

Appendix E-8: Natural Lakes

7. Please also rank these threats to the Wildlife in Natural Lakes Habitat in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total
Habitat loss (breeding range)	25% (1)	25% (1)	25% (1)	0% (0)	0% (0)	25% (1)	4
Habitat loss (feeding/foraging areas)	50% (2)	0% (0)	25% (1)	25% (1)	0% (0)	0% (0)	4
Small native range (high endemism)	0% (0)	25% (1)	0% (0)	50% (2)	25% (1)	0% (0)	4
Near limits of natural geographic range	25% (1)	25% (1)	0% (0)	25% (1)	25% (1)	0% (0)	4
Large home range requirements	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	0% (0)	4
Viable reproductive population size or availability	25% (1)	25% (1)	50% (2)	0% (0)	0% (0)	0% (0)	4
Specialized reproductive behavior or low reproductive rates	25% (1)	25% (1)	25% (1)	25% (1)	0% (0)	0% (0)	4
Degradation of movement/migration routes (overwintering habitats, nesting and staging sites)	0% (0)	0% (0)	75% (3)	0% (0)	0% (0)	25% (1)	4
Genetic pollution (hybridization)	0% (0)	0% (0)	0% (0)	0% (0)	67% (2)	33% (1)	3
Unknown	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
						Total Respondents	37

8. Other threats to the Wildlife in Natural Lakes Habitat in Indiana.

No responses were entered for this question.

Total Respondents 0

9. Please briefly describe the top two threats to the Wildlife in Natural Lakes Habitat in Indiana identified above.

1. Long-term declines in water quality associated with lake eutrophication.
Annual and seasonal variations in habitat availability.

2. -Cold, clear water is critical for cisco survival; increased runoff and nutrient loading have degraded the habitat for this species in many of the 50+ lakes it once occurred in. Few lakes still have the species, and there is apparently little to no reproduction.

-The deliberate stocking of predator fish in cisco lakes has been a threat to this species for years; if this hasn't been stopped, it needs to.

1. Loss of habitat (reproductive/feeding) that is essential for northern pike survival
Over harvest and illegal harvest (This doesn't seem to be a major threat as of now)

1. Loss of undisturbed natural lake habitat.

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Total Respondents

4

10. Please rank the following threats to the HABITAT of the Wildlife in Natural Lakes Habitat in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total
Commercial or residential development (sprawl)	25% (1)	75% (3)	0% (0)	0% (0)	0% (0)	0% (0)	4
Counterproductive financial incentives or regulations	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (4)	4
Invasive/non-native species	0% (0)	25% (1)	25% (1)	25% (1)	0% (0)	25% (1)	4
Nonpoint source pollution (sedimentation and nutrients)	50% (2)	25% (1)	0% (0)	25% (1)	0% (0)	0% (0)	4
Habitat fragmentation	0% (0)	25% (1)	25% (1)	25% (1)	0% (0)	25% (1)	4
Successional change	25% (1)	25% (1)	0% (0)	25% (1)	25% (1)	0% (0)	4
Diseases (of plants that create habitat)	0% (0)	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	4
Habitat degradation	50% (2)	50% (2)	0% (0)	0% (0)	0% (0)	0% (0)	4
Climate change	25% (1)	0% (0)	0% (0)	0% (0)	50% (2)	25% (1)	4
Stream channelization	0% (0)	0% (0)	75% (3)	25% (1)	0% (0)	0% (0)	4
Impoundment of water/flow regulation	0% (0)	0% (0)	25% (1)	0% (0)	50% (2)	25% (1)	4
Agricultural/forestry practices	25% (1)	50% (2)	25% (1)	0% (0)	0% (0)	0% (0)	4
Residual contamination (persistent toxins)	0% (0)	0% (0)	25% (1)	50% (2)	0% (0)	25% (1)	4
Point source pollution (continuing)	0% (0)	0% (0)	50% (2)	25% (1)	0% (0)	25% (1)	4
Mining/acidification	0% (0)	0% (0)	0% (0)	0% (0)	75% (3)	25% (1)	4
Drainage practices (stormwater runoff)	0% (0)	50% (2)	50% (2)	0% (0)	0% (0)	0% (0)	4
Unknown	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
							Total Respondents
							66

11. Other HABITAT threats to the Wildlife in Natural Lakes Habitat in Indiana.

No responses were entered for this question.

