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**MEMORANDUM**

**Date:** September 21, 2011

**To:** TRPA Governing Board - Subcommittee on the Regional Plan Update

**From:** TRPA Staff

**Subject:** Proposed Threshold Standard Amendments for Inclusion into the 2012 Regional Plan Update

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**Requested Action:** This is a discussion item only. Staff is seeking input from the Governing Board Committee on the Regional Plan Update (Committee) to refine proposed threshold standard amendments. No Governing Board action is requested from Staff.

**Staff Recommendation:** Staff recommends that the Committee use the information presented to generate recommendations to the TRPA Governing Board on the proposed scope of threshold standard amendments that will be analyzed as part of the TRPA Regional Plan Update Environmental Impact Statement.

**Required Motion(s):** This is an informational item only, no motion is required.

Background: Environmental Threshold Carrying Capacities (Threshold Standards) are *environmental standards necessary to maintain a significant scenic, recreational, educational, scientific or natural value of the region or to maintain public health and safety within the region* (TRPA Compact, PL-96-551, 1980). The 1980 TRPA Compact directed TRPA to first adopt threshold standards and then prepare and adopt a regional plan that puts in place actions and regulations necessary to achieve the adopted threshold standards. In 1982, the TRPA Governing Board adopted through resolution greater than 100 threshold standards organized around nine threshold categories including: Water Quality, Air Quality, Noise, Vegetation, Wildlife, Scenic Resources, Soil Conservation, Fisheries and Recreation (see Attachment A, Exhibit A of Resolution 82-11).

Resolution 82-11 encourages the regular review of adopted standards and allows for the amendment or revisions to threshold standards in order reflect new scientific findings. Specifically, Resolution 82-11 states that threshold standards shall be amended where the scientific evidence and technical information indicate:

- (a) two or more threshold standards are mutually exclusive; or
- (b) substantial evidence to provide a basis for a threshold standard does not exist; or
- (c) a threshold standard cannot be achieved; or
- (d) a threshold standard is not sufficient to maintain a significant value of the Region or additional threshold standards are required to maintain a significant value.

Since their adoption only seven amendments to Resolution 82-11 have been approved by the TRPA Governing Board (Attachment A).

Proposal for the Regional Plan Update: The original set of amendments proposed with the Regional Plan Update (RPU) included amendments to eleven existing threshold standards. An abbreviated list of the originally proposed eleven threshold standard amendments is numbered below, with the original reason for the change in parentheses:

1. Air Quality -- Carbon Monoxide (improve consistency with stricter state standards)
2. Air Quality -- Ozone (additional standard)
3. Air Quality -- PM10 (additional standards)
4. Air Quality -- PM2.5 (additional standards)
5. Fisheries -- Lake Tahoe - Littoral Fish Habitat (integrate best available map information)
6. Noise -- Off-highway vehicle noise (improve consistency with state standards)
7. Noise -- On-highway vehicle noise (improve consistency with state standards)
8. Soil Conservation -- Impervious Land Coverage (integrate best available map information)
9. Vegetation -- Sensitive Plant Species (improve consistency with US Forest Service)
10. Water Quality -- Pelagic Lake Tahoe Transparency (improve consistency with state standard and TMDL)
11. Wildlife -- Northern Goshawk (integrate new science)

After additional review of the original 11 proposed amendments, staff is recommending a revised set because 1) new scientific findings are now available, 2) additional issues have emerged and need attention now, or 3) original amendments were determined impractical or unnecessary at this time. Each of the originally-proposed eleven threshold standard amendments are included with newly proposed amendments in a summary table found in Attachment B. In the table, each proposed amendment is placed into one of three categories: 1) retain as originally proposed, 2) modify from what was originally proposed or 3) new threshold standard amendment not included in the original proposal. Additionally, for each proposed amendment there is a short rationale that supports the threshold proposed change. More extensive technical documentation and the rationale for each change is found in Attachment C or will be forthcoming ahead of the Regional Plan Update Environmental Impact Statement.

Contact Information: If you have any questions, please contact John Hester, Planning Department Manager, at [jhester@trpa.org](mailto:jhester@trpa.org) or (775) 589-5219, or Shane Romsos, Measurement and Reporting Manager, at [sromsos@trpa.org](mailto:sromsos@trpa.org) or (775) 589-5201.

**Attachment A. Proposed amendments to TRPA Resolution 82-11**

**TABLE OF AMENDMENTS**

<b>August 26, 1992, Resolution 92-27;</b>	Amends the footnote (1), to the single event noise threshold for aircraft.
<b>September 22, 1993, Resolution 93-16;</b>	Deletion of the Management Standard and the addition of a Numerical Standard
<b>May 28, 1997, Resolution 97-08;</b>	Amends Exhibit A to revise the Noise, Fisheries, and Vegetation Thresholds

**March 22, 2000, Resolution 00-05**

Amends Exhibit A to revise the Air Quality Thresholds

**May 23, 2001, Resolution 01-13**

Amends Exhibit A to add Numerical Standard  
for Late Seral and Old Growth Forest  
Ecosystems

**April 24, 2002, Resolution 02-07**

Amends Exhibit A to revise the Vegetation Thresholds

**July 23, 2003, Resolution 03-16**

Additional Noise Measurement Standards for Watercraft

Date, Resolution XX-1X

Amends Exhibit A to revise Water Quality, Air Quality and  
Wildlife Threshold Standards

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RESOLUTION OF THE GOVERNING BODY OF THE TAHOE REGIONAL PLANNING AGENCY  
ADOPTING ENVIRONMENTAL THRESHOLD CARRYING CAPACITIES FOR THE LAKE TAHOE REGION

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WHEREAS, the Governing Body of the Tahoe Regional Planning Agency (“TRPA”) finds:

1. On December 19, 1980 the Tahoe Regional Planning Compact (“Compact”) was amended, requiring, among other things, that the TRPA adopt Environmental Threshold Carrying Capacities for the Lake Tahoe Region. The Compact further requires that, within one (1) year after the adoption of the Environmental Threshold Carrying Capacities TRPA shall amend its regional plan so that, at a minimum, the plan and all of its elements, as implemented through Agency ordinances, rules and regulations, achieves and maintains the adopted Environmental Threshold Carrying Capacities.

2. The Compact finds, among other things, that: (a) the waters of Lake Tahoe and other resources of the Lake Tahoe Region are threatened with deterioration or degeneration; (b) said region exhibits unique environmental and ecological values; (c) said region is experiencing problems of resource use and deficiencies of environmental control; (d) increasing urbanization is threatening the ecological values of said region; (e) maintenance of the social and economic health of the region depends on maintaining the significant scenic, recreational, educational, scientific, natural and public health values provided by said region; (f) there is a public interest in protecting, preserving and enhancing said values for the residents of and visitors to said region; (g) in order to preserve the scenic beauty and outdoor recreational opportunities of said region, there is a need to insure an equilibrium between said region’s natural endowment and its man-made environment; and (h) it is imperative that there be established a TRPA with the powers, among others, to establish Environmental Threshold Carrying Capacities and to adopt and enforce a regional plan and implementing ordinances which will achieve and maintain such capacities while providing opportunities for orderly growth and development consistent therewith.

3. The Compact defines “environmental threshold carrying capacity” as “an environmental standard necessary to maintain a significant scenic, recreational, educational, scientific or natural value of the region or to maintain public health and safety within the region”.

4. Although not required to do so by the Compact, the Governing Body and Advisory Planning Commission of the TRPA, prior to the adoption of this resolution, conducted duly-noticed public hearings, at which hearings considerable oral testimony and documentary evidence were received and considered by the Governing Body and Advisory Planning Commission. Evidence in the record of said hearings, which evidence is hereby determined substantial, established that each of the Environmental Threshold Carrying Capacities adopted by this resolution is necessary to maintain significant scenic, recreational, educational, scientific or natural value of the Lake Tahoe region or to maintain public health and safety within the region.

5. The Environmental Threshold Carrying Capacities adopted hereby comply in all respects, procedural and substantive, with the Compact, as amended, and are necessary to effectuate and implement the same.

6. In addition to other evidence received at said public hearings, the Governing Body of the TRPA, prior to the adoption of this resolution, has received for the administrative record

and had opportunity to review, a lengthy detailed study report concerning the Environmental Threshold Carrying Capacities, which report was prepared by TRPA staff and consultants and substantiates the Environmental Threshold Carrying Capacities adopted hereby.

