Chapter 3: Strategies for Investing in Access

The Commonwealth of Pennsylvania spans over 46,000 square miles with more than 85,000 miles of rivers and streams and almost 4,000 lakes, reservoirs and ponds. Developing sufficient and quality fishing and boating access on this scale is a monumental task. Stakeholders at the regional meetings believed over six hundred sites and stretches of waterways needed access improvement, reaffirming the magnitude of this effort. Limited funding and staff requires that investing in access be both strategic and collaborative. To guide the Commission's investment in access, a two-tier approach to evaluating existing access and investing in future access was developed.

To bring the scale of the Commonwealth down to a manageable size to evaluate and prioritize access needs, the first tier of the evaluation approach occurs at the watershed level. Fifty-two HUC 8 watersheds that were greater than fifty square miles in size were evaluated. The four remaining watersheds not included were primarily located in an adjoining state with less than fifty square miles being in Pennsylvania. The first tier evaluation resulted in the creation of a prioritized list of the watersheds which will be used to guide the Commission's annual work plan for the development of watershed access plans.

Evaluation of the individual waterways within each watershed comprises the second tier of the process. The second tier of the evaluation will not take place until the Commission reaches the watershed on the priority list. In that way, more current data such as the number of existing access locations can be factored into determining access needs and improvements.

Watershed Evaluation

Nineteen criteria were selected and evaluated with GIS software at a HUC 8 watershed level. The criteria reflect stakeholder input, existing projects being undertaken by the Commission and its partners, fishing patterns documented by studies, current access locations, demographic information, and stocking patterns.

- **Number of existing accesses and Boating Facility Grant Program grants.** The number of existing publicly available accesses and Boating Facility Grant Program grants awarded were chosen as criteria to provide the opportunity to build upon existing access points. For both fishing and boating, creating places to get in and out of the waterway within a reasonable distance is very important.
- **Interest/need indicated by regional meetings, Commission staff input and other state agency input.**
  The stakeholder meetings generated over six hundred access sites and stretches of waterways that the attendees believed needed access improvement. Commission staff and other agency staff who did not attend the meetings added even more locations. This criterion was included in the ranking because it represents individuals' actual experience in attempting to access a waterway or water body.
- **Number of existing habitat improvement and fish habitat projects.** Habitat improvements may provide opportunities for access to streams that were previously not accessible. Habitat improvements can also result in more anglers as the environment for the fish population improves. Habitat projects that were

mapped include fish passage projects (dam and debris basin removals) and CHIP projects (Adopt-a-Stream and Adopt-a-Lake projects).

- **Percentage of state owned land.**
  Improving access on state owned land (i.e., state forests, state parks, and Game Lands) is very cost effective for the Commission. There are no acquisition costs and in some cases the agency responsible for managing the land has funding for access improvements. Long term maintenance is often assumed by the managing agency further reducing Commission costs. Anglers in the *Pennsylvania Trout Fishing Survey* (2008) prepared by Responsive Management indicated that 64 percent of Pennsylvania trout anglers fish for trout mostly on public land. Another 28 percent indicated they fish equally on private and public land. Only 7 percent of the anglers indicated they fished on mostly private land.
- **Number of linear miles of trout stocked waters.**
  The Commissions annually stocks over 5,000 miles of streams and rivers with trout. Every watershed analyzed has waterways that are stocked with the exception of the Owego-Wappasening watershed where no waterways are stocked with trout. According to the *Pennsylvania Trout Fishing Survey (2008)*, 93 percent of anglers go to stocked waters at least half the time to fish. A majority of the anglers who take children to fish reported they took the child to stocked waters. When choosing a location to fish, anglers said the top-ranked consideration is whether the location is stocked with trout. This criterion was also included to link this plan to the *Strategic Plan for Management of Trout Fisheries in Pennsylvania.* Issue 16 states "maintaining free public access to Pennsylvania's stocked trout fisheries is important to maintain Pennsylvania's angling heritage." [1]
- **Number of lakes stocked.**
  The Commission annually stocks lakes with trout in addition to other species. In 2009, 131 lakes were stocked. Fifty-four percent of the anglers interviewed as part of the *Pennsylvania Trout Fishing Survey* (2008) took children fishing at trout stocked lakes. This high level of use resulted in the number of stocked lakes being added to the criteria. This criterion was also included to link this plan to the *Strategic Plan for Management of Trout Fisheries in Pennsylvania.* Issue 20 of that plan states "maintaining free public access [at] Pennsylvania's lakes is important to maintain Pennsylvania's angling heritage." [2]
- **Warm Water/Cool Water streams