Total Respondents

0

(skipped this question)

2

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12. Please briefly describe the top two HABITAT threats to the Wildlife in Natural Lakes Habitat in Indiana identified above.

Habitat degradation
Successional change

Water quality degradation that leads to cloudy water is the key threat.

1. Emergent bulrush and wetland habitat loss. It has been well documented in northern states that northern pike prefer flooded vegetation for spawning during the spring. Loss of this habitat from boating and wildlife (waterfowl and muskrat feeding) may reduce reproductive habitat for northern pike in some natural lakes.

2. Bulkhead seawall development reduces emergent vegetation used by northern pike for reproduction and for cover during feeding.

Shoreline and labeled alterations

Total Respondents 4

13. What current monitoring efforts by state agencies are you aware of for the Wildlife in Natural Lakes Habitat in Indiana?

	Yes, these efforts occur	Not aware of these efforts occurring	Response Total
Statewide year-round monitoring conducted by state agencies	0% (0)	100% (4)	4
Statewide once a year monitoring conducted by state agencies	0% (0)	100% (4)	4
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (4)	4
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	25% (1)	75% (3)	4
Regional or local year-round monitoring conducted by state agencies	25% (1)	75% (3)	4
Regional or local once a year monitoring conducted by state agencies	25% (1)	75% (3)	4
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	50% (2)	50% (2)	4
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	100% (4)	0% (0)	4
	Total Respondents		32

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14. What current monitoring efforts by other organizations are you aware of for the Wildlife in Natural Lakes Habitat in Indiana?

	Yes, these efforts occur	Not aware of these efforts occurring	Response Total
Statewide year-round monitoring conducted by other organizations	0% (0)	100% (4)	4
Statewide once a year monitoring conducted by other organizations	0% (0)	100% (4)	4
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (4)	4
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (4)	4
Regional or local year-round monitoring conducted by other organizations	0% (0)	100% (4)	4
Regional or local once a year monitoring conducted by other organizations	25% (1)	75% (3)	4
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	25% (1)	75% (3)	4
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	25% (1)	75% (3)	4
	Total Respondents	32	

15. How crucial are these monitoring efforts by state agencies for the conservation of the Wildlife in Natural Lakes Habitat in Indiana?

	Very crucial	Somewhat crucial	Slightly crucial	Not crucial	Unknown	Response Total
Statewide year-round monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	75% (3)	25% (1)	4
Statewide once a year monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	75% (3)	25% (1)	4
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	75% (3)	25% (1)	4
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	25% (1)	50% (2)	25% (1)	4
Regional or local year-round monitoring conducted by state agencies	0% (0)	25% (1)	0% (0)	50% (2)	25% (1)	4
Regional or local once a year monitoring conducted by state agencies	0% (0)	25% (1)	25% (1)	25% (1)	25% (1)	4
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	25% (1)	50% (2)	0% (0)	25% (1)	4
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	50% (2)	50% (2)	0% (0)	0% (0)	0% (0)	4
	Total Respondents	32				

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16. How crucial are these monitoring efforts by other organizations for the conservation of the Wildlife in Natural Lakes Habitat in Indiana?

	Very crucial	Somewhat crucial	Slightly crucial	Not crucial	Unknown	Response Total
Statewide year-round monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	4
Statewide once a year monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	4
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	4
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	4
Regional or local year-round monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	4
Regional or local once a year monitoring conducted by other organizations	0% (0)	25% (1)	25% (1)	25% (1)	25% (1)	4
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	25% (1)	25% (1)	50% (2)	4
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	25% (1)	25% (1)	0% (0)	50% (2)	4
Total Respondents						32

17. Regional or local state agency monitoring for the Wildlife in Natural Lakes Habitat in Indiana.

1. Division of Fish and Wildlife at cisco lakes
Department of Environmental Management water quality monitoring

2. NE Indiana by DFW (Jed Pearson)

1. Northern Pike are monitored via general fish surveys conducted to update lake status. There is now monitoring of northern pike on a general schedule.
2. There was a tracking study conducted in two Indiana natural lakes in the late 1990's by the IDNR to better understand reproductive habitat of northern pike.

Division of Fish and Wildlife standardized largemouth bass sampling protocols
Tournament fishing monitoring by the Division of Fish and Wildlife

Total Respondents 4

18. Regional or local monitoring by other organizations for the Wildlife in Natural Lakes Habitat in Indiana.

No responses were entered for this question.

Total Respondents 0

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19. Please list organizations that are monitoring the Wildlife in Natural Lakes Habitat in Indiana.

Bass fishing clubs who hold tournaments on Lake Wawasee and Syracuse Lake

Total Respondents 1

20. What are the current monitoring techniques for the Wildlife in Natural Lakes Habitat in Indiana?

	Frequently used	Occasionally used	Not used but possible with existing technology and data	Not used and not possible with existing technology and data	Not economically feasible	Unknown	Response Total
Radio telemetry and tracking	0% (0)	50% (2)	25% (1)	0% (0)	0% (0)	25% (1)	4
Modeling	0% (0)	25% (1)	25% (1)	0% (0)	0% (0)	50% (2)	4
Coverboard routes	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Spot mapping	0% (0)	33% (1)	0% (0)	0% (0)	0% (0)	67% (2)	3
Driving a survey route	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Reporting from harvest, depredation, or unintentional take (road kill, bycatch)	0% (0)	67% (2)	0% (0)	0% (0)	0% (0)	33% (1)	3
Mark and recapture	25% (1)	0% (0)	25% (1)	25% (1)	0% (0)	25% (1)	4
Professional survey/census	25% (1)	50% (2)	0% (0)	0% (0)	0% (0)	25% (1)	4
Volunteer survey/census	0% (0)	25% (1)	50% (2)	0% (0)	0% (0)	25% (1)	4
Trapping (by any technique)	50% (2)	25% (1)	25% (1)	0% (0)	0% (0)	0% (0)	4
Representative sites	0% (0)	67% (2)	0% (0)	0% (0)	0% (0)	33% (1)	3
Probabilistic sites	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
							Total Respondents 40

21. Other monitoring techniques for the Wildlife in Natural Lakes Habitat in Indiana.

No responses were entered for this question.

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Total Respondents 0

22. What one or two monitoring techniques would you recommend for effective conservation of the Wildlife in Natural Lakes Habitat in Indiana?

Occasional gill-netting to verify presence followed by intensive netting to confirm low levels or absence.

Large fyke-nets are used in Lake Webster (Kosciusko Co.) to collected brood stock for muskellunge. These nets would be useful in capturing northern pike as well. This would allow biologist to capture enough fish to get a representative sample of adult fish. There is still no effective method of sampling young esocids without mortality.

Springtime dc electrofishing according to DFW standard protocol
 Standard DFW creel survey procedures
 Tournament monitoing by the DFW and bass clubs

Total Respondents 3

23. What current HABITAT inventory and assessment efforts or activities by state agencies are you aware of for the Wildlife in Natural Lakes Habitat in Indiana?

	Yes, these efforts occur	No effort that I'm aware of	Response Total
Statewide annual inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Statewide once a year inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Regional or local year-round inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Regional or local once a year inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	50% (2)	50% (2)	4
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	75% (3)	25% (1)	4
	Total Respondents		32

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24. What current HABITAT inventory and assessment efforts or activities by other organizations are you aware of for the Wildlife in Natural Lakes Habitat in Indiana?

	Yes, these efforts occur	No effort that I'm aware of	Response Total
Statewide year-round inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Regional or local year-round inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	50% (2)	50% (2)	4
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	50% (2)	50% (2)	4
	Total Respondents		32

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26. How crucial are these HABITAT efforts by other organizations for the conservation of the Wildlife in Natural Lakes Habitat in Indiana?

	These efforts are very crucial for this HABITAT	These efforts are somewhat crucial for this HABITAT	These efforts are slightly crucial for this HABITAT	These efforts are not crucial for this HABITAT	Unknown	Response Total
Statewide year-round inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	4
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	4
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	4
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	4
Regional or local year-round inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	4
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	4
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	4
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	25% (1)	0% (0)	75% (3)	4
						Total Respondents
						32

27. Regional or local state agency HABITAT inventory and assessment for the Wildlife in Natural Lakes Habitat in Indiana.

NE IN, DFW, Jed Pearson.

Recently the IDNR has began sampling/mapping emergent plant species in some Indiana natural lakes. These plants may be used as reproductive habiatat for northern pike.

Not aware of any

Total Respondents **3**

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28. Regional or local HABITAT inventory and assessment by other organizations for the Wildlife in Natural Lakes Habitat in Indiana.

Not aware of any

Total Respondents 1

29. Please list organizations that are monitoring this HABITAT for the Wildlife in Natural Lakes Habitat in Indiana.

Not aware of any

Total Respondents 1

30. What are the current monitoring techniques for the Wildlife in Natural Lakes Habitat in Indiana.

If a technique is not applicable to the Wildlife in Natural Lakes Habitat, do not select a response in that row.

	Frequently used	Occasionally used	Not used but possible with existing technology and data	Not used and not possible with existing technology and data	Not economically feasible	Unknown	Response Total
GIS mapping	0% (0)	25% (1)	25% (1)	0% (0)	0% (0)	50% (2)	4
Aerial photography and analysis	0% (0)	33% (1)	0% (0)	0% (0)	0% (0)	67% (2)	3
Systematic sampling	0% (0)	25% (1)	25% (1)	0% (0)	0% (0)	50% (2)	4
Property tax estimates	0% (0)	0% (0)	0% (0)	25% (1)	25% (1)	50% (2)	4
State revenue data	0% (0)	0% (0)	0% (0)	25% (1)	25% (1)	50% (2)	4
Regulatory information	0% (0)	0% (0)	0% (0)	25% (1)	25% (1)	50% (2)	4
Participation in landuse programs	0% (0)	25% (1)	0% (0)	0% (0)	25% (1)	50% (2)	4
Modeling	0% (0)	0% (0)	33% (1)	0% (0)	0% (0)	67% (2)	3
Voluntary landowner reporting	0% (0)	25% (1)	25% (1)	0% (0)	0% (0)	50% (2)	4
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
							Total Respondents 36

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31. Other HABITAT inventory and assessment techniques for the **Wildlife in Natural Lakes Habitat** in Indiana.

No responses were entered for this question.

Total Respondents 0

32. What one or two HABITAT inventory and assessment techniques would you recommend for effective conservation of the **Wildlife in Natural Lakes Habitat** in Indiana?

1. Emergent bulrush and wetland monitoring and protection via ecozones
2. Evaluate land and water use practices to reduce in lake and upstream degradation of vegetation and shoreline.

Unknown

Total Respondents 2

33. What is the current body of science for the **Wildlife in Natural Lakes Habitat** in Indiana?

		Response Total	Response Percent
Complete, up to date and extensive		0	0%
Adequate		1	25%
Inadequate		3	75%
Nonexistent		0	0%
Other (please explain below)		0	0%
		Total Respondents	4

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34. Please provide a citation (title, author, date, publisher) that would give the best overview of the **Wildlife in Natural Lakes Habitat** in Indiana, if available. This resource may be used if further detail is needed.

Title = Cisco population status and management in Indiana
 Author = Jed Pearson
 Date = 2001
 Publisher = Division of Fish and Wildlife

Title = Northern Pike Spawning Habitat Investigations At Two Narural Lake In Indiana
 Author = Cwalinski, Tim A.
 Date = September 2001
 Publisher = Indiana Department of Natural Resources

Response Total Response Percent

Title = DFW largemouth bass database
 Author = Jed Pearson
 Date = unpublished
 Publisher = unpublished

35. If possible, please provide a second citation (title, author, date, publisher) that would give another good overview of the **Wildlife in Natural Lakes Habitat** in Indiana. This resource may also be used if further detail is needed.

