

UPDATE ON ASSESSMENT OF NUTRIENTS IN RESERVOIRS: CHANGES FROM THE 2016 INTEGRATED REPORT

August 24, 2018

Surface Water Quality Monitoring Team

TCEQ Monitoring and Assessment Section



2016 Draft Integrated Report

- July 27, 2015 Joint meeting of Nutrient Criteria Development and Surface Water Quality Monitoring Guidance Advisory Workgroups
- February 1, 2016 Data provider comment period
- May 4, 2018 Public comment period

Why so long?

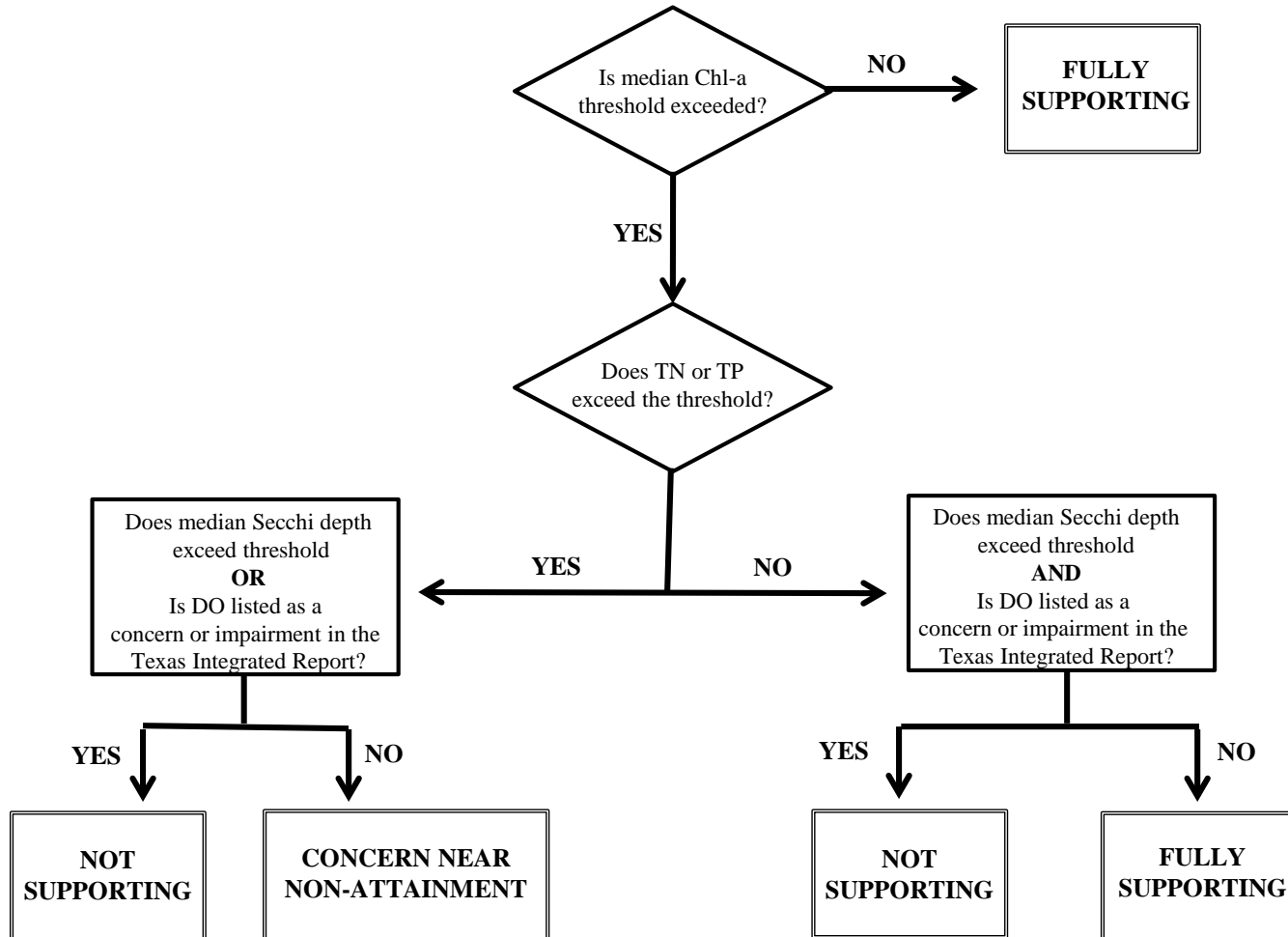
- Address comments from 2015 workgroup, EPA and data provider comment period
- Coordination with EPA
- Evaluate chlorophyll-a data

