Lake Tahoe Region Aquatic Invasive Species Action Agenda, 2021-2030

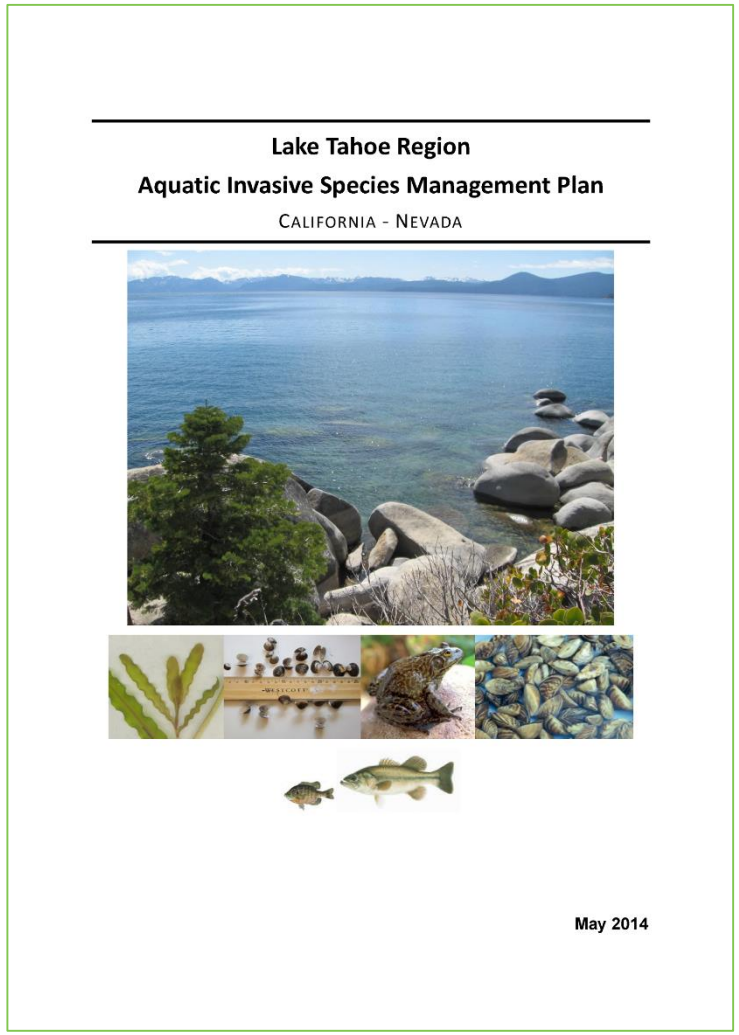
Enhancing Resilience in the Lake Tahoe Region

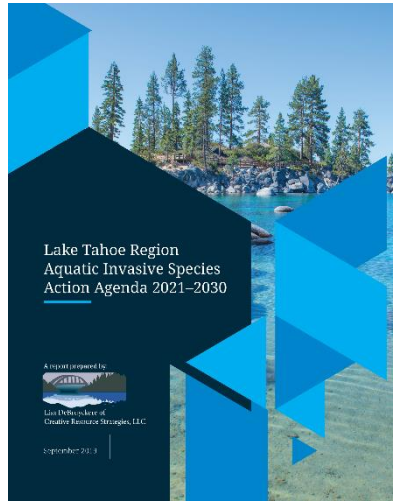
Creative Resource Strategies

Action Agenda Process

- Create a core team, convene with LTAISCC throughout
- Conduct stakeholder survey and interviews
- Synthesize existing plans and documents
- Develop a draft Action Agenda
- Identify funding for Action Agenda implementation
- Convene with TIE to share draft products
- Incorporate feedback from TIE
- Prepare for implementation in 2021!