Title = Largemouth bass size limits at Indiana natural lakes - a 30-year history
 Author = Jed Pearson
 Date = 2003
 Publisher = unpublished

Response Total Response Percent

36. What is the current HABITAT body of science for the **Wildlife in Natural Lakes Habitat** in Indiana?

		Response Total	Response Percent
Complete, up to date and extensive		0	0%
Adequate		0	0%
Inadequate		3	75%
Nonexistent		1	25%
Other (please explain below)		0	0%
Total Respondents		4	

37. Please provide a citation (title, author, date, publisher) that would give the best HABITAT overview of the **Wildlife in Natural Lakes Habitat** in Indiana, if available. This resource may be used if further detail is needed.

Title = Cisco population status and management in Indiana
 Author = Jed Pearson
 Date = 2001
 Publisher = Division of Fish and Wildlife

Response Total Response Percent

38. If possible, please provide a second citation (title, author, date, publisher) that would give another good HABITAT overview of the **Wildlife in Natural Lakes Habitat** in Indiana. This resource may also be used if further detail is needed.

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	Response Total	Response Percent
Title	0	0%
Author	0	0%
Date	0	0%
Publisher	0	0%
	Total Respondents	0

39. What are the research needs for the Wildlife in Natural Lakes Habitat in Indiana?

	Urgently needed	Greatly needed	Needed	Slightly needed	Not needed	Unknown	Response Total
Life cycle	0% (0)	0% (0)	100% (4)	0% (0)	0% (0)	0% (0)	4
Distribution and abundance	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	0% (0)	4
Limiting factors (food, shelter, water, breeding sites)	0% (0)	75% (3)	25% (1)	0% (0)	0% (0)	0% (0)	4
Threats (predators/competition, contamination)	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	0% (0)	4
Relationship/dependence on specific habitats	0% (0)	25% (1)	50% (2)	25% (1)	0% (0)	0% (0)	4
Population health (genetic and physical)	0% (0)	0% (0)	25% (1)	50% (2)	25% (1)	0% (0)	4
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	1
					Total Respondents		25

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40. Other research needs for the Wildlife in Natural Lakes Habitat in Indiana.

Limiting factors and impacts of competition and predation

Total Respondents 1

41. What are the HABITAT research needs for the Wildlife in Natural Lakes Habitat in Indiana?

	Urgently needed	Greatly needed	Needed	Slightly needed	Not needed	Unknown	Response Total
Successional changes	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	0% (0)	4
Distribution and abundance (fragmentation)	0% (0)	0% (0)	25% (1)	50% (2)	25% (1)	0% (0)	4
Threats (land use change/competition, contamination/global warming)	0% (0)	75% (3)	25% (1)	0% (0)	0% (0)	0% (0)	4
Relationship/dependence on specific site conditions	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	0% (0)	4
Growth and development of individual components of the habitat	0% (0)	0% (0)	33% (1)	33% (1)	0% (0)	33% (1)	3
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
							Total Respondents 21

42. Other HABITAT research needs for the Wildlife in Natural Lakes Habitat in Indiana.

Water quality variations and impacts of land use and shoreline alterations

Total Respondents 1

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43. How well do the following conservation efforts address the threats to the Wildlife in Natural Lakes Habitat in Indiana?

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection (use below for details)	50% (2)	50% (2)	0% (0)	0% (0)	0% (0)	4
Population management (hunting, trapping)	50% (2)	0% (0)	0% (0)	50% (2)	0% (0)	4
Population enhancement (captive breeding and release)	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Reintroduction (restoration)	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Food plots	0% (0)	0% (0)	0% (0)	100% (4)	0% (0)	4
Threats reduction	50% (2)	25% (1)	0% (0)	25% (1)	0% (0)	4
Native predator control	0% (0)	0% (0)	25% (1)	75% (3)	0% (0)	4
Exotic/invasive species control	0% (0)	75% (3)	0% (0)	25% (1)	0% (0)	4
Regulation of collecting	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Disease/parasite management	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Translocation to new geographic range	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Protection of migration routes	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Limiting contact with pollutants/contaminants	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Public education to reduce human disturbance	25% (1)	25% (1)	0% (0)	50% (2)	0% (0)	4
Culling/selective removal	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Stocking	0% (0)	25% (1)	25% (1)	50% (2)	0% (0)	4
Other (please specify below)	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
				Total Respondents		66