Revisions due to stakeholder comment

Stakeholder Comment	Revision
General support for line of evidence approach	
Assign weights to parameters, rather than use a flow chart	
Incorporate Chlorophyll-a trends	Incorporated Chlorophyll-a trend 10 year change in Chl-a trophic state index
Upper threshold of 40ug/L for Chl-a redundant, too stringent, or not stringent enough	Removed use of 40 ug/L upper threshold for Chl-a, unless no trend is available
TN threshold too stringent or not limiting nutrient	Revised TN threshold from 0.58 to 0.8 mg/L, to incorporate variability of model
Clarify use of dissolved oxygen	Clarified the use of dissolved oxygen in procedure
Use as much site-specific information as possible	Consider localized effects of excessive algae, as submitted by stakeholders
Address drought	Developed initial framework to consider drought impacts

39 reservoirs with numeric criteria

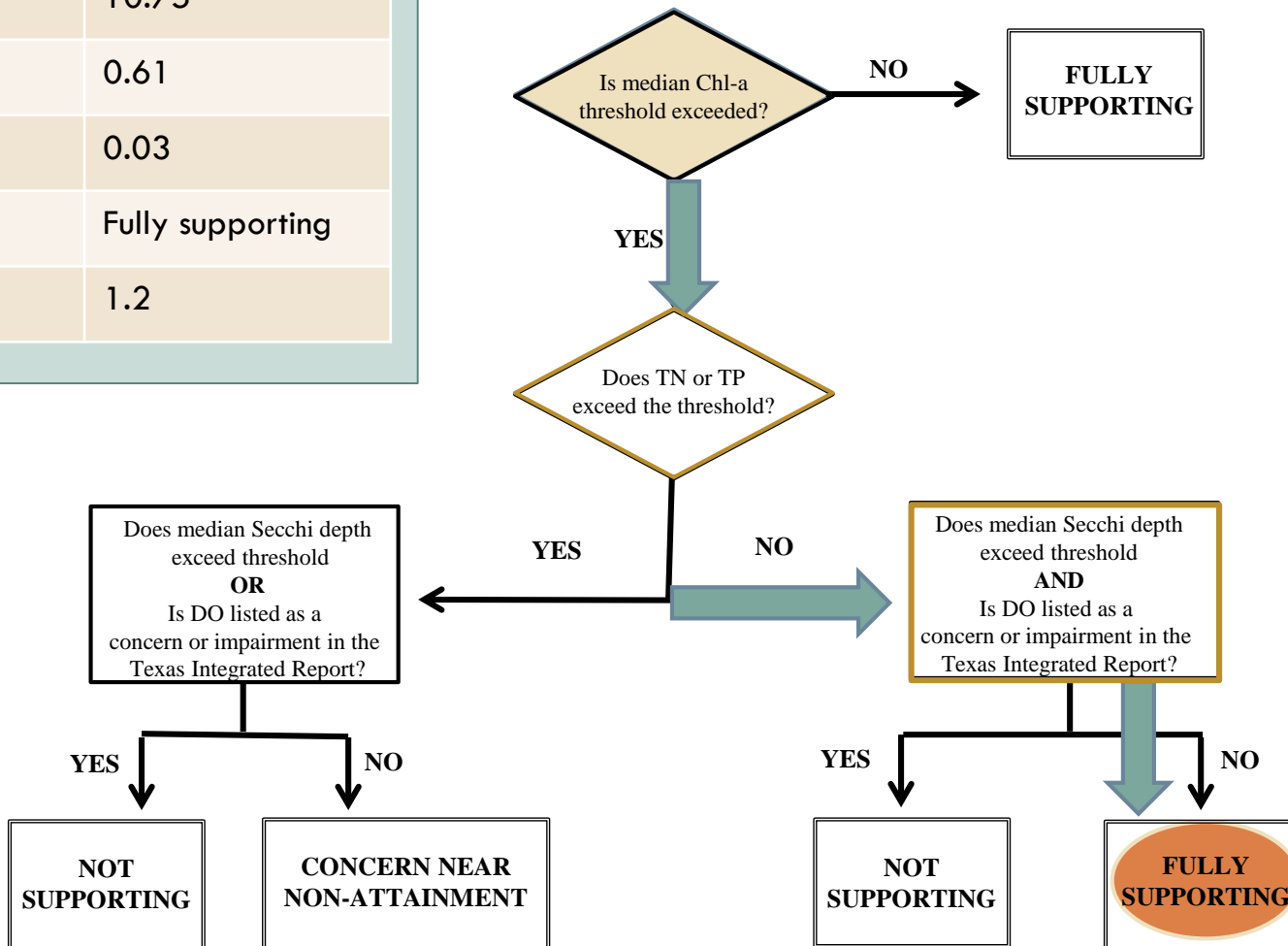
Numeric Criteria



Example: Lake Buchanan

	Criteria	Data
Chl-a	9.82	10.75
TN	0.8	0.61
TP	0.03	0.03
DO		Fully supporting
Secchi	1.64	1.2

Numeric Criteria



Supplemental Nutrient Report

SegID: 1408 Lake Buchanan
 From Buchanan Dam in Burnet/Llano County to a point immediately upstream of the confluence of Yancey Creek, up to normal pool elevation of 1020.5 feet (impounds Colorado River)

Nutrient Reservoir Criteria- Numeric

**Station(s) used in evaluation:
12344**

Parameter	Criteria/Threshold	Samples Assessed	Median
Chlorophyll-a	9.82	42	10.75
Secchi Depth	1.64	43	1.20
Total Nitrogen	0.80	42	0.61
Total Phosphorus	0.03	42	0.03
10 Year Change in TSI	10.00	NA	NA

Concerns or impairments for dissolved oxygen identified in any portion (assessment unit) of the reservoir? No

SegID: 2103 Lake Corpus Christi
 From Wesley E. Seale Dam in Jim Wells/San Patricio County to a point 100 meters (110 yards) upstream of US 59 in Live Oak County, up to normal pool elevation of 94 feet (impounds Nueces River)

Nutrient Reservoir Criteria- Narrative

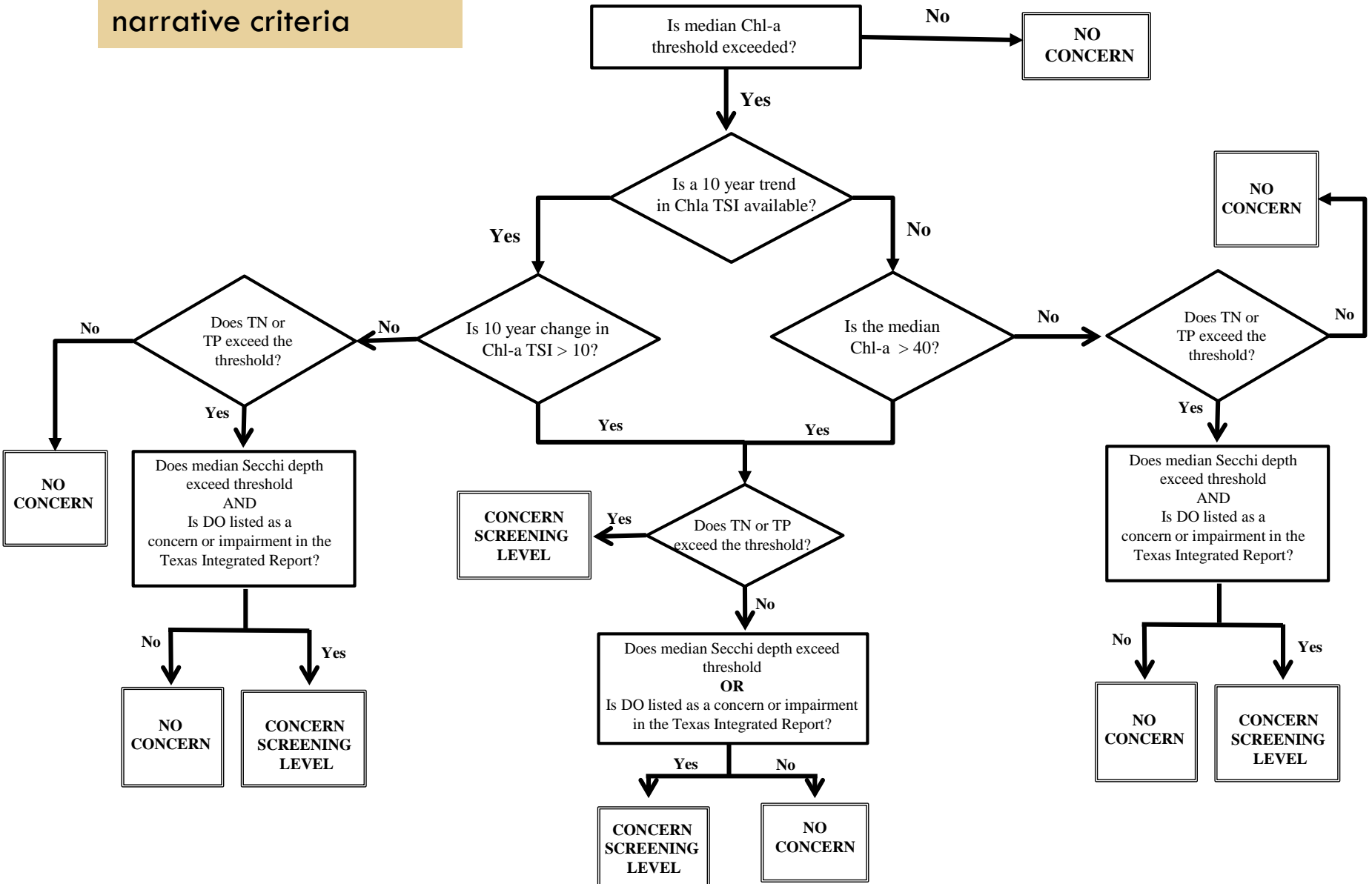
**Station(s) used in evaluation:
12967**

Parameter	Criteria/Threshold	Samples Assessed	Median
Chlorophyll-a	15.01	28	15.90
Secchi Depth	0.41	36	0.34
Total Nitrogen	0.80	13	1.53
Total Phosphorus	0.18	28	0.16
10 Year Change in TSI	10.00	0	NA

Concerns or impairments for dissolved oxygen identified in any portion (assessment unit) of the reservoir? No