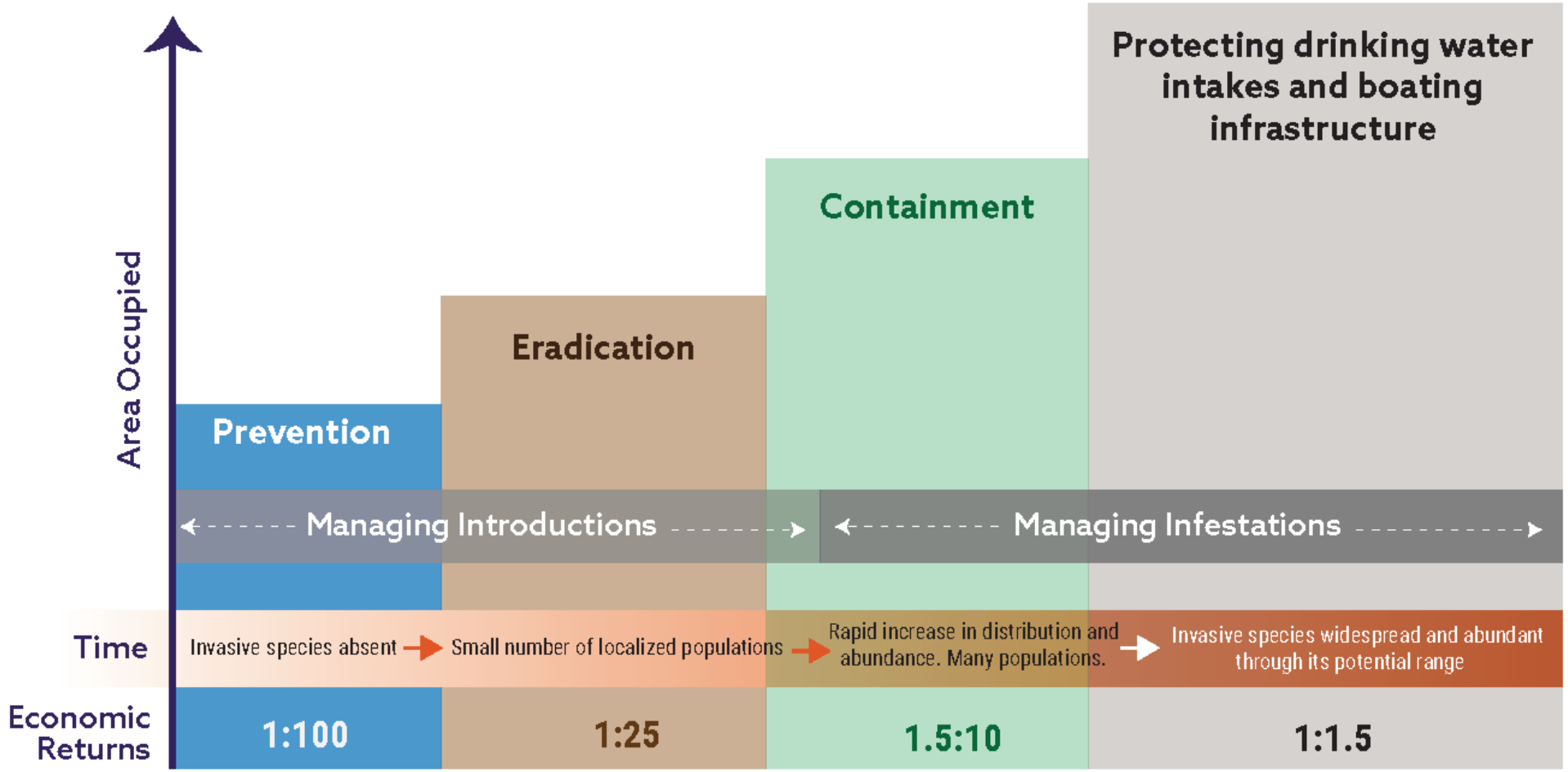
Foundational Documents





Management Plan Goals

- Prevent new introductions of AIS to the Region
- Limit the spread of existing AIS populations in the Region
- Extirpate existing AIS populations when possible
- Abate harmful ecological, economic, social and public health impacts resulting from AIS


Area Occupied
Protecting drinking water intakes and boating infrastructure
Containment
Eradication
Prevention
Managing Introductions
Managing Infestations
Time
Invasive species absent
Small number of localized populations
Rapid increase in distribution and abundance. Many populations.
Invasive species widespread and abundant through its potential range
Economic Returns
1:100
1:25
1.5:10
1:1.5

Survey Highlights

- How regional stakeholders
  - Define success
  - Evaluate the efficacy of control efforts to date
  - Evaluate progress and success through performance metrics

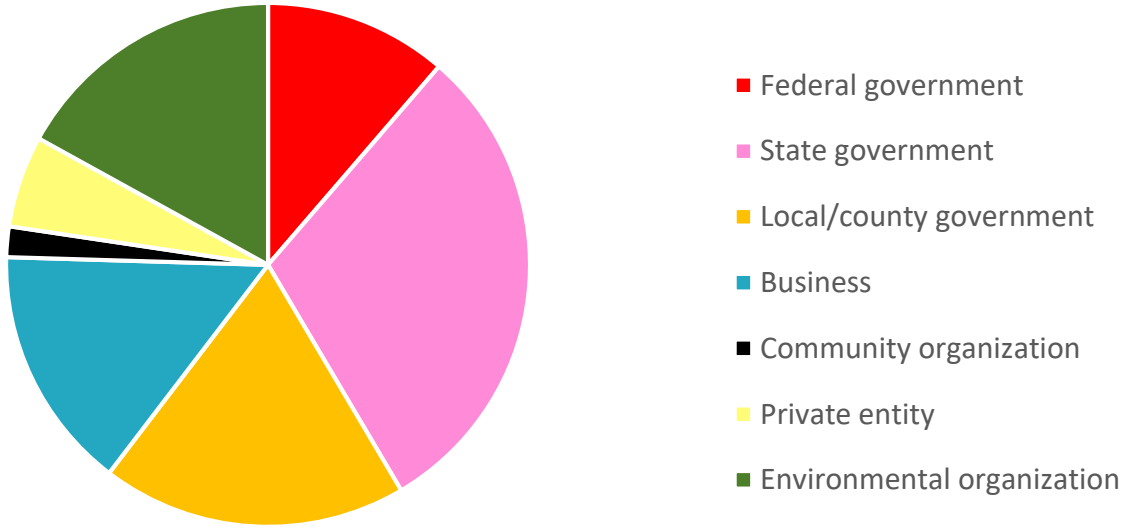
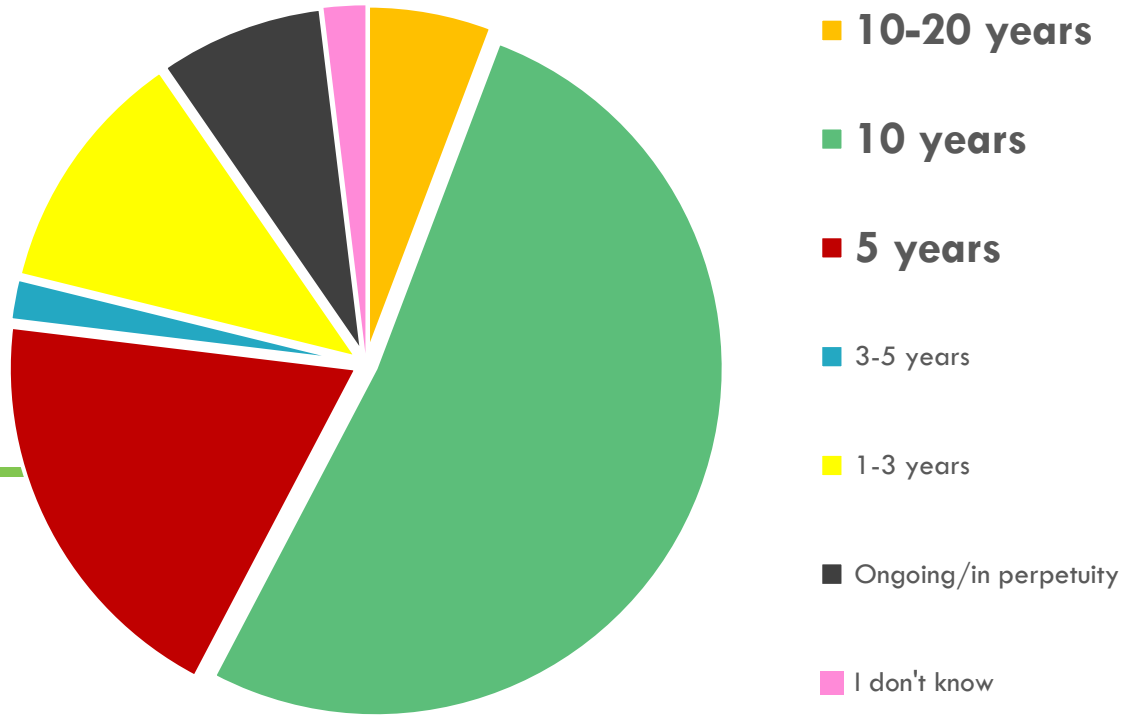


Figure 1. Entities that completed Lake Tahoe Region AIS Control survey instrument (n=54).

Defining Success



- Prevent introduction and establishment of new AIS
- Prevent the spread of existing AIS
- Control
- Conduct lake-wide monitoring
- Fund priorities, EDRR and monitoring
- Enhance partnerships with marinas
- Obtain necessary permits
- Pilot AIS technologies and strategies
- Achieve buy-in and support by public and private sector

Figure 2. Time frame to achieve success for AIS efforts in the Lake Tahoe region ranged from one year to 10–20 years (n=52).

Responsible for AIS Control

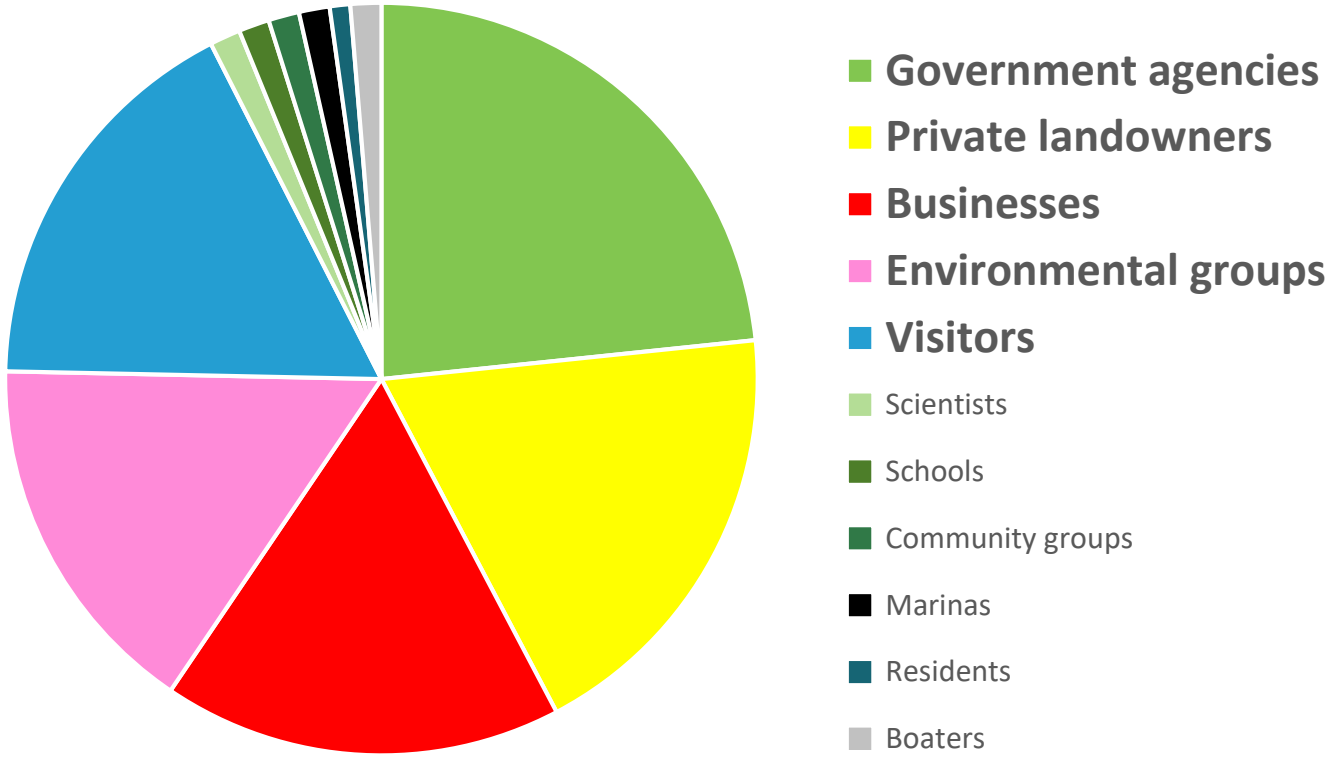


Figure 4. Entities that should be responsible for controlling AIS in the Lake Tahoe Region (n=53).