44. Other current conservation practices for the Wildlife in Natural Lakes Habitat in Indiana.

No responses were entered for this question.

Total Respondents 0

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45. What one or two specific practices would you recommend for more effective conservation of the Wildlife in Natural Lakes Habitat in Indiana?

- 1. Habitat protection and education to reduce habitat disturbance
- 2. -Assure there is no stocking of predator fish in cisco lakes
-Greatly limit/mitigate any new development on cisco lakes, particularly addressing runoff from lawns and other water quality issues
-Work to get any farmlands adjacent to cisco lakes into no-till
- 1. Implementation of ecozones in undeveloped areas to conserve that vegetation present.
- 2. Implement a catch and release only regulation in lakes with low densities.

Habitat management and harvest management

Total Respondents 4

46. How well do the following conservation efforts address the HABITAT threats to the Wildlife in Natural Lakes Habitat in Indiana?

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection through regulation	25% (1)	75% (3)	0% (0)	0% (0)	0% (0)	4
Habitat protection on public lands	0% (0)	75% (3)	0% (0)	0% (0)	25% (1)	4
Habitat protection incentives (financial)	0% (0)	50% (2)	25% (1)	0% (0)	25% (1)	4
Habitat restoration through regulation	25% (1)	25% (1)	25% (1)	0% (0)	25% (1)	4
Habitat restoration on public lands	0% (0)	25% (1)	25% (1)	0% (0)	50% (2)	4
Habitat restoration incentives (financial)	0% (0)	50% (2)	0% (0)	25% (1)	25% (1)	4
Artificial habitat creation (artificial reefs, nesting platforms)	0% (0)	0% (0)	0% (0)	100% (4)	0% (0)	4
Selective use of functionally equivalent exotic species in place of extirpated natives	0% (0)	0% (0)	0% (0)	75% (3)	25% (1)	4
Succession control (fire, mowing)	0% (0)	25% (1)	0% (0)	50% (2)	25% (1)	4
Corridor development/protection	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Managing water regimes	0% (0)	25% (1)	0% (0)	50% (2)	25% (1)	4
Pollution reduction	25% (1)	75% (3)	0% (0)	0% (0)	0% (0)	4
Protection of adjacent buffer zone	25% (1)	75% (3)	0% (0)	0% (0)	0% (0)	4
Restrict public access and disturbance	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4
Land use planning	25% (1)	75% (3)	0% (0)	0% (0)	0% (0)	4
Technical assistance	0% (0)	0% (0)	0% (0)	75% (3)	25% (1)	4
Cooperative land management agreements (conservation easements)	25% (1)	25% (1)	0% (0)	25% (1)	25% (1)	4
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
				Total Respondents		69

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47. Other current HABITAT conservation practices for the **Wildlife in Natural Lakes Habitat** in Indiana.

No responses were entered for this question.

Total Respondents **0**

(skipped this question) 2

48. What one or two specific HABITAT practices would you recommend for more effective conservation of the **Wildlife in Natural Lakes Habitat** in Indiana?

Pollution reduction and land-use zoning

1. Implementation of ecozones in undeveloped areas to conserve that vegetation present.
2. Reduce inlet and upstream degradation. Increase awareness and cooperation of landowners to create better shoreline and tributary habitat.

Habitat protection and restoration through regulation.

Total Respondents **3**

49. Do you have any additional comments or information on the **Wildlife in Natural Lakes Habitat** that you feel would be useful in the development of the Indiana Comprehensive Wildlife Strategy?

No responses were entered for this question.

Total Respondents **0**