36 reservoirs with narrative criteria

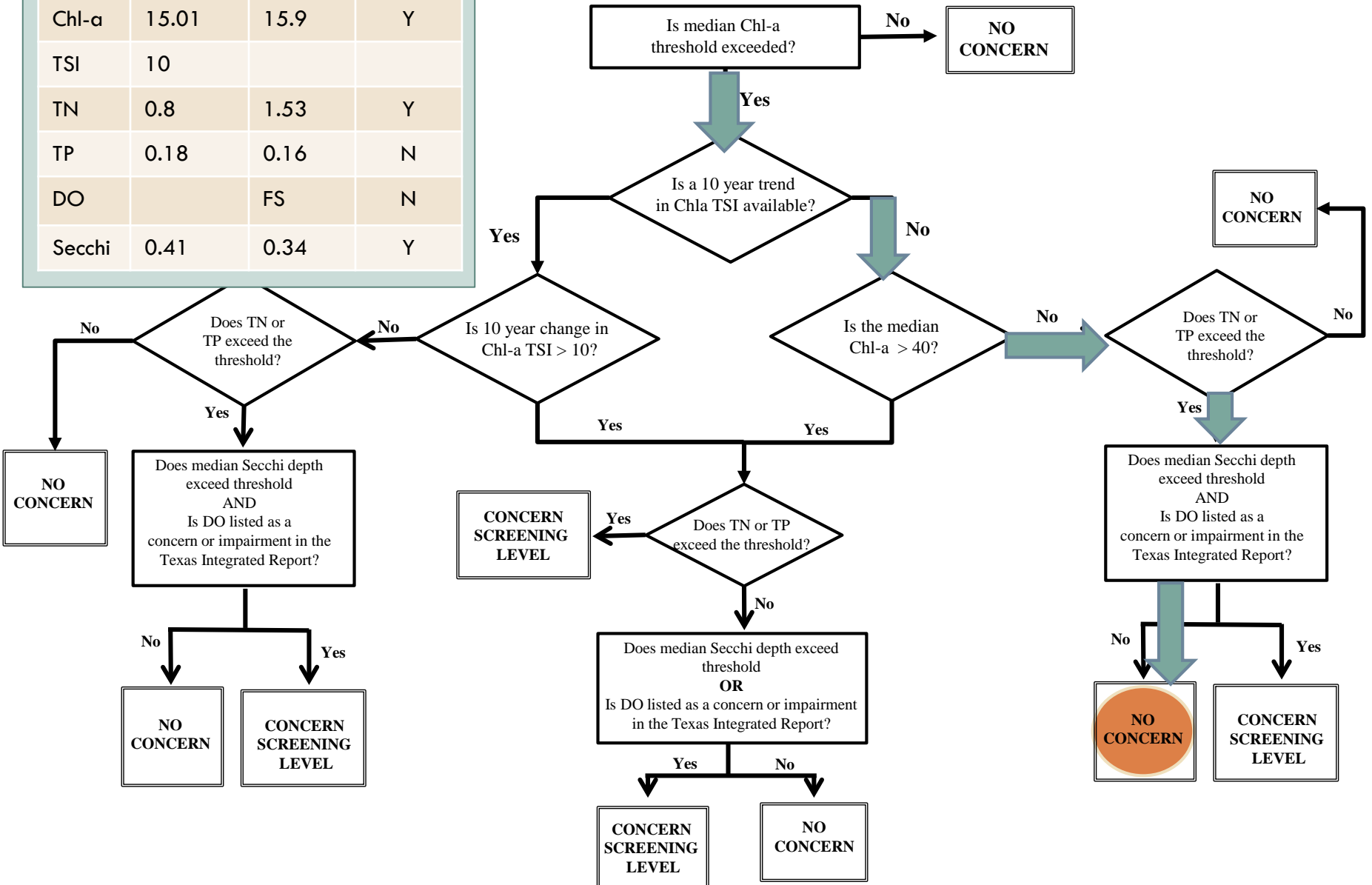
Narrative Criteria



Example: Lake Corpus Christi

	Criteria	Data	Exceed
Chl-a	15.01	15.9	Y
TSI	10		
TN	0.8	1.53	Y
TP	0.18	0.16	N
DO		FS	N
Secchi	0.41	0.34	Y

Narrative Criteria



Next Steps

- Continue Addressing Chlorophyll-a data

- ▣ Chlorophyll-a method study

A comparison of three chlorophyll-a analytical techniques, funded by Clean Water Act Section 106. Initial results expected in 2019.

- Consider feedback from the 2018 Guidance Advisory workgroup meeting