Criteria to Prioritize Efforts

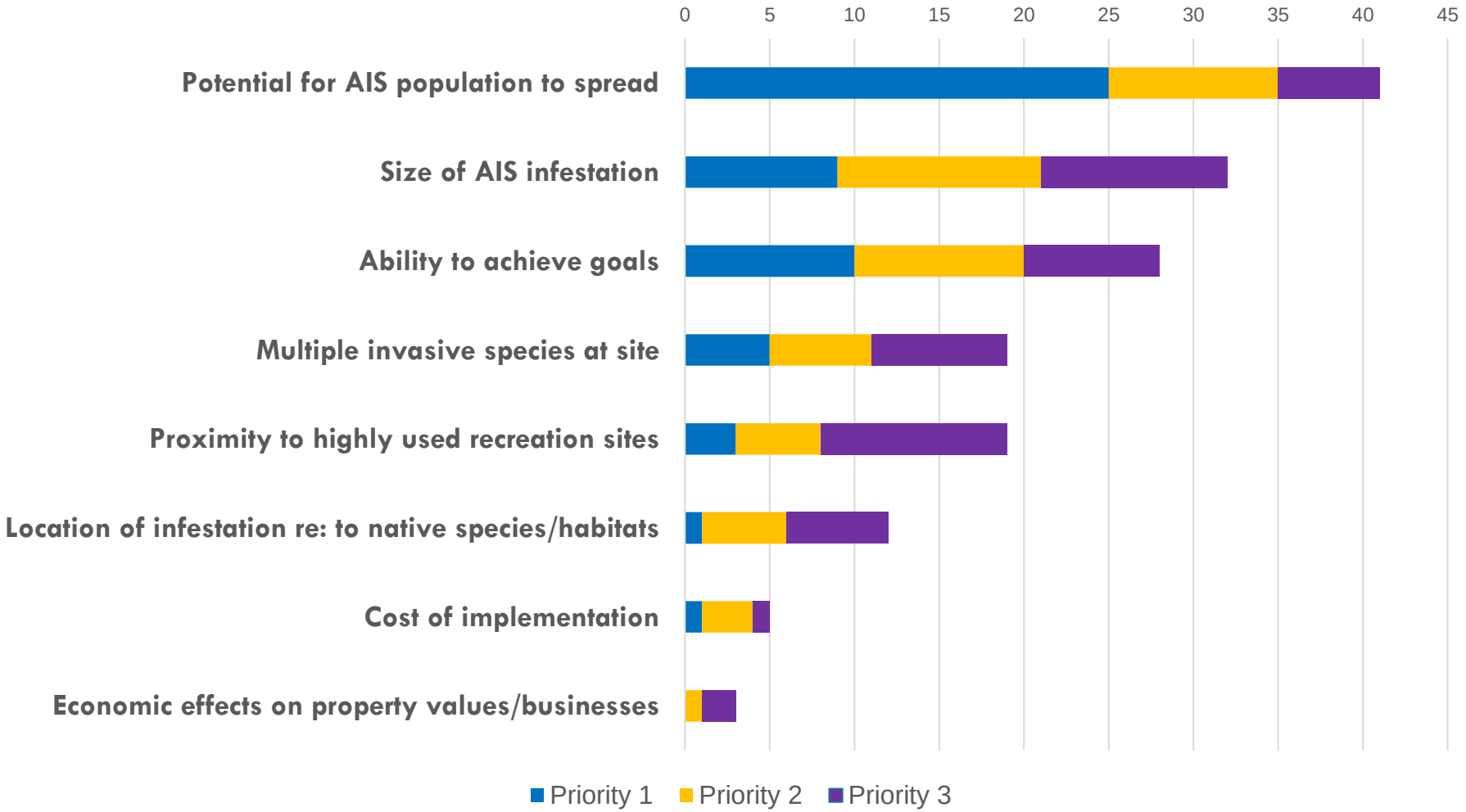


Figure 6. Criteria that should be used to prioritize AIS control efforts (n=53).

Metrics to Evaluate Success

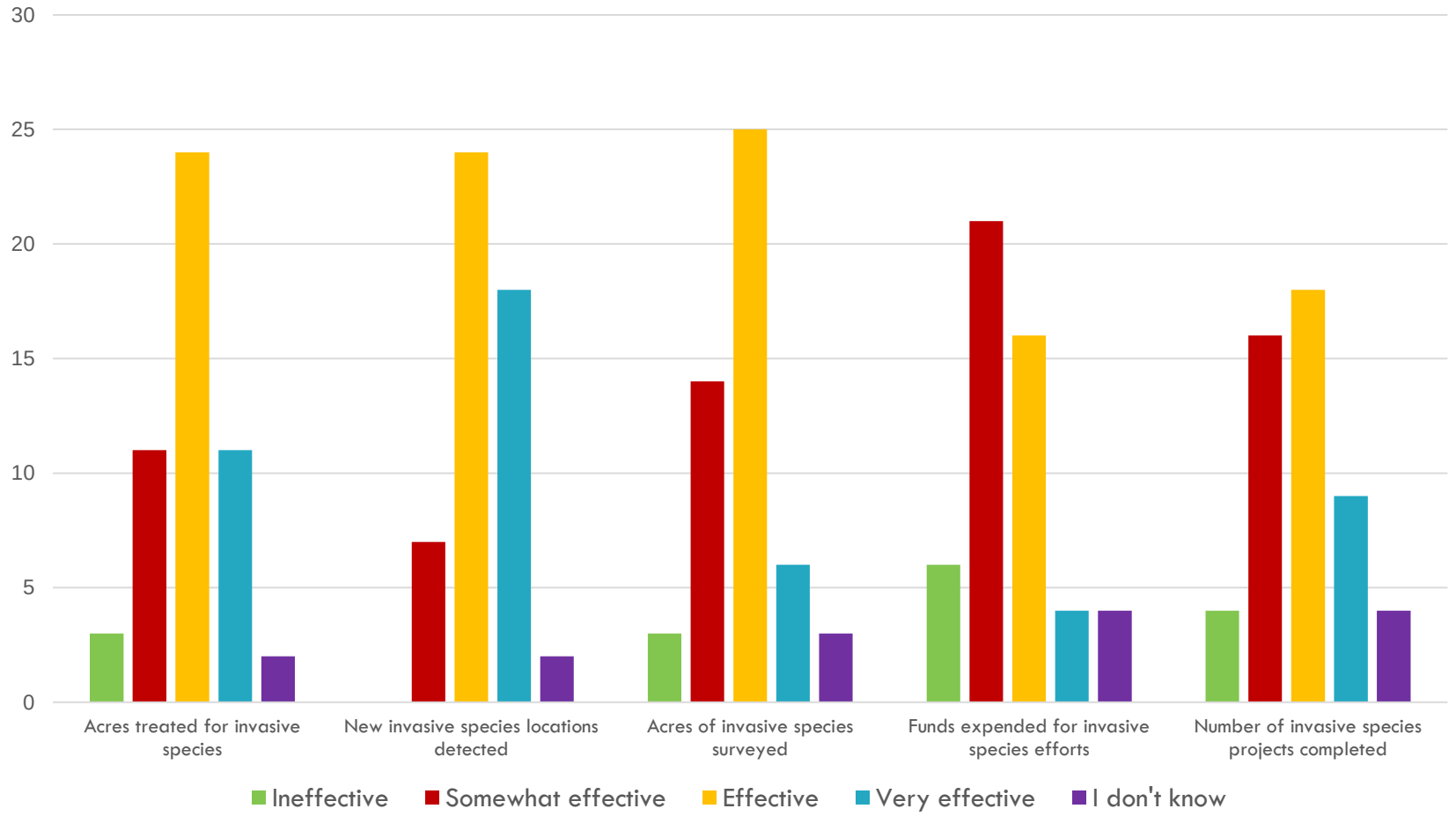
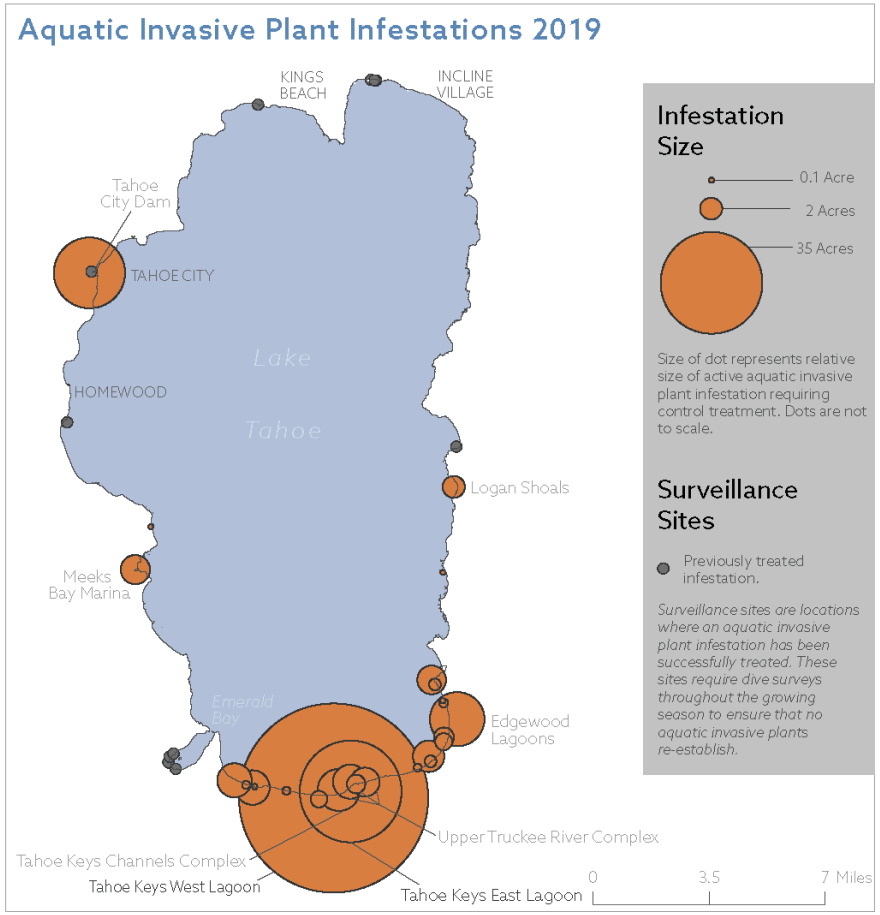


Figure 9. Rating of effectiveness of five Environmental Improvement Project performance measures relative to their ability to evaluate progress in protecting the biological diversity of the Lake Tahoe region from AIS (n=51).

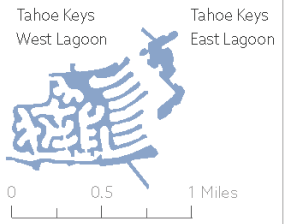
Currently treating between 5–15 acres of AIS annually.



The Tahoe Keys Challenge

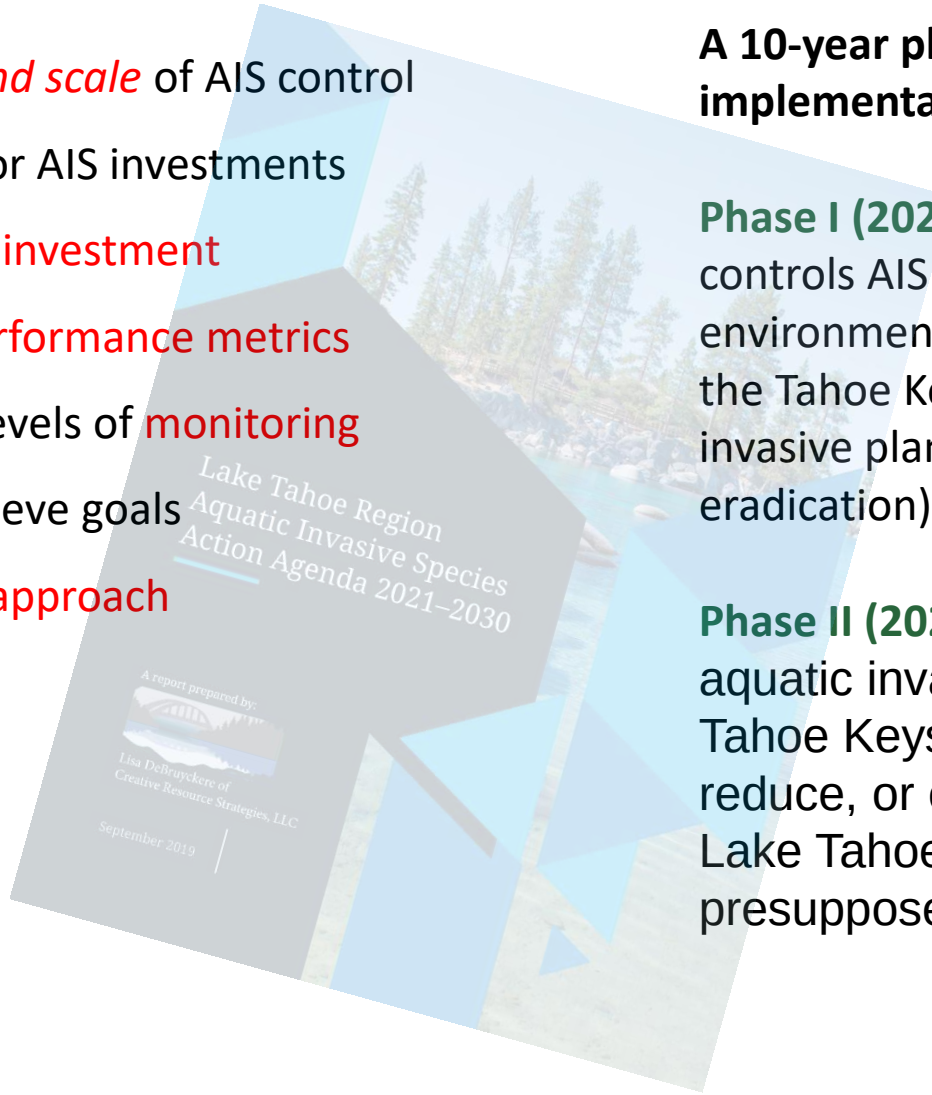
Based on acreage, the Tahoe Keys comprise 70 percent of all aquatic plant infestations in Lake Tahoe. The size of these infestations and the complexity associated with the geography of the Tahoe Keys make identifying and implementing control treatments a challenge. Although most marinas contain one or two embayments, the Tahoe Keys complex contains a myriad of connected waterways equalling approximately 170 acres.

Map produced by S.Matthews, Tahoe RCD 2019.



Action Agenda

- *Increases the pace and scale* of AIS control
- Identifies priorities for AIS investments
- Maximizes return on investment
- Incorporates new performance metrics
- Supports adequate levels of monitoring
- Adds capacity to achieve goals
- Supports an all-taxa approach

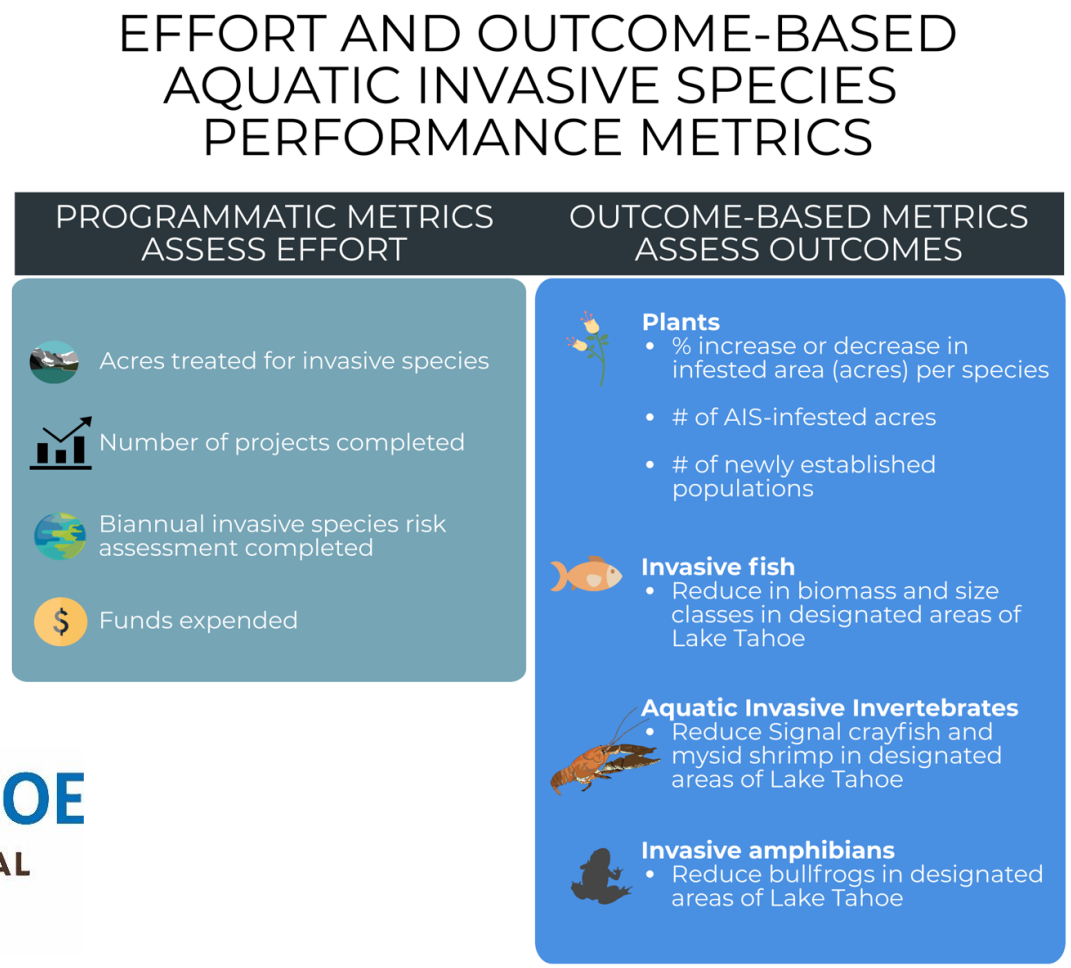


A 10-year plan, structured in two five-year implementation phases:

Phase I (2021–2025): Aggressively treats and controls AIS throughout the Region while completing environmental documents and AIS control testing for the Tahoe Keys. The Phase I goal is to reduce aquatic invasive plants to maintenance levels (or complete eradication) in areas outside of the Tahoe Keys.

Phase II (2026–2030): Focuses on reducing aquatic invasive plants and invasive fish in the Tahoe Keys while continuing to maintain, reduce, or eradicate AIS in other parts of the Lake Tahoe Region. Action Agenda does not presuppose testing/research outcomes re: Keys.

Current and Proposed Performance Metrics



LAKE TAHOE
ENVIRONMENTAL
IMPROVEMENT
PROGRAM

The plan outlines four funding levels to achieve Region AIS goals:

Level A: Complete AIS control throughout the Region, including Tahoe Ke

Level B: AIS plant-only control throughout Region, including Tahoe Keys

Level C: AIS plant-only control throughout the Region, excluding Tahoe Ke

Level D: AIS plant-only control in nearshore, excluding Tahoe Keys

Implementing Action Agenda Level A achieves the greatest biological integrity in the Lake Tahoe Region while minimizing risk to the economic, environment, and societal values. Implementing Level D funding achieves the least biological integrity and involves the greatest risk.

Strategic investments to implement the Action Agenda, 2021-2030 (Level A)