7. The Environmental Threshold Carrying Capacities adopted by this resolution were the subject of an environmental impact statement (“EIS”), which was prepared, considered, circulated, certified and otherwise processed, reviewed and approved by the TRPA in accordance with the substantive and procedural provisions of Article VII of the Compact. Without limiting the generality of the foregoing, the Governing Body further finds that the said EIS contained the information required by Article VII (a)(2) of the Compact and provided the Governing Body substantial information upon which it could base a reasoned review and evaluation of the environmental impacts of the Environmental Threshold Carrying Capacities adopted by this resolution. The Governing Body further finds that, prior to approving this resolution, it made the alternative written findings required by Article VII (d) of the Compact, a separate written finding having been made for each significant effect identified in the EIS as resulting from the Environmental Threshold Carrying Capacities adopted hereby. The Governing Body further finds that said written findings are supported by substantial evidence in the record.

8. Pursuant to Article II (I) of the Compact, Environmental Threshold Carrying Capacities are to include, but not be limited to, standards for air quality, water quality, soil conservation, vegetation preservation and noise, thus permitting, if not requiring, the adoption of standards for other elements necessary to maintain a significant scenic, recreational, educational, scientific or natural value of the Lake Tahoe Region or to maintain public health and safety within the region.

9. In certain instances it was not reasonably possible or feasible to set forth Environmental Threshold Carrying Capacities as numerical standards, requiring in such instances that standards be set forth as management standards. The Governing Body further finds that the inability to set forth a numerical standard for a particular Environmental Threshold Carrying Capacity does not render such Environmental Threshold Carrying Capacity improper or inappropriate for adoption under the Compact. In association with adoption of Environmental Threshold Carrying Capacities, the Governing Body is adopting policy statements that will provide specific direction for Agency staff in development of the regional plan. It is the intent of the Governing Body that amendment or repeal of the Policy Statements shall be subject to the dual-majority voting provisions of Article III (g)(1) of the Compact.

10. The definition of “environmental threshold carrying capacity” set forth in Article II (i) of the Compact requires an exercise of discretion by the Governing Body in setting a standard “necessary to maintain a significant scenic, recreational, educational, scientific or natural value of the region or to maintain public health and safety within the region.” In approving this resolution, the Governing Body of the TRPA recognizes that it must amend the TRPA regional plan so that, at a minimum, the plan and all of its elements, as implemented through TRPA ordinances, rules and regulations, achieves and maintains the adopted Environmental Threshold Carrying Capacities. The Governing Body further recognizes that it is required under Article V (d) of the Compact to adopt a regional plan attaining and maintaining federal, state, or local air and water quality standards, whichever are strictest, in the respective portions of the Lake Tahoe Region for which such standards are applicable.

11. The Environmental Threshold Carrying Capacities adopted by this resolution are to be achieved and maintained through implementation of TRPA's regional plan, may be achieved and maintained pursuant to an orderly time schedule adopted for that purpose.

12. In adopting this resolution, the TRPA Governing Body expressly recognizes that there is a distinction between adoption of Environmental Threshold Carrying Capacities and the subsequent planning process resulting in an amended regional plan so that, at a minimum, the plan and all of its elements achieves and maintains the adopted Environmental Threshold Carrying Capacities.

13. Inasmuch as the Compact specifies no particular method for the adoption of Environmental Threshold Carrying Capacities, this resolution is a proper method for the adoption thereof.

14. The Governing Body recognizes that, in adoption of Environmental Threshold Carrying Capacities, it is establishing standards for the Lake Tahoe Region which must be carried out through the regional plan and that its jurisdiction to achieve and maintain those standards is limited to the Lake Tahoe Region.

15. The Governing Body recognizes that, in establishing Environmental Threshold Carrying Capacities for the Lake Tahoe Region, it is establishing the basis for a long-term program which will protect and enhance the significant environmental values of the region, which program will be reviewed from time to time to ensure its consistency with the currently available scientific evidence and technical and other information. Attainment of the Environmental Threshold Carrying Capacities prior to the dates scheduled in the regional plan, while beneficial, is not required.

16. The Governing Body recognizes that the Tahoe Regional Planning Compact, as amended, provides for the adoption of an orderly program to attain the environmental standards through the development of its regional plan, including time schedules for implementation of specific measures necessary to attain those standards and that an immediate or short-range demonstration of attainment of some standards is physically impossible.

17. The Governing Body recognizes and respects the legislative intent of the States of Nevada and California and the United States Congress in entering into and approving the Tahoe Regional Planning Compact, as amended.

18. The Governing Body recognizes that the degree of success in attaining and maintaining the Environmental Threshold Carrying Capacities depends upon a program of mutual cooperation among the two states, local governmental entities, the Federal Government and the private sector in implementing its regional plan.

NOW, THEREFORE, BE IT RESOLVED by the Governing Body of the Tahoe Regional Planning Agency as follows:

1. That the Governing Body will develop its regional plan, recognizing that out-of-basin sources of air pollution may affect its ability to achieve and maintain environmental standards.

The cooperation of the States of California and Nevada and the Federal Government will be required to control sources of air pollution which contribute nitrogen loadings to the Lake Tahoe Region.

2. That the Governing Body hereby recognizes the long-term nature of the planning process established by the Compact and further recognizes that attainment and maintenance of the Environmental Threshold Carrying Capacities is a continuing process requiring establishment of time schedules by which the environmental standards will be attained, and the Governing Body intends to amend its regional plan to meet such requirements with realistic time schedules and the best available means.

3. That the Governing Body hereby recognizes the long-term nature of the planning process established by the Compact and further recognizes that some of the Environmental Threshold Carrying Capacities for water quality are currently being, and will likely continue to be, exceeded until some time after the full implementation of the loading reductions prescribed by the thresholds.

4. The Environmental Threshold Carrying Capacities shall be reviewed by staff and the Governing Body at the time of adoption of the regional plan to assure that said plan and the Environmental Threshold Carrying Capacities are consistent, and shall be reviewed at least every five years thereafter by the most appropriate means. After such review, the pertinent environmental threshold standards shall be amended where the scientific evidence and technical information indicate:

- (e) two or more threshold standards are mutually exclusive; or
- (f) substantial evidence to provide a basis for a threshold standard does not exist; or
- (g) a threshold standard cannot be achieved; or
- (h) a threshold standard is not sufficient to maintain a significant value of the Region or additional threshold standards are required to maintain a significant value.

The Agency shall maintain a monitoring program to determine progress towards attainment of threshold standards and to provide the basis for such review and amendment of the threshold standards pursuant to the foregoing criteria.

5. That the Governing Body hereby recognizes the long-term nature of establishing, planning for and actually achieving the Environmental Threshold Carrying Capacities and will diligently pursue the attainment of those environmental standards through the regional plan and its schedule for implementation. The Governing Body further recognizes that the environmental standards adopted hereby may be considered as part of the environmental review process on projects reviewed pursuant to Article VI (b) of the Compact during the period of time prior to adoption of the regional plan envisioned by Article V(c) of the Compact and adoption of the ordinances required by Article V (g), and that no provision of this resolution or the environmental standards adopted hereby shall affect the maximum number of building permits authorized under the provisions of Article VI(c) of the Compact.

6. That the Governing Body hereby adopts the following as a statement of intent, which will guide the development of the regional plan and actions subsequent to the adoption of that plan:

- (a) The Governing Board hereby finds and declares that in adopting these Environmental Threshold Carrying Capacities it does not intend, and it shall not be construed as authorizing the Agency, to exercise its power to grant or deny a permit in a manner which shall take or damage private property for public use without payment of just compensation.
- (b) Nothing in the adoption of these Environmental Threshold Carrying Capacities is intended to increase or decrease the rights of any property owner under the Constitution of California, Nevada or the United States.
- (c) It is the intent of the Governing Body that the Environmental Threshold Carrying Capacities will provide the basis for the adoption and enforcement of a regional plan and implementing ordinances which will achieve and maintain such capacities while at the same time providing opportunities for orderly growth and development consistent with such capacities. It is further the intent of the Governing Body that the regional plan will provide for carrying out all of the policies expressed in Article I of the compact.

7. That the Governing Body directs that the regional plan be so structured as to require a fair share of the financial resources required to implement the plan be borne by each of the entities or groups with interests in the region, including the State of California, the State of Nevada, the United States Government, entities of local government with jurisdiction within the Lake Tahoe Region, and the private sector; and

8. That the Environmental Threshold Carrying Capacities set forth in Exhibit "A", attached hereto and incorporated herein by this reference, be, and the same hereby are, adopted pursuant to Article V (b) of the Compact.



PASSED AND ADOPTED by the Governing Body of the Tahoe Regional Planning Agency  
this twenty-sixth day of August, 1982, by the following vote:

Ayes: Mr. Heikka, Mr. Hsieh, Mr. Meder, Mr. Stewart, Mr. Kjer, Mr. Steele,  
Mr. Swackhamer, Mr. Sevison, Mr. Weise, Mr. Reed, Mr. Jacobsen,  
Mr. Hall, Mr. Woods, Mr. Ferrari

Nays: None

Abstain: None

Absent: None



Bennie D. Ferrari, Chairman

EXHIBIT A  
TO RESOLUTION NO. 82-11  
AS AMENDED

RESOLUTION OF THE GOVERNING BODY OF THE TAHOE REGIONAL PLANNING AGENCY  
ADOPTING ENVIRONMENTAL THRESHOLD CARRYING CAPACITIES FOR THE LAKE TAHOE REGION

**WATER QUALITY**

Deep Water (Pelagic) Lake Tahoe

NUMERICAL STANDARDS

Reduce fine sediment (inorganic particle size < 16 micrometers in diameter), total phosphorus, and total nitrogen according to Table 1 in order to achieve the following long-term water quality standards for deep water (pelagic zone) Lake Tahoe:

- The annual average deep water transparency as measured by Secchi disk shall not be decreased below 29.7 meters (97.4 feet), the average levels recorded between 1967-1971 by the University of California, Davis.
- Maintain annual mean phytoplankton primary productivity at or below 52gmC/m<sup>2</sup>/yr

These numerical threshold standards are currently being exceeded and will likely continue to be exceeded for 65 years until full implementation of the pollutant loading reductions prescribed by the Lake Tahoe Total Maximum Daily Load program.

MANAGEMENT STANDARD

Pollutant Load Reduction

Reduce the loading of fine sediment, total phosphorus, and total nitrogen from all sources to the extent practical at the project scale to contribute to the achievement of ambient standards for deep water primary productivity and transparency.

**Table 1. Pollutant load reduction targets for fine sediment, total phosphorus and total nitrogen by evaluation year.**

**Fine Sediment Particle Load Reductions by Pollutant Source Category.**

	Fine Sediment Baseline Load (2004)		Basin-wide Load Reduction Targets by Evaluation Year for Fine Sediment (<16 micrometers in diameter)												Standard Attainment
	Basin-Wide Load Estimate in # Fine Particles/yr (MT/yr)	% of Basin-Wide Load	2016	2021	2026	2031	2036	2041	2046	2051	2056	2061	2066	2071	2076
<b>Forest Upland</b>	4.1E+19 (373)	9%	6%	9%	12%	12%	13%	14%	15%	16%	17%	18%	19%	20%	20%
<b>Urban Upland</b>	3.5E+20 (3,182)	72%	10%	21%	34%	38%	41%	45%	48%	52%	55%	59%	62%	66%	71%
<b>Atmosphere</b>	7.5E+19 (682)	16%	8%	15%	30%	32%	35%	37%	40%	42%	45%	47%	50%	52%	55%
<b>Stream Channel</b>	1.7E+19 (155)	3%	13%	26%	53%	56%	60%	63%	67%	70%	74%	77%	81%	85%	89%
<b>Basin Wide Total</b>	4.8E+20 (4,391)	100%	10%	19%	32%	35%	38%	42%	44%	47%	51%	55%	58%	61%	65%

**Total Nitrogen Load Reduction by Pollutant Source Category.**

	Total Nitrogen Baseline Load (2004)		Basin-wide Load Reduction Targets by Evaluation Year for Total Nitrogen												Standard Attainment
	Basin-Wide Nitrogen Load Estimate (MT/yr)	% of Basin-Wide Load	2016	2021	2026	2031	2036	2041	2046	2051	2056	2061	2066	2071	2076
<b>Urban Upland</b>	63	18%	8%	14%	19%	22%	25%	28%	31%	34%	37%	40%	43%	46%	50%
<b>Atmosphere</b>	218	63%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
<b>Basin Wide Total</b>	345	100%	2%	3%	4%	5%	6%	6%	7%	7%	8%	8%	9%	9%	10%

**Total Phosphorus Load Reductions by Pollutant Source Category.**

	Total Phosphorus Baseline Load		Basin-wide Load Reduction Targets by Evaluation Year for Phosphorus												Standard Attainment
	2004 Basin-Wide Phosphorus Load Estimate (MT/yr)	% of Basin-Wide Load	2016	2021	2026	2031	2036	2041	2046	2051	2056	2061	2066	2071	2076

<b>Forest Upland</b>	12	32%	1%	1%	1%	2%	1%	1%	2%	2%	2%	2%	2%	3%	3%
<b>Urban Upland</b>	18	47%	7%	14%	21%	23%	26%	28%	31%	33%	36%	38%	41%	44%	46%
<b>Atmosphere</b>	7	18%	9%	17%	33%	36%	39%	42%	45%	48%	51%	53%	56%	58%	61%
<b>Stream Channel</b>	1	3%	8%	15%	30%	32%	34%	36%	38%	40%	42%	44%	46%	48%	51%
<b>Basin Wide Total</b>	38	100%	5%	10%	17%	19%	22%	24%	26%	28%	30%	32%	33%	34%	35%

### Nearshore (Littoral) Lake Tahoe

#### NUMERICAL STANDARD

- Attached Algae (periphyton) Distribution and Abundance – The abundance of attached algae measured throughout Lake Tahoe’s nearshore during the peak growing season (March and April) shall be maintained below a biomass index (percent bottom cover X filament length [cm]) value of 0.11.

#### MANAGEMENT STANDARD

- Aquatic Invasive Species – Prevent the introduction of new aquatic invasive species into the region’s waters and reduce the abundance and distribution of known aquatic invasive species. Abate harmful ecological, economic, social and public health impacts resulting from aquatic invasive species.

#### NUMERICAL STANDARD

Reduce dissolved inorganic nitrogen loading to Lake Tahoe from all sources by 25 percent of the 1973-81 annual average.

#### MANAGEMENT STANDARD

Reduce dissolved inorganic nitrogen loads from surface runoff by approximately 50 percent, from groundwater approximately 30 percent, and from atmospheric sources approximately 20 percent of the 1973-81 annual average. This threshold relies on predicted reductions in pollutant loadings from out-of-basin sources as part of the total pollutant loading reduction necessary to attain environmental standards, even though the Agency has no direct control over out of Basin sources. The cooperation of the states of California and Nevada will be required to control sources of air pollution which contribute nitrogen loadings to the Lake Tahoe Region.

#### NUMERICAL STANDARD

Nearshore Lake Clarity: Maintain nearshore water clarity greater than the equivalent average measure of 18m during summer months (July and August).

Reduce the loading of dissolved inorganic nitrogen, dissolved phosphorus, iron, and other algal nutrients from all sources to meet the 1967-71 mean values for phytoplankton primary productivity and periphyton biomass in the littoral zone.

### Tributaries

#### NUMERICAL STANDARD

Attain applicable state standards for concentrations of dissolved inorganic nitrogen, dissolved phosphorus, and dissolved iron. Attain a 90 percentile value for suspended sediment concentration of 60 mg/l.

#### MANAGEMENT STANDARD

Reduce total annual nutrient and suspended sediment load to achieve loading thresholds for littoral and pelagic Lake Tahoe.

### Surface Runoff

#### NUMERICAL STANDARD

Achieve a 90 percentile concentration value for dissolved inorganic nitrogen of 0.5 mg/1, for dissolved phosphorus of 0.1 mg/1, and for dissolved iron of 0.5 mg/1 in surface runoff directly discharged to a surface water body in the Basin.

Achieve a 90 percentile concentration value for suspended sediment of 250 mg/1.

#### MANAGEMENT STANDARD

Reduce total annual nutrient and suspended sediment loads as necessary to achieve loading thresholds for tributaries and littoral and pelagic Lake Tahoe.

### Groundwater

#### MANAGEMENT STANDARD

Surface runoff infiltration into the groundwater shall comply with the uniform Regional Runoff Quality Guidelines as set forth in Table 4-12 of the Draft Environmental Threshold Carrying Capacity Study Report, May, 1982.

Where there is a direct and immediate hydraulic connection between ground and surface waters, discharges to groundwater shall meet the guidelines for surface discharges, and the Uniform Regional Runoff Quality Guide lines shall be amended accordingly.

### Other Lakes

#### NUMERICAL STANDARD

Attain existing water quality standards.

## SOIL CONSERVATION

### Impervious Cover

#### MANAGEMENT STANDARD

Impervious cover shall comply with the Land-Capability Classification of the Lake Tahoe Basin, California-Nevada, A Guide For Planning, Bailey, 1974.

### Stream Environment Zones

#### NUMERICAL STANDARD

Preserve existing naturally functioning SEZ lands in their natural hydrologic condition, restore all disturbed SEZ lands in undeveloped, unsubdivided lands, and restore 25 percent of the SEZ lands that have been identified as disturbed, developed or subdivided, to attain a 5 percent total increase in the area of naturally functioning SEZ lands.

## AIR QUALITY

### Carbon Monoxide

#### NUMERICAL STANDARD

Maintain carbon monoxide concentrations at or below 6 parts per million ( $7 \text{ mg/m}^3$ ) averaged over 8 hours.

#### MANAGEMENT STANDARD

Reduce traffic volumes on the U.S. 50 Corridor by 7 percent during the winter from the 1981 base year between 4:00 p.m. and 12:00 midnight, provided that those traffic volumes shall be amended as necessary to meet the respective state standards.

### Ozone

#### NUMERICAL STANDARD

Maintain ozone concentrations at or below 0.08 parts per million averaged over 1 hour.

Maintain oxides of nitrogen (NO<sub>x</sub>) emissions at or below the 1981 level.

### Regional Visibility

#### NUMERICAL STANDARDS<sup>§</sup>

Achieve an extinction coefficient of  $25 \text{ Mm}^{-1}$  at least 50 percent of the time as calculated from aerosol species concentrations measured at the Bliss State Park monitoring site (visual range of 156 kilometer, 97 miles); and

Achieve an extinction coefficient of  $34 \text{ Mm}^{-1}$  at least 90 percent of the time as calculated from aerosol species concentrations measured at the Bliss State Park monitoring site (visual range of 115 kilometers, 71 miles).

<sup>§</sup>(Calculations will be made on three year running periods. Beginning with the existing 1991-93 monitoring data as the performance standards to be met or exceeded.)

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<sup>§</sup> Amended 03/22/00

<sup>§</sup> Amended 03/22/00

### Subregional Visibility

#### NUMERICAL STANDARD<sup>5</sup>

Achieve an extinction coefficient of  $50 \text{ Mm}^{-1}$  at least 50 percent of the time as calculated from aerosol species concentrations measured at the South Lake Tahoe monitoring site (visual range of 78 kilometers, 48 miles); and

Achieve an extinction coefficient of  $125 \text{ Mm}^{-1}$  at least 90 percent of the time as calculated from aerosol species concentrations measured at the South Lake Tahoe monitoring site (visual range of 31 kilometers, 19 miles); and

Calculations will be made on three year running periods. Beginning with the existing 1991-93 monitoring data as the performance standards to be met or exceeded.)

### Respirable and Fine Particulate Matter

#### NUMERICAL STANDARD

Particulate Matter<sub>10</sub> 24-hour Standard: Maintain Particulate Matter<sub>10</sub> at or below  $50 \mu\text{g}/\text{m}^3$  measured over a 24-hour period using gravimetric or beta attenuation methods or any equivalent procedure which can be shown to provide equivalent results at or near the level of air quality standard.

#### NUMERICAL STANDARD

Particulate Matter<sub>10</sub> Annual Arithmetic Average - Maintain Particulate Matter<sub>10</sub> at or below annual arithmetic average of  $20 \mu\text{g}/\text{m}^3$  using gravimetric or beta attenuation methods or any equivalent procedure which can be shown to provide equivalent results at or near the level of air quality standard.

#### NUMERICAL STANDARD

Particulate Matter<sub>2.5</sub> 24-hour Standard - Maintain Particulate Matter<sub>2.5</sub> at or below  $35 \mu\text{g}/\text{m}^3$  measured over a 24-hour period using gravimetric or beta attenuation methods or any equivalent procedure which can be shown to provide equivalent results at or near the level of air quality standard.

#### NUMERICAL STANDARD

Particulate Matter<sub>2.5</sub> Annual Arithmetic Average - Maintain Particulate Matter<sub>2.5</sub> at or below annual arithmetic average of  $12 \mu\text{g}/\text{m}^3$  using gravimetric or beta attenuation methods or any equivalent procedure which can be shown to provide equivalent results at or near the level of air quality standard.

### Nitrate Deposition

#### MANAGEMENT STANDARD

Reduce the transport of nitrates into the Basin and reduce oxides of nitrogen (NOx) produced in the Basin consistent with the water quality thresholds.

Reduce vehicle miles of travel in the Basin by 10% of the 1981 base year values.

### Odor

#### POLICY STATEMENT

It is the policy of the TRPA Governing Board in the development of the Regional Plan to reduce fumes



from diesel engines to the extent possible.

## **VEGETATION PRESERVATION**

### Common Vegetation

#### MANAGEMENT STANDARD

Increase plant and structural diversity of forest communities through appropriate management practices as measured by diversity indices of species richness, relative abundance, and pattern.

- Maintain the existing species richness of the Basin by providing for the perpetuation of the following plant associations:

Yellow Pine Forest: Jeffrey pine, White fir, Incense cedar, Sugar pine.

Red Fir Forest: Red fir, Jeffrey pine, Lodgepole pine, Western white pine, Mountain hemlock, Western juniper.

Subalpine Forest: Whitebark pine, Mountain hemlock, Mountain mahogany.

Shrub Association: Greenleaf and Pinemat manzanita, Tobacco brush, Sierra chinquapin, Huckleberry oak, Mountain whitethorn.

Sagebrush Scrub Vegetation: Basin sagebrush, Bitterbrush, Douglas chaenactis.

Deciduous Riparian: Quaking aspen, Mountain alder, Black cotton-wood, Willow.

Meadow Associations (Wet and Dry Meadow): Mountain squirrel tail, Alpine gentian, Whorled penstemon, Asters, Fescues, Mountain brome, Corn lilies, Mountain bentgrass, Hairgrass, Marsh marigold, Elephant heads, Tinker's penney, Mountain Timothy, Sedges, Rushes, Buttercups.

Wetland Associations (Marsh Vegetation): Pond lilies, Buckbean, Mare's tail, Pondweed, Common bladderwort, Bottle sedge, Common spikerush.

Cushion Plant Association (Alpine Scrub): Alpine phlox, Dwarf ragwort, Draba.

- Relative Abundance - of the total amount of undisturbed vegetation in the Tahoe Basin;
  1. Maintain at least four percent meadow and wetland vegetation.
  2. Maintain at least four percent deciduous riparian vegetation.
  3. Maintain no more than 25 percent dominant shrub association vegetation.
  4. Maintain 15-25 percent of the Yellow Pine Forest in seral stages other than mature.
  5. Maintain 15-25 percent of the Red Fir Forest in seral stages other than mature.
- Pattern - Provide for the proper juxtaposition of vegetation communities and age classes by;
  1. Limiting acreage size of new forest openings to no more than eight acres.
  2. Adjacent openings shall not be of the same relative age class or successional stage to avoid uniformity in stand composition and age.

A nondegradation standard to preserve plant communities shall apply to native deciduous trees, wetlands, and meadows while providing for opportunities to increase the acreage of such riparian associations to be consistent with the SEZ threshold.

Native vegetation shall be maintained at a maximum level to be consistent with the limits defined in the Land Capability Classification of the Lake Tahoe Basin, California-Nevada, A Guide For Planning, Bailey, 1974, for allowable impervious cover and permanent site disturbance.

#### POLICY STATEMENT

It shall be a policy of the TRPA Governing Board that a nondegradation standard shall permit appropriate management practices.

#### Late Seral and Old Growth Forest Ecosystems<sup>§</sup>

##### NUMERICAL STANDARD

Attain and maintain a minimum percentage of 55% by area of forested lands within the Tahoe Region in a late seral or old growth condition, and distributed across elevation zones. To achieve the 55%, the elevation zones shall contribute as follows:

- The Subalpine zone (greater than 8,500 feet elevation) will contribute 5% (7,600 acres) of the forested lands;
- The Upper Montane zone (between 7,000 and 8,500 feet elevation) will contribute 30% (45,900 acres) of forested lands;
- The Montane zone (lower than 7,000 feet elevation) will contribute 20% (30,600 acres) of forested lands.

Forested lands within TRPA designated urban areas are excluded in the calculation for threshold attainment. Areas of the montane zone within 1,250 feet of urban areas may be included in the calculation for threshold attainment if the area is actively being managed for late seral and old growth conditions and has been mapped by TRPA. A maximum value of 40% of the lands within 1,250 feet of urban areas may be included in the calculation.

Because of these restrictions the following percentage of each elevation zone must be attained to achieve this threshold:

- 61% of the Subalpine zone must be in a late seral or old growth condition;
- 60% of the Upper Montane zone must be in a late seral or old growth condition;
- 48% of the Montane zone must be in a late seral or old growth condition;

#### Uncommon Plant Communities

##### NUMERICAL STANDARD<sup>§§</sup>

Provide for the nondegradation of the natural qualities of any plant community that is uncommon to the Basin or of exceptional scientific, ecological, or scenic value. This threshold shall apply but not be limited to (1) the deepwater plants of Lake Tahoe, (2) Grass Lake (sphagnum bog), (3) Osgood swamp, (4) the Freel Peak Cushion Plant community, (5) Taylor Creek Marsh, (6) Pope Marsh, (7) Upper Truckee Marsh, and (8) Hell Hole.

#### Sensitive Plants

##### NUMERICAL STANDARD

Maintain a minimum number of population sites for each of five sensitive plant species.

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<sup>§</sup> Amended 5/23/01

<sup>§§</sup> Amended 04/24/02

<u>Species</u> <sup>§§</sup>	<u>Number of Population Sites</u>
<u>Lewisia pygmaea longipetala</u>	2
<u>Draba asterophora v. macrocarpa</u>	2
<u>Draba asterophora v. asterophora</u>	5
<u>Rorippa subumbellata</u>	26
<u>Arabis rigidissima v. demote</u>	7

## **WILDLIFE**

### Special Interest Species

#### NUMERICAL STANDARD

Provide a minimum number of population sites and disturbance zones for the following species:

<u>Species of interest</u>	<u>Population sites</u>	<u>Disturbance zone (mi.)</u>	<u>Influence zone (mi.)</u>
Goshawk	12	Most Suitable 500 acres surrounding nest site	3.50
Osprey	4	0.25	0.60
Bald Eagle (Winter)	2	Mapped areas	Mapped areas
Bald Eagle (Nesting)	1	0.50	Variable
Golden Eagle	4	0.25	9.0
Peregrine	2	0.25	7.6
Waterfowl	18	Mapped areas	Mapped areas
Deer	-	Mapped areas	Meadows

### Habitats of Special Significance

#### MANAGEMENT STANDARD

A nondegradation standard shall apply to significant wildlife habitat consisting of deciduous trees, wetlands, and meadows while providing for opportunities to increase the acreage of such riparian associations.

## **FISHERIES**

### Stream Habitat

#### NUMERICAL STANDARD

Maintain the 75 miles of excellent, 105 miles of good, and 38 miles of marginal stream habitat as indicated by the <sup>§</sup>Stream Habitat Quality Overlay map, amended May 1997, based upon the re-rated stream scores set forth in Appendix C-1 of the 1996 Evaluation Report.

### Instream Flows

#### MANAGEMENT STANDARD

Until instream flow standards are established in the Regional Plan to protect fishery values, a nondegradation standard shall apply to instream flows.

#### POLICY STATEMENT

It shall be a policy of the TRPA Governing Board to seek transfers of existing points of water diversion from streams to Lake Tahoe.

### Lahontan Cutthroat Trout

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<sup>§</sup> Amended 5/28/97

**POLICY STATEMENT**

It shall be the policy of the TRPA Governing Board to support, in response to justifiable evidence, state and federal efforts to reintroduce Lahontan cutthroat trout.

Lake Habitat

**MANAGEMENT STANDARD**

A nondegradation standard shall apply to fish habitat in Lake Tahoe. Achieve the equivalent of 5,948 total acres of excellent habitat<sup>§</sup> as indicated by the Prime Fish Habitat Overlay Map as may be amended with maps based on best available science.

**NOISE**

Single Noise Events

**NUMERICAL STANDARD**

The following maximum noise levels are allowed: All values are in decibels)

Source	Threshold - dBA			Monitoring Distances
	Overall	Less Than 35 MPH	Greater Than 35 MPH	
Aircraft	80 <sup>1</sup>	--	--	6,500 m-start of takeoff roll 2,000 m-runway threshold approach
	77.1 <sup>2</sup>	--	--	6,500 m-start of takeoff roll 2,000 m-runway threshold approach
Watercraft <sup>3§</sup>				
1. Pass-By Test	82 L <sub>max</sub>	--	--	50 ft.-engine at 3,000 rpm
2. Shoreline Test	75 L <sub>max</sub>	--	--	Microphone 5 ft. above water, 2 ft., above curve of shore, dock or platform. Watercraft in Lake, no minimum
3. Stationary Test	88 dBA L <sub>max</sub> for boats manufactured before January 1, 1993; 90 dBA L <sub>max</sub> for boats manufactured after January 1, 1993	--	--	Microphone 3.3 feet from exhaust outlet - 5 feet above water.
Motor Vehicles Less Than 6,000 GVW	--	76	82	50 ft.
Motor Vehicles Greater Than 6,000	--	82	86	50 ft.

<sup>§</sup> Amended 7/23/03

Motorcycles	--	77	86	50 ft.
Off-Road Vehicles	--	72	86	50 ft.
Snowmobiles	--	82	--	50 ft.

- <sup>§§</sup>The single event noise standard of 80 dBA  $L_{max}$  for aircraft departures at Lake Tahoe Airport shall be effective immediately. The single event noise standard of 80 dBA  $L_{max}$  for aircraft arrivals at Lake Tahoe Airport is not to be effective until ten years after the adoption of an airport master plan by TRPA. The schedule for phasing in the 80 dBA arrival standard shall be based on a review and consideration of the relevant factors, including best available technology and environmental concerns, and shall maximize the reduction in noise impacts caused by aircraft arrivals while allowing for the continuation of general aviation and commercial service. The beginning arrival standard shall not exceed 84 dBA for general aviation and commuter aircraft, and 86 dBA for transport category aircraft.
- Between the hours of 8 p.m. and 8 a.m.
- Failure to meet any one of these three test standards exceeds the single noise event threshold for watercraft.

Cumulative Noise Events<sup>§</sup>

**NUMERICAL STANDARD**

Background noise levels shall not exceed the following levels:

<b>Land Use Category</b>	<b>Average Noise Level Or CNEL range (dBA)</b>
High Density Residential Areas	55
Low Density Residential Areas	50
Hotel/Motel Areas	60
Commercial Areas	60
Industrial Areas	65
Urban Outdoor Recreation Areas	55
Rural Outdoor Recreation Areas	50
Wilderness and Roadless Areas	45
Critical Wildlife Habitat Areas	45

**POLICY STATEMENT**

It shall be the policy of the TRPA Governing Body in development of the Regional Plan to define, locate, and establish CNEL levels for transportation corridors

**RECREATION**

**POLICY STATEMENT**

It shall be the policy of the TRPA Governing Body in development of the Regional Plan to preserve and enhance the high quality recreational experience including preservation of high-quality undeveloped shorezone and other natural areas. In developing the Regional Plan, the staff and Governing Body shall consider provisions for additional access, where lawful and feasible, to the shorezone and high quality

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<sup>§§</sup> Amended 08/26/92

<sup>§</sup> Amended 5/28/97

undeveloped areas for low density recreational uses.

It shall be the policy of the TRPA Governing Body in development of the Regional Plan to establish and ensure a fair share of the total Basin capacity for outdoor recreation is available to the general public.

## **SCENIC RESOURCES**

### Roadway and Shoreline Units

#### NUMERICAL STANDARD

Maintain or improve the numerical rating assigned each unit, including the scenic quality rating of the individual resources within each unit, as recorded in the Scenic Resources Inventory and shown in Tables 13-3, 13-5, 13-8 and 13-9 of the Draft Study Report.

Maintain the 1982 ratings for all roadway and shoreline units as shown in Tables 13-6 and 13-7 of the Draft Study Report.

Restore scenic quality in roadway units rated 15 or below and shoreline units rated 7 or below.

### Other Areas<sup>§</sup>

#### NUMERICAL STANDARD

Maintain or improve the numerical rating assigned to each identified scenic resource, including individual subcomponent numerical ratings, for views from bike paths and other recreation areas open to the general public as recorded in the 1993 Lake Tahoe Basin Scenic Resource Evaluation.

### Built Environment

#### POLICY STATEMENT

It shall be the policy of the TRPA Governing Body in development of the Regional Plan, in cooperation with local jurisdictions, to insure the height, bulk, texture, form, materials, colors, lighting, signing and other design elements of new, remodeled and redeveloped buildings be compatible with the natural, scenic, and recreational values of the region.

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<sup>§</sup> Amended 09/22/93

**Attachment B. Proposed Threshold Standard Amendments Summary Table**

As part of the original regional plan update scope, eleven threshold standard amendments were proposed. After additional review, staff is recommending a revised scope to threshold standard amendments. Changes to the original threshold standard amendments fall within three categories: 1) retain the originally proposed threshold amendment, 2) modification of the originally proposed threshold amendment and 3) new recommendation not included in the original proposal. Below is a table that summarizes TRPA staff’s current recommendations for threshold standard amendments.

Proposed Update	Retain Original Proposal	Modified from Original Proposal	New Recommendation Not Included in Original Proposal	Rationale
<b>Water Quality</b>				
<p><b>Original Proposal for Deep Water Transparency</b> - Replace existing winter average Lake Tahoe transparency standard with existing State adopted annual average transparency standard</p> <p><b>Current TRPA Standard:</b> Winter (December - March) mean Secchi disk transparency: 33.4m</p> <p><b>Proposed Revised Standard:</b> Annual mean Secchi disk transparency: 29.7 m</p>	<input checked="" type="checkbox"/>			The change to this standard will provide equal protection for Lake Tahoe’s deep water zone. The TMDL program’s focus is attainment of the annual transparency standard; this update will make TRPA standards consistent with State and Federal TMDL directives.
<p><b>New Proposal for Deep Water Pollutant Load Reductions</b> – Replace all existing nutrient and sediment loading standards for deep water Lake Tahoe with pollutant load targets identified for the Lake Tahoe TMDL.</p> <p><b>Current Standards:</b> Reduce the loading of dissolved phosphorus, iron, and other algal nutrients from all sources as required to achieve ambient standards for primary productivity and transparency. Reduce dissolved inorganic nitrogen loads from surface runoff by approximately 50 percent, from groundwater approximately 30 percent, and from</p>			<input checked="" type="checkbox"/>	This amendment would update load reduction threshold standards consistent with load reduction targets identified for the TMDL program and necessary to achieve the deep water transparency standard. The new standard provides for numerical interim pollutant load reduction targets that provides for improved tracking of progress.

Proposed Update	Retain Original Proposal	Modified from Original Proposal	New Recommendation Not Included in Original Proposal	Rationale
<p>atmospheric sources approximately 20 percent of the 1973-81 annual average.</p> <p><b>Proposed Revised Standards:</b> Achieve pollutant load reduction objectives prescribed by the Lake Tahoe Total Daily Maximum Load Program</p> <ul style="list-style-type: none"> <li>• Reduce fine sediment (&lt;16 micrometers) loads from 1) urban sources by 71%, 2) atmospheric sources by 55%, 3) forest runoff sources by 20%, and 4) stream channel erosion sources by 89% of 2004 baseline load levels to achieve a basin-wide load reduction of 65%.</li> <li>• Reduce total phosphorus loads from 1) urban sources by 46%, 2) atmospheric sources by 61%, 3) forest runoff sources by 3%, and 4) stream channel erosion sources by 51% of 2004 baseline load levels to achieve a basin-wide load reduction of 35%.</li> <li>• Reduce total nitrogen loads from 1) urban sources by 50% and 2) atmospheric sources by 2% of 2004 baseline load levels to achieve a basin-wide load reduction of 10%.</li> </ul>				
<p><b>New Proposal to Revised Existing Standard for Nearshore Clarity</b> – Update existing nearshore turbidity standard to better reflect desired conditions.</p> <p><b>Current Standard:</b> Decrease sediment load as required to attain turbidity values not to exceed three NTU. In addition, turbidity shall not exceed one NTU in shallow waters of the Lake not directly influenced by stream discharges.</p>			<input checked="" type="checkbox"/>	<p>The currently adopted turbidity standard achieves the equivalent of 3-6m of clarity in the nearshore. The proposal would target achieving the equivalent of 18m of clarity in the nearshore and would better reflect conditions that are expected by the public and are realistically achievable according to Taylor et al. 2004)</p>



Proposed Update	Retain Original Proposal	Modified from Original Proposal	New Recommendation Not Included in Original Proposal	Rationale
<p><b>Proposed Revised Standard:</b> Maintain nearshore water clarity greater than the equivalent average measure of 18m during summer months (July and August).</p>				
<p><b>New Proposal for Nearshore Attached Algae –</b> Add new standard to reduce the abundance and distribution of attached algae in Lake Tahoe’s nearshore.</p> <p><b>Current TRPA Standard:</b> None</p> <p><b>Proposed Revised Standard:</b> The abundance of attached algae measured throughout Lake Tahoe’s nearshore during the peak growing season (March and April) shall be maintained below a biomass index value of 0.11.</p>			<input checked="" type="checkbox"/>	<p>Attached algae have been identified as a nuisance by the public and its over-abundance is inconsistent with Lake Tahoe’s ultra-oligotrophic ecology. A new threshold standard would facilitate targeted conservation actions to reduce the causes of overabundant attached algae in the nearshore. The standard directs the region to achieve attached algae conditions consistent with conditions found throughout the east shore of Lake Tahoe</p>
<p><b>New Proposal for Nearshore Aquatic Invasive Species –</b> Add new management standard to reduce the abundance and distribution of aquatic invasive species currently known to occur in the Lake Tahoe Region.</p> <p><b>Current TRPA Standard:</b> None</p> <p><b>Proposed Revised Standards:</b> Prevent the introduction of new aquatic invasive species into the region’s waters and reduce the abundance and distribution of known aquatic invasive species. Abate harmful ecological, economic, social and public health impacts resulting from aquatic invasive species.</p>			<input checked="" type="checkbox"/>	<p>Aquatic Invasive Species have been identified as a nuisance by the public, can impact water infrastructure, and their existence in regional waters degrade the integrity of Lake Tahoe’s ecosystem. A new threshold standard would continue to facilitate targeted management and policy actions to reduce their abundance and distribution in the region.</p>
<p><b>Soils Conservation</b></p>				

Proposed Update	Retain Original Proposal	Modified from Original Proposal	New Recommendation Not Included in Original Proposal	Rationale
<b>Original Proposal for Impervious Surface</b> - Retain existing land coverage limits but allow for inclusion of best available science (e.g., update soils map)		<input checked="" type="checkbox"/>		The agency's policy of using the best available science does not require a formal amendment or update to the existing standard.
<b>Air Quality</b>				
<b>Original Proposal for Carbon Monoxide (8-hour)</b> – Update existing 8-hour threshold standard (9 ppm) to be consistent with NV and CA 8-hour standard (6 ppm)  <b>Current TRPA Standard:</b> Do not exceed 9 ppm (TRPA)  <b>Proposed Revised Standard:</b> Do not exceed 6 ppm (CA & NV)	<input checked="" type="checkbox"/>			This update will make TRPA's standard consistent with state standards, and reflects TRPA's directive to protect public health and safety.
<b>Original Proposal for Carbon Monoxide (1-hour)</b> – Adopt a new 1-hour threshold standard reflecting the more protective CA standard (20 ppm).		<input checked="" type="checkbox"/>		Given the Compact's requirement that TRPA comply with State and Federal standards, TRPA will report on the attainment status for Carbon Monoxide regardless of the adoption of an additional standard; we are recommending this standard not be added as TRPA is already required to demonstrate achievement of the standard.
<b>Original Proposal for Ozone (8-hour)</b> – Adopt a new 8-hour ozone standard reflecting most protective CA standard.		<input checked="" type="checkbox"/>		Same rationale as above (CO one hour)
<b>Original Proposal for Particulate Matter 10 (PM<sub>10</sub>)</b> – Add new standards reflecting most protective state standards for 24-hour and annual average PM <sub>10</sub>  <b>Current Standards:</b>		<input checked="" type="checkbox"/>		This update is consistent with Resolution 82-11 which allows for amendments to thresholds when the threshold cannot be attained. TRPA's existing standards for wood smoke and

Proposed Update	Retain Original Proposal	Modified from Original Proposal	New Recommendation Not Included in Original Proposal	Rationale
<p>Reduce suspended soil particles by 30% and wood smoke by 15% of the 1981 base values through technology, management practices and educational programs.</p> <p><b>Proposed Revised Standards:</b>            1) Not to exceed 50µg/m<sup>3</sup> within a 24-hour period            2) Not to exceed an Annual Arithmetic Mean of 20µg/m<sup>3</sup></p>				<p>suspended soil particles were adopted without supporting baseline conditions. Consequently, it is not possible to determine attainment status. The proposed standard for particulate matter addresses the issue of wood smoke and suspended soil particles and provides a baseline against which attainment can be measured.</p>
<p><b>Particulate Matter 2.5 (PM<sub>2.5</sub>)</b>            Replace existing standard for wood smoke and soil particles with CA State standard annual average for PM<sub>2.5</sub> and Federal Standard for 24 hour PM<sub>2.5</sub></p> <p><b>Current Standards:</b>            Reduce suspended soil particles by 30% and wood smoke by 15% of the 1981 base values through technology, management practices and educational programs.</p> <p><b>Proposed Revised Standards:</b>            1) Annual Arithmetic Average Not to Exceed 12µg/m<sup>3</sup>            2) 24-hour not to exceed 35µg/m<sup>3</sup></p>		<input checked="" type="checkbox"/>		<p>Same as PM<sub>10</sub> above.</p>
<b>Wildlife</b>				
<p><b>Original Proposal for Special Interest Wildlife Species (Northern Goshawk)</b> - Update management standard to maximize protection of most suitable habitat surrounding known nest sites</p> <p><b>Current Standard:</b> Provide a disturbance-free zone measuring 0.5 mile radius (500 acres) around known</p>	<input checked="" type="checkbox"/>			<p>This amendment would provide most appropriate protection for this species and is based on best available science. The proposed update is consistent with Resolution 82-11 criterion “d” for threshold standard amendment (i.e., currently not sufficient to protect the</p>

Proposed Update	Retain Original Proposal	Modified from Original Proposal	New Recommendation Not Included in Original Proposal	Rationale
<p>population sites.</p> <p><b>Proposed Revised Standard:</b> Provide a disturbance-free zone that includes the most suitable 500 acres of habitat surrounding known nest sites during nesting periods.</p>				resource)
<b>Fisheries</b>				
<p><b>Original Proposal for Lake Fish Habitat</b> The proposal would retain the current target to protect 5,948 acres of spawning, and feed and cover habitat however would allow the use of best available science to delineate the location and extent of habitat.</p> <p><b>Current Standard:</b> A nondegradation standard shall apply to fish habitat in Lake Tahoe. Achieve the equivalent of 5,948 total acres of excellent habitat as indicated by the Prime Fish Habitat Overlay Map dated 5/19/97 as may be amended from time to time.</p> <p><b>Proposed Revised Standard:</b> A non-degradation standard shall apply to fish habitat in Lake Tahoe. Achieve the equivalent of 5,948 total acres of excellent habitat as indicated by the Prime Fish Habitat Overlay Map dated 5/19/97 as may be amended from time to time with maps based on best available science</p>		<input checked="" type="checkbox"/>		The agency’s policy of using the best available science does not require a formal amendment or update to the existing standard. Minor changes are proposed to the existing language
<b>Noise</b>				
<p><b>Original Proposal for Off-road Vehicles</b> - Amend standard to be consistent with state vehicle code standards</p> <p><b>Current Standard:</b> &lt;35mph do not exceed 72dBA @ 50ft</p>		<input checked="" type="checkbox"/>		Enforcement of the proposed new standard is outside of TRPA’s authority and more appropriately administered by CA and NV. TRPA recommends keeping the existing standard for off-highway

Proposed Update	Retain Original Proposal	Modified from Original Proposal	New Recommendation Not Included in Original Proposal	Rationale
>35mph do not exceed 86 dBA @ 50ft  <b>Proposed Revised Standard:</b> None				vehicles at this time.
<b>Noise (continued)</b>				
<b>Original Proposal for On-highway vehicles</b> – Amend standard to be consistent with state vehicle code noise standards  <b>Current Standard:</b> For Motor Vehicles Less Than 6,000 GVW (<35) – 76 dBA For Motor Vehicles Less Than 6,000 GVW (>35) – 82 dBA Motor Vehicles Greater Than 6,000 GVW (<35) – 82 dBA Motor Vehicles Greater Than 6,000 GVW (>35) – 86 dBA  <b>Proposed Revised Standard: None</b>		<input checked="" type="checkbox"/>		Same as above (off-road vehicles)
<b>Vegetation</b>				
<b>Original Proposal for Sensitive Plants:</b> Add a management standard for plants listed by US Forest Service-LTBMU  <b>Current Standard:</b> Maintain a minimum number of population sites for each of five sensitive plant species  <b>Proposed Standard:</b> None		<input checked="" type="checkbox"/>		Management standard more appropriate applied through TRPA Code of Ordinances and permit review.

**Attachment C. Lahontan Regional Water Quality Control Board Staff Report Regarding the Justification for Adopting the Lake Tahoe TMDL load reduction targets and other supporting information for proposed threshold standard amendments.** (insert Lahontan staff report first here)

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**Summary of Scope and Schedule for Nearshore Threshold Update - Directed Action Synthesis Research**

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**Task 1: Kickoff Meeting with Executives.** [Done]

**Task 2: Nearshore Annotated Bibliography.** [In progress, next update will be completed after distribution of Tasks 3-5 draft products.]

**Task 3: Technical Nearshore Definition.**

- 3.1) Review and summarize technical definitions [Done]
- 3.2) Review and summarize agency definitions [Done]
- 3.3) Reconcile nearshore definition [In progress, Nov/Dec 2011]
- 3.4) Presentation to NAWG - 1<sup>st</sup> week of December 2011
- 3.5) NAWG comments on NST proposal - Due by early January 2012
- 3.6) Develop final recommendation in preparation for February 2012 executive meeting – due mid-January 2011

**Task 4: Evaluation of Existing Standards**

- 4.1) Compile and document existing standards [Done]
- 4.2) Assess adequacy of existing standards and provide recommendations for new or updated standards as appropriate [In progress, Nov/Dec 2011]
- 4.3) Develop unified desired conditions [NAWG has completed this task, however still needs to be presented to Executives at February 2012 meeting]
- 4.4) Presentation on assessment of existing standards and recommendations to NAWG - 1<sup>st</sup> week of December 2011
- 4.5) NAWG comments on NST evaluation of standards and recommendations - Due by early January 2012
- 4.6) Develop final recommendation in preparation for February 2012 Executive meeting – Due Mid-January 2012

**Task 5: Existing Indicators Assessment**

- 5.1) Compile and document existing indicators [Done]
- 5.2) Indicator assessment [In progress, Nov 2011]
- 5.3) Indicator Assessment Presentation to NAWG - 1<sup>st</sup> week of December 2011
- 5.4) NAWG Comment on NST indicator assessment – Due first week of January 2012
- 5.5) Develop final indicator recommendation in preparation for February 2012 executive meeting – due late-January 2012

**Task 6: Conceptual Model (CM)**

- 6.1) Draft CM diagram and narrative per guidance document(s) [Nov 2011]
- 6.2) Present CM diagram and narrative to NAWG – 1<sup>st</sup> week of December 2011
- 6.3) NAWG Comment on CM products – Due 1<sup>st</sup> week January 2012
- 6.4) Review and revise draft products Due late Jan 2012]

- 6.5) Draft CM products for presentation at February 2012 Executive meeting
- 6.6) Produce final draft of CM Products (Due late March – 2012)

**Task 7: Nearshore Monitoring and Evaluation (M&E) Plan**

- 7.1) Draft M&E plan for selected indicators [Mar 2012]
- 7.2) Present Draft M&E Plan to NAWG – Due early April 2012
- 7.3) NAWG Comment on M&E Plan Due early May 2012
- 7.4) Review and revise draft M&E plan [Early June 2012]
- 7.5) Draft final M&E plan [Mid-June 2012]
- 7.6) Present M&E Plan to Executives – Due – Late June 2012

**Task 8: Review and Reporting**

- 8.1) Develop final products for NAWG
- 8.2) Conduct 2 Executive Meetings (one mid-February 2012 and one Late-June 2012)
- 8.3) Hold 1 public/stakeholder meeting to present results of project (early-July 2012)
- 8.4) Submit products for external peer-review focused on final CM and M&E products [late-Jun 2012]
- 8.5) Revise final products for publication [November 2012]

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**Summary of Recent Nearshore Clarity Studies**

***Investigation of Nearshore Turbidity at Lake Tahoe. 2002. K. Taylor. Desert Research Institute, Division of Hydrologic Sciences Publication No. 41179.***

- The spatial and temporal variability of turbidity in the near shore zone of Lake Tahoe was investigated using an instrumented boat to map the spatial distribution of turbidity. The highest turbidity values were in the lake adjacent to Tahoe Keys and exceeded the TRPA littoral zone turbidity threshold. Areas with persistently high turbidity occurred off South Lake Tahoe and Tahoe City. Areas with occasional high turbidity occurred off Incline Village and Kings Beach. Undeveloped areas such as Rubicon and Deadman Point consistently had low turbidity.
- There is a strong correlation between elevated turbidity near the shore and development on the shore. It is likely that most of the clarity loss near the shore is caused by processes that occur along a small percentage of the lakeshore. Although atmospheric deposition of nutrients may contribute to a lake wide decline in clarity, but it occurs over too large an area to explain the small size of the areas with elevated turbidity. Hence, most of the near shore clarity loss is caused by neighborhood scale local problems.
- A long term monitoring program should have a combination of spatial and temporal measurements utilizing methods that are efficient and that will be consistent over many decades.
- The current TRPA littoral zone turbidity threshold (WQ-1) does not provide a level of environmental protection that is consistent with the other TRPA thresholds and may not be consistent with the community's expectations.

***Near-shore Clarity at Lake Tahoe: Status and Causes of Reduction.* 2004. K. Taylor, R. Susfalk, M. Shanafield, and G. Schladow. Desert Research Institute, Division of Hydrologic Sciences Publication No. 41193.**

- Water clarity near the shore will respond faster and in a more localized way to management actions than the clarity in the middle of the lake. Several methods of monitoring the high clarity of Lake Tahoe, and their pros and cons are discussed (remote sensing, Secchi disk, light attenuation, turbidity, etc).
- The study incorporated whole lakeshore turbidity spatial surveys conducted during several different seasons. The localized response of near-shore clarity, which is different than the basin-scale response of mid-lake clarity, allows the location of problem areas to be identified. The fast and small spatial-scale response of near-shore clarity makes it well suited for guiding and evaluating management actions and/or thresholds.
- In this report, the near-shore zone is defined as starting where the water is 1 m deep and extending offshore 100 m or until the water is at least 30 m deep, whichever distance offshore is greater.
- There was an obvious association between elevated near-shore turbidity and some developed areas. The areas with the most elevated turbidity were offshore of the Upper Truckee River outlet, Al Tahoe, and Bijou Creek. The highest turbidities were observed during periods of low-elevation snowmelt (up to 2 NTU) and spring runoff, and were always associated with an abundance of mineral particles.
- There is comprehensive discussion of the current TRPA littoral zone turbidity threshold, and determined that it is difficult to apply because it is ambiguously written. The threshold allows large reductions in near-shore clarity before conditions are not in compliance with the threshold. They recommended that a new threshold be developed that provides for a greater level of protection in undeveloped areas than in developed areas, allows for a tightly defined increase in turbidity during infrequent storm events, and sets a threshold value that is consistent with the public's expectations. Light attenuation is the suggested measure.



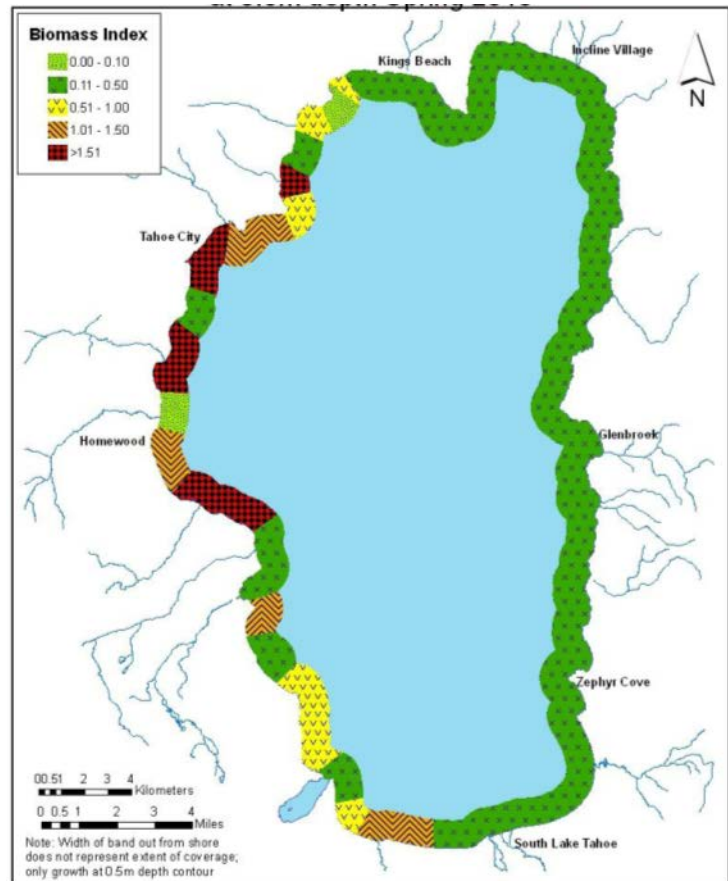
## Draft Indicator Summary: Nearshore Attached Algae

### Reporting Icon



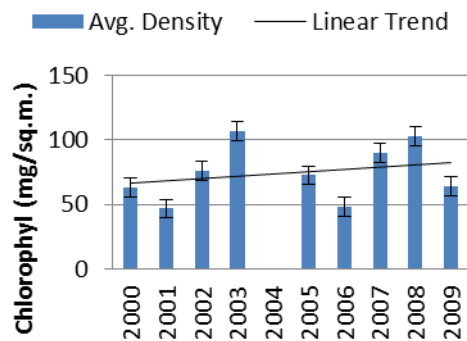
Status: Data available, no target for comparison  
Trend: No Change  
Confidence: Medium

### Map



### Trend

#### Average Chlorophyll Density



Algal biomass as measured by average chlorophyll density at four sites from 2000 to 2010 (TERC, 2010c). Although the trend appears to show a moderate decline in condition (more algae), fluctuations in chlorophyll density are highly related to lake level. This fact lowers confidence and makes the apparent trend insignificant.

Distribution of attached algae based on a biomass index consisting of percent cover and filament length. This figure represents 2010 values collected during peak growth periods in the spring. Areas of higher biomass generally occur on the west shore, near areas with relatively dense urban development (TERC, 2010c).

### Interpretation and Commentary

- **Importance** – Attached algae impacts recreational quality of the nearshore, alters the aquatic community and signals high-concentration nutrient inputs to Lake Tahoe. While algae growth occurs in all lakes, heavy growth indicates excessive nutrient loading. This is problematic at Lake Tahoe because naturally low-nutrient conditions are responsible for the lake's noted clarity.
- **Status** – Nearshore attached algae is reported via two metrics: 1) average chlorophyll density at four locations (a good proxy for the amount of algae), and 2) a biomass index that shows algae distribution around Lake Tahoe's shorezone (TERC, 2010a). Although extensive data are available, no target has been established and thus it is not possible to define status relative to a desired condition. The distribution of attached algae shows that areas on the west shore, particularly near urban development have higher biomass index (worse) scores.
- **Trend** – Average readings of chlorophyll density from four long-term sites around Lake Tahoe show an increase in algal biomass between 2000 and 2010. However this trend is very likely to be misleading because lake level has a strong influence over the

results. To date, no statistically significant long-term trend in periphyton biomass has been detected at any of the monitoring locations (TERC, 2010c).

- **Confidence** – Confidence in status measurements is high due to the spatial and temporal frequency of sampling over a long timeframe. Confidence in trend determination is low because confounding factors such as lake level are likely to be overwhelming changes in algae growth. These confidence evaluations are combined to produce the “medium” value shown on the reporting icon. Future analysis will statistically remove the influence of lake level and other variables to better evaluate overall chlorophyll density trend, potentially increasing the overall confidence in this indicator.
- **Human and Environmental Drivers** – Lake level is a very important driver of attached algae growth because the number of spring growth seasons that a given rock is underwater strongly influences how much algae can grow. Attached algae growth is also influenced by nutrient inputs, proximity to urban development, substrate availability and wind/wave forces.
- **Monitoring Approach – Chlorophyll density** has been measured for a decade at four sampling sites and more recently at nine sampling sites around Lake Tahoe. Samples are taken by scraping algae off of the lake bottom roughly half a meter below the lake surface. Typically two samples are taken from representative points at any one sampling site. Additional information such as dry weight is also analyzed. Since late 2007, a biomass index has been calculated annually based on the percent cover of algae on the lake bottom multiplied by the typical length of filaments in the area. This metric and several other observations are recorded at 40-50 sampling sites during peak growth in the spring. Sampling sites for all metrics represent a range of onshore disturbance levels from undisturbed land to urban development (TERC, 2010a).
- **Monitoring Partners** – Tahoe Environmental Research Center – UC Davis, Lahontan Regional Water Quality Control Board

### Supporting Information

#### REFERENCES

1. (a) TERC 2010. *Lake Tahoe Water Quality Investigations: algal bioassay, phytoplankton, atmospheric nutrient deposition, periphyton, Angora Fire water quality monitoring*. Prepared for the Lahontan Regional Water Quality Control Board. [http://terc.ucdavis.edu/publications/2010\\_LakeTahoeWaterQualityInvestigations.pdf](http://terc.ucdavis.edu/publications/2010_LakeTahoeWaterQualityInvestigations.pdf). p. 45-81.
2. (b) TERC 2010. *Attached algae or “periphyton” growth peaks in spring at Lake Tahoe*. UC Davis – Tahoe Environmental Research Center (TERC). <http://terc.ucdavis.edu/publications/PeriphytonPeaksInSpring.pdf>.
3. (c) TERC 2010. *Tahoe: State of the Lake Report 2010*. UC Davis – Tahoe Environmental Research Center (TERC) <http://terc.ucdavis.edu/stateofthelake/StateOfTheLake2010.pdf>. p. 10.9 - 10.10.

#### ADDITIONAL INFORMATION

4. **Monitoring Plan:** A basin-wide monitoring plan does not exist as of August 2011; however the references in the data & analysis section above provide good information for a future monitoring plan. See pages 43-81 of item #1 above.
5. **Data Sources:** The average chlorophyll density used for trend analysis was created by averaging the maximum annual chlorophyll maximum densities for each year. The analysis is available at: <https://environmentalincentives.centraldesktop.com/tahoeannualreport/file/13908305/>
6. **Conceptual Model:** A conceptual model defining drivers and actions impacting nearshore attached algae does not exist as of June 2011. The following is a starting point reference and is not specific to Tahoe: