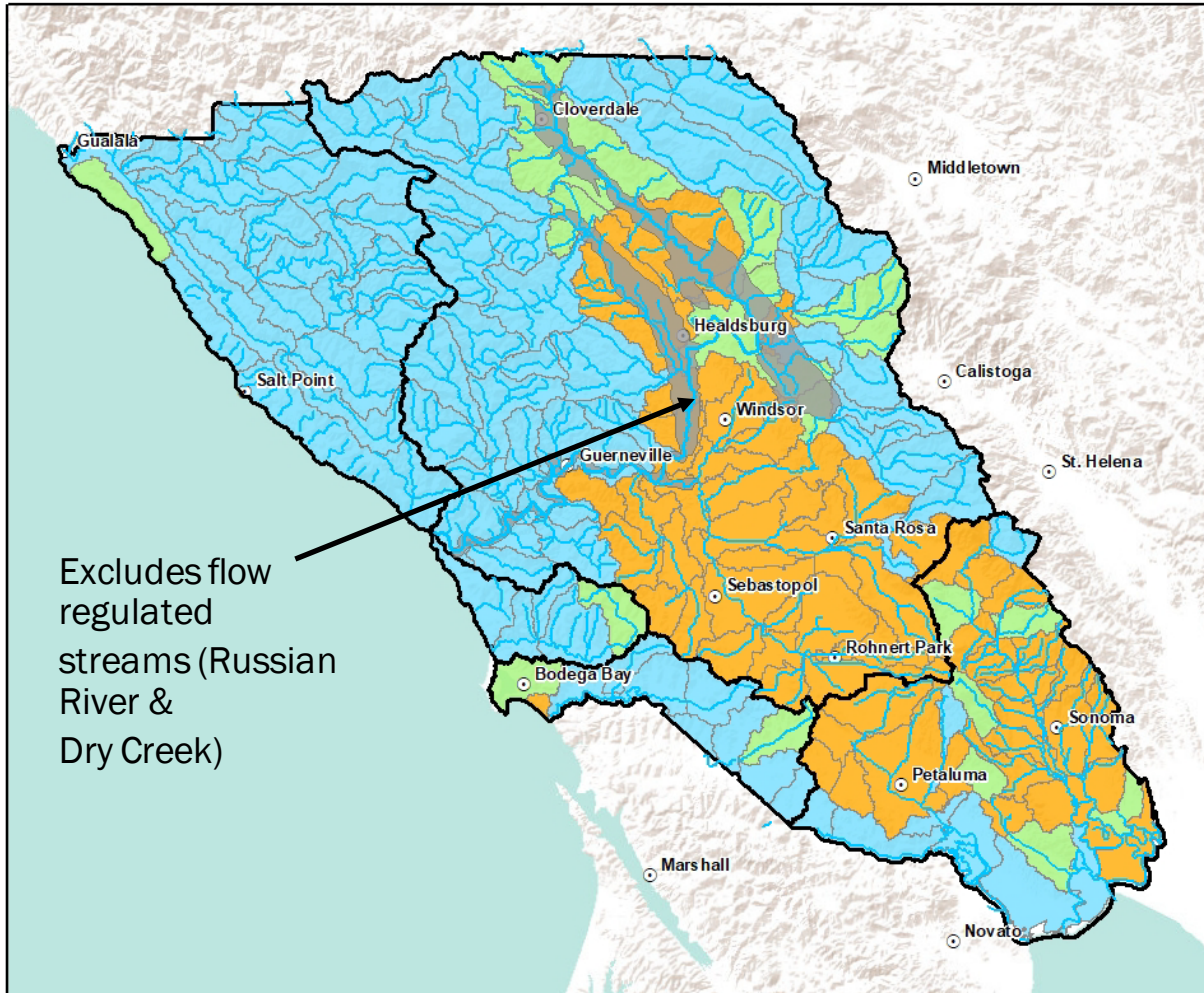
- Pumping Ratio <5%

Medium

- Pumping Ratio 5-10%

High

- Pumping Ratio >10%



Excludes flow regulated streams (Russian River & Dry Creek)

Streamflow Depletion Level

- Low
- Medium
- High
- Flow Regulated



0 5 10 20 Miles

Public Trust Review Area Matrix

(Informs areas included in the Public Trust Review Area)

12

	Low SFD (0 – 10%)	Medium SFD (10 – 20%)	High SFD (>20%)
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Stream Buffers: Under discussion with Technical Working Group

Habitat Value

Low

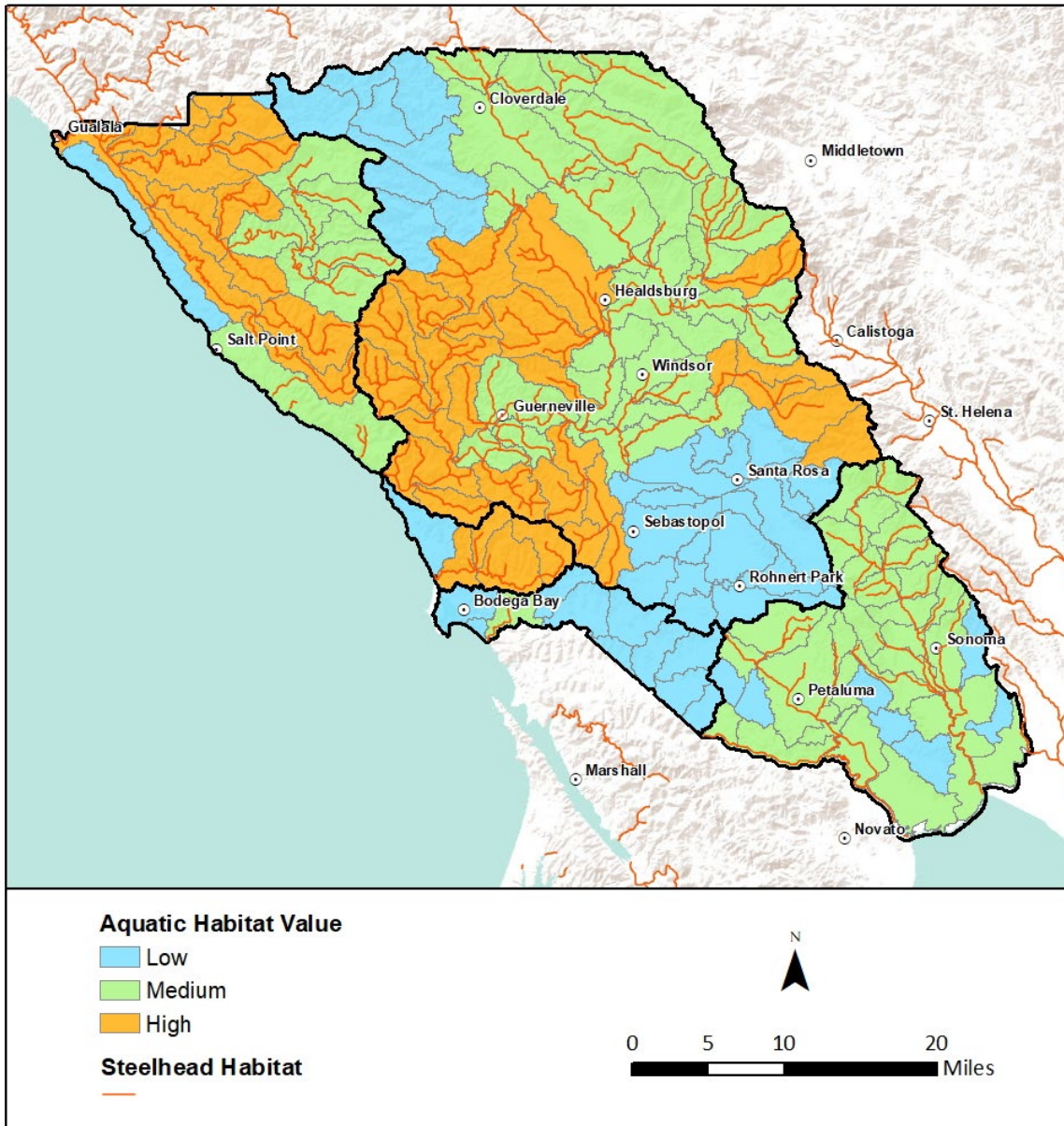
- outside steelhead & coho habitat area

Medium

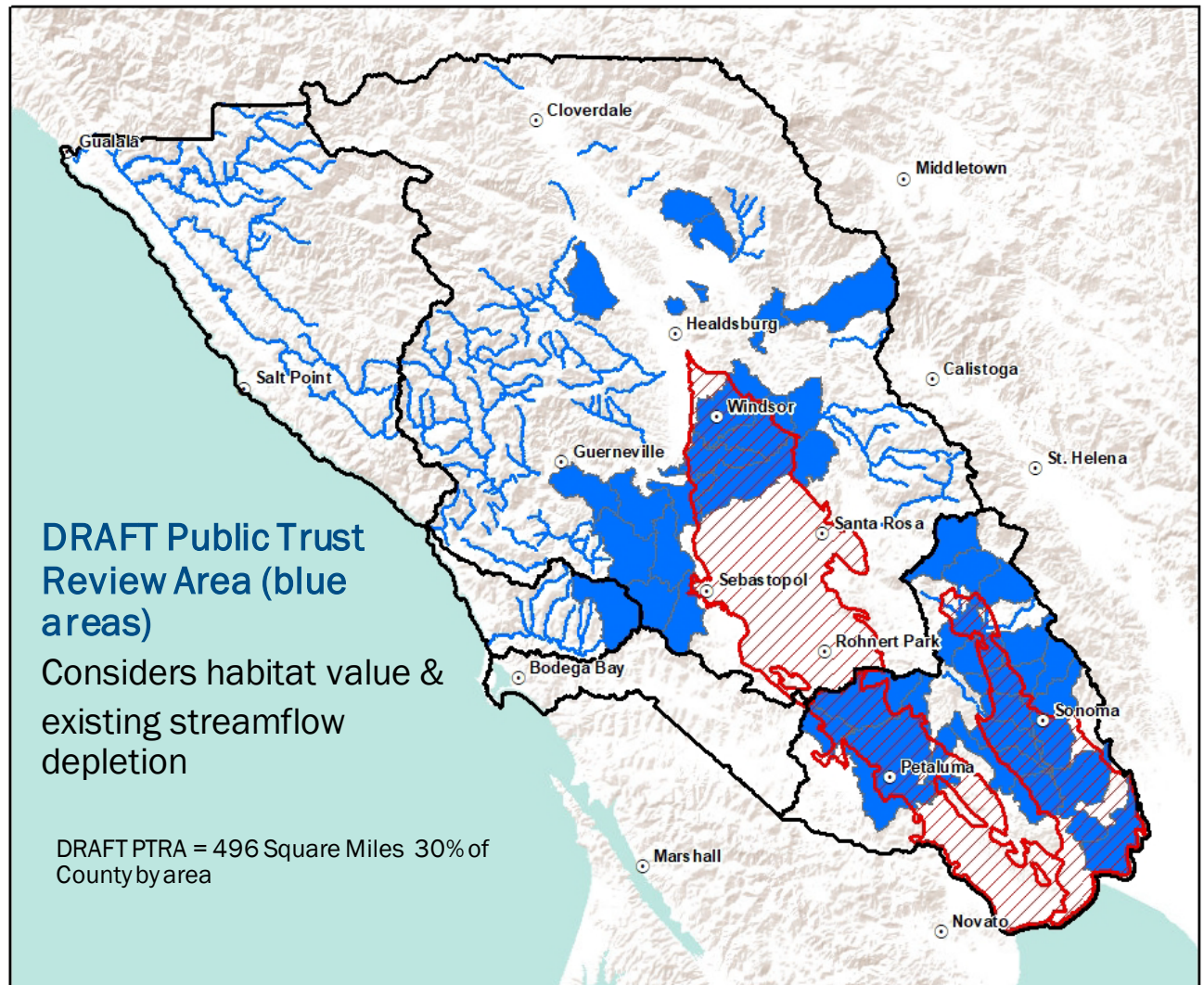
- steelhead habitat (NMFS)

High

- priority coho habitat (SCWA & NMFS)



DRAFT Public Trust Review Area



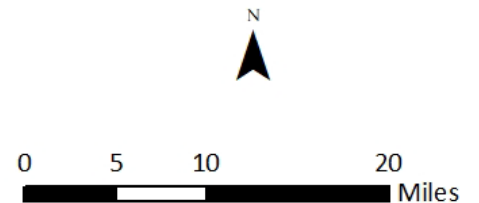
DRAFT Public Trust Review Area (blue areas)

Considers habitat value & existing streamflow depletion

DRAFT PTRA = 496 Square Miles 30% of County by area

Risk Level

- Low
- Medium (PTRA)
- ▨ GSAs



Working Groups Outcome: Consensus Recommendations on Topics

Public Trust / GW Review Area	<p>What waterways require impacts analysis under the public trust doctrine?</p> <p>What public trust resources and uses are sensitive to streamflow depletion due to groundwater extraction?</p> <p>What aquifers are interconnected with public trust waterways and groundwater extraction from these areas is likely to have an adverse impact on public trust resources?</p>
Well Classification: Ministerial and Discretionary	<p>What classes or categories of wells receive a ministerial (routine) permit?</p> <p>What well classes receive a discretionary (more tailored review)?</p> <p>Replacement domestic wells, public water wells, zero net use, etc.</p>
Well Implementation Requirements – Conservation and other Measures	<p>What water conservation measures should be required of each class of wells?</p> <p>Water efficient landscape regulations, maximum allowed use, etc.</p> <p>Other measures: groundwater recharge, farm practices, etc.</p>
Impact Definitions	<p>What is a substantial adverse impact? (watershed, waterway, basins)</p> <p>What methods should be employed to evaluate adverse impacts?</p>
Discretionary Review Process	<p>What is the nature of that review? (CEQA, other)</p> <p>What requirements are defined by what anticipated impacts?</p>
Monitoring Requirements	<p>What groundwater monitoring conditions (water meter readings, depth to water measurements, etc.) should be required of specific classes of wells?</p>
Adaptation	<p>What information or discovery will trigger the need to revisit these policies or approaches?</p>