	Outcomes	Phase I (2021–2025)	Phase II (2026–2030)
Aquatic Invasive Plant Control Outside Tahoe Keys	Reduce by 90% the acreage of aquatic invasive plant populations	$12.5 M	$6.25 M
	No new aquatic invasive plant populations become established	$1.25 M	$1.25 M
Aquatic Invasive Plant Control in Tahoe Keys	Reduce by 90%, or eradicate, aquatic invasive plant populations	$7 M	$17.2 M
	Environmental review that informs management decisions	$1.5 M	$0
	Aquatic Invasive Plant Control Totals	**$22.25 M**	**$24.7 M**
Aquatic Invasive Fish, Invertebrate, and Amphibian Control	Reduce by 90% invasive fish biomass, and invasive aquatic invertebrates and American bullfrogs in designated areas of Lake Tahoe	$2.625 M	$1.845 M
	Aquatic Invasive Fish, Invertebrate and Amphibian Control Totals	**$2.625 M**	**$1.845 M**
Research and Monitoring	Enhance detection of aquatic invasive species, conduct surveys (nearshore, in-situ diver, drone), assess population abundance and distribution of AIS, invest in new technologies	$4.29 M	$5.235 M
	Research and Monitoring Totals	**$4.29 M**	**$5.235 M**
Assessment, Emergency Fund, Infrastructure Enhancements to Prevent Spread of AIS, and Added Staff Capacity	Biennial high-risk assessment of AIS, established partnership program to advance infrastructure advancements at marinas and other lake locations to prevent the spread of AIS, an EDRR emergency fund, and sufficient staffing to implement the Agenda.	$7.2 M	$6.28 M
	Administrative Totals	**$7.2 M**	**$6.28 M**
	TOTALS	**$36.385 M**	**$38.06 M**
	GRAND TOTAL		**$74.445 M**

AIS Strategic Investment Plan

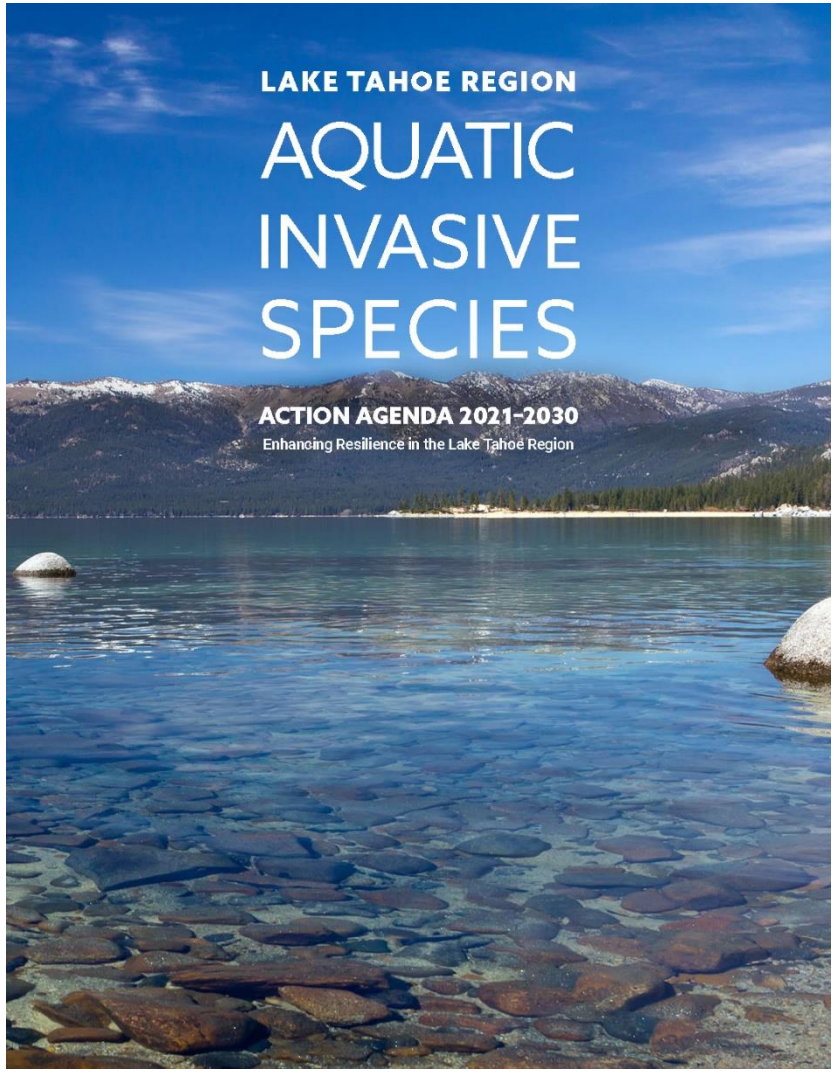
- Suite of prioritized actions (Tables 1A and 2A in Agenda)
- Types of AIS projects funded in the past (EIP Tracker)
- Predictable/potential resources likely available for implementation
- Funding gap

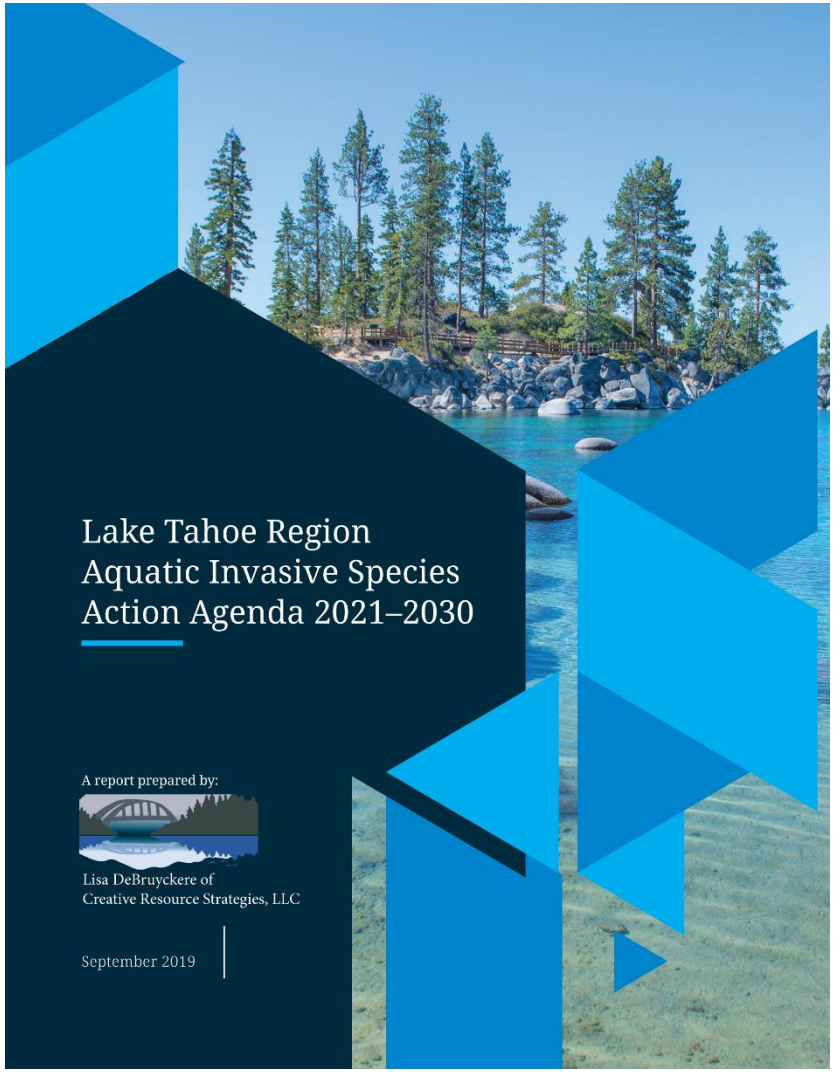
- **Known resources (estimated)** available for implementation
  - Lake Tahoe Restoration Act of 2015: $3 million annually
  - Senate Bill 630: $450K
  - Shoreline AIS Sticker Fees: $150K annually
  - Nevada license plate funds ($50K) and the Nevada Pier and Buoy fee funding ($50K)
  - $500K annually from state/federal agencies/nonprofit orgs
- **Funding gap** - $3.4 million annually
  - LTRA 2015 ($6-7M annually), research grants, nonprofit foundations, Forest Resilience Bond model, private sources

Consequences of Status Quo

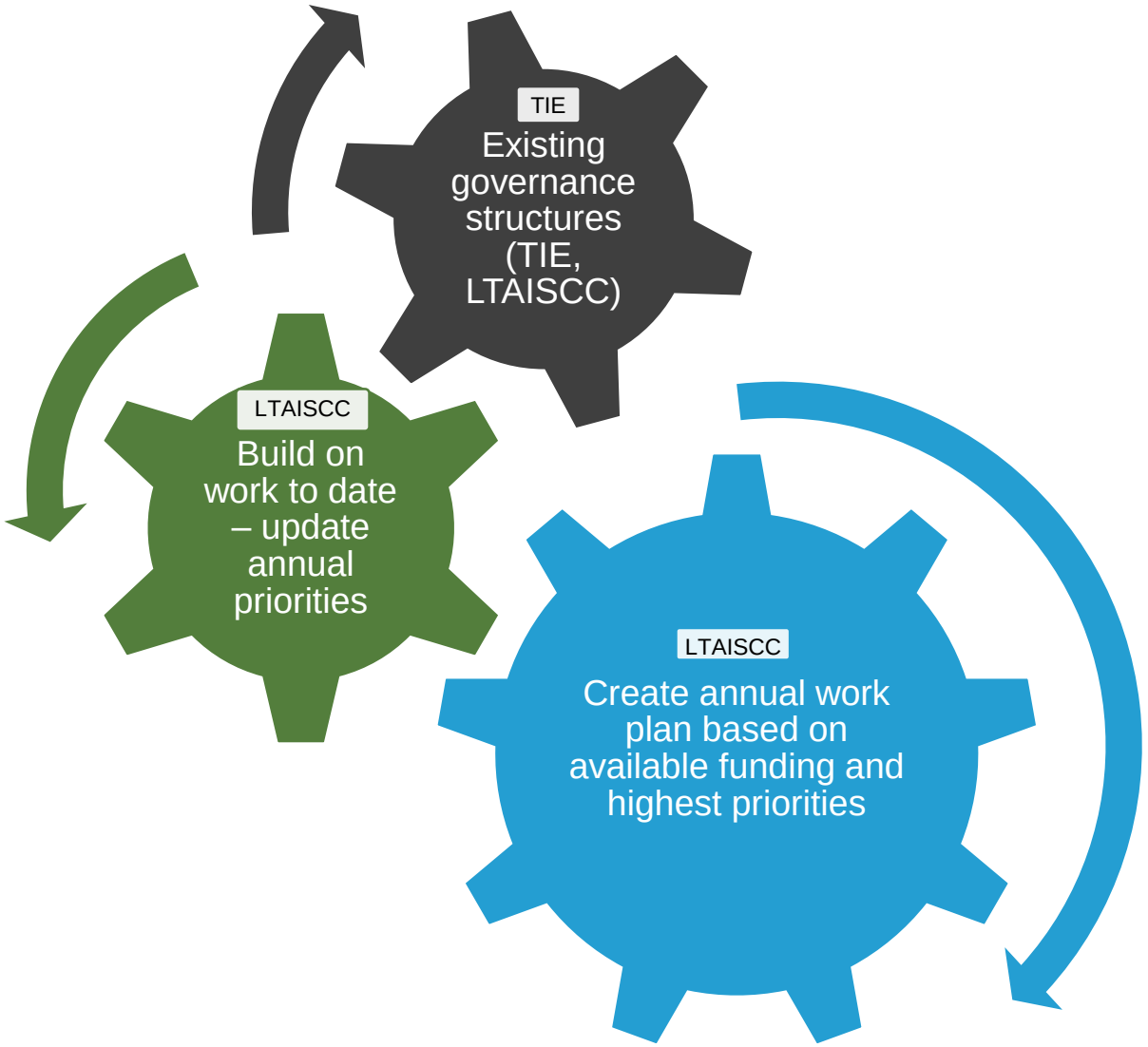
- Failure to implement a comprehensive, simultaneous, and aggressive suite of control actions on all aquatic invasive taxa through 2030 will:
  - Lessen chances of eradicating and controlling AIS populations;
  - Harm the ecological function of Lake Tahoe;
  - Inject uncertainty into the regional economy;
  - Make it more difficult to recover populations of the federally-listed Lahontan cutthroat trout;
  - Degrade the quality of experiences of residents and visitors; and
  - *Significantly increase long-term costs* to address AIS in the Region.

Two Products





Implementing the Agenda



A Practical Example – Year 2021

$3.3 million (Level C) of the $7.4 million (Level A) is available in 2021.

- Implement EDRR and invasive species plant control projects in the nearshore in priority locations identified in an annually updated Table 1A ($2 million)
- Contain aquatic invasive species within the Tahoe Keys ($200,000)
- Conduct a broad spectrum, nearshore-wide survey ($244,000)
- Conduct a high-risk invasive species assessment (estimated $60,000)
- Initiate and fund 1 infrastructure project with a marina ($200,000)
- Partially establish an EDRR emergency fund ($250,000)
- Hire two additional FTEs ($300,000)