

SBX2 1

Nitrate in Groundwater Report to the Legislature

NITRATE SOURCE REDUCTION

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➤ **Source reduction**

Treatment and blending

Alternative supply



Nitrate sources **– regionally important**

- Turfgrass and other urban landscaping
- Municipal treatment plant and food processing wastewater
- Leaking sewer pipes
- Septic systems
- Wells – abandoned, dry, active



Nitrate sources – major impact

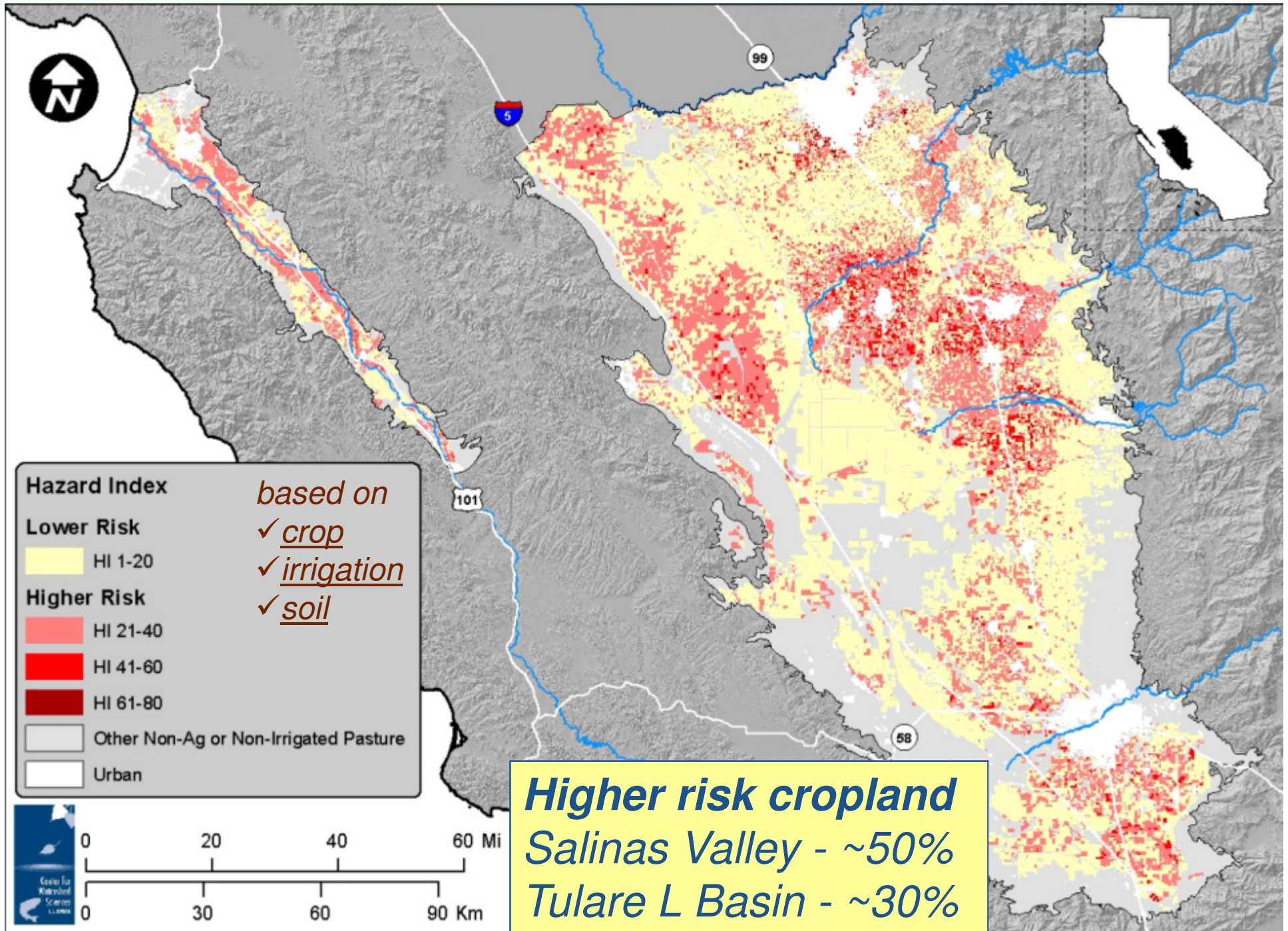
- Irrigated cropland & livestock operations





Cropland Source Reduction - FINDINGS

- Recommended practices can increase crop N recovery to ~**60-80%** of N inputs.
- Recommended practices are known and in use by some farmers, but rate of adoption, regional impact are unknown.
- To be effective, practices (often combinations) must be tailored to specific soils and crops.
- Expanded adoption requires that barriers (e.g., cost, logistics, education) be overcome.
- Cost of improving crop N use efficiency is uncertain but likely low for small improvements.
- GW nitrate load reductions of half or more may come at a significant cost and reduction in irrigated crop area.

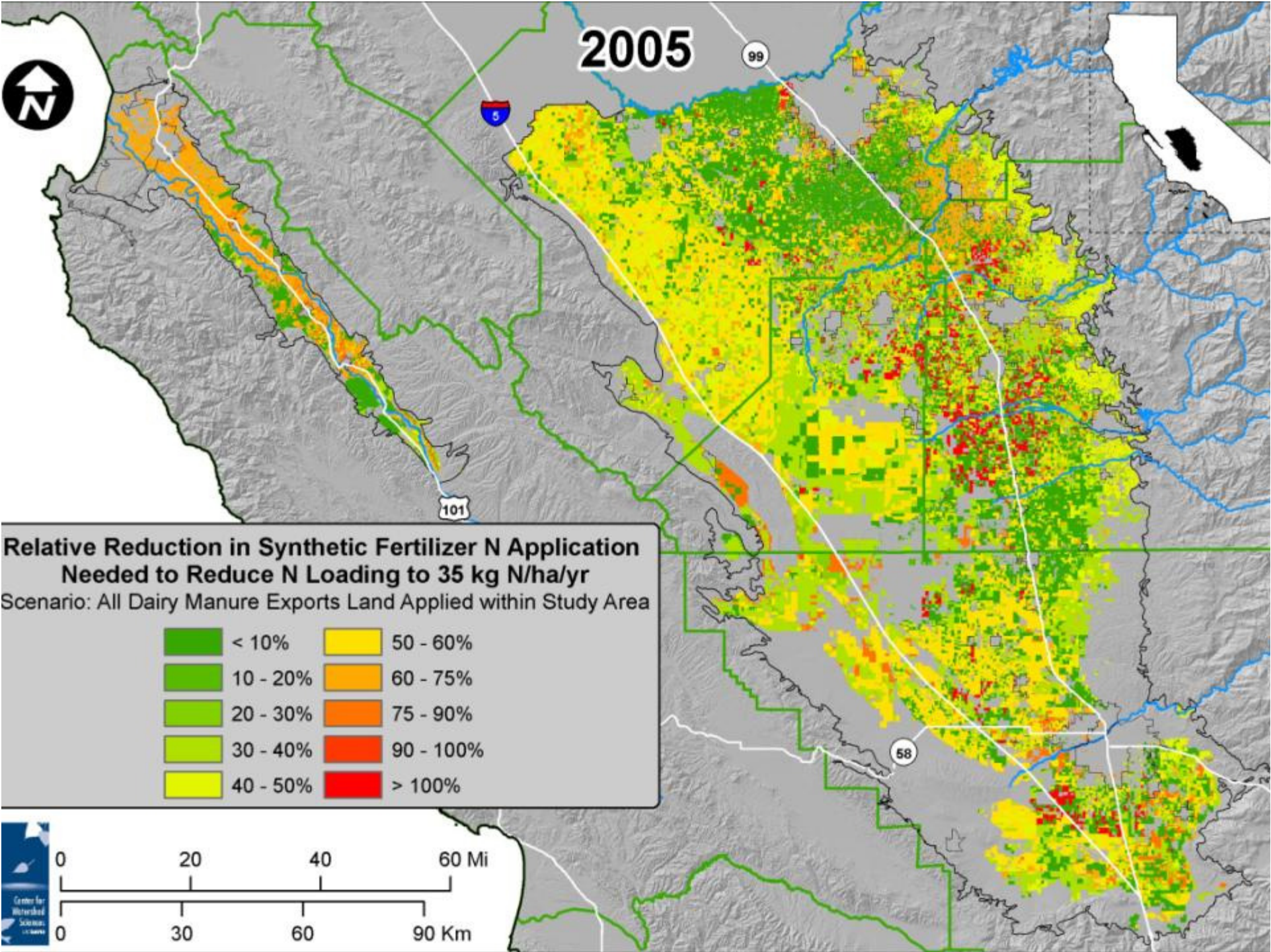




Cropland Source Reduction

RECOMMENDED ACTIONS

- Expand efforts to promote adoption of N-efficient practices
 - Grower education and adaptive research
- Develop a nitrate leaching risk assessment method and identify associated monitoring requirements.
- Support development of crop-specific technical standards (metrics) for crop N use efficiency.





Livestock Operations

FINDINGS

Dairies are now regulated. Export of manure from dairies (to comply) has likely moved N excess to other farms.

- Lagoon water management is mainly an infrastructure problem – currently being addressed by industry
- Solid manure is being exported off-farm = potential problem

RECOMMENDED ACTION

- Promote dairy waste recycling on wider range of crops
 - Convert solids to forms that are acceptable for a wider range of crop species
 - Develop methods for N fert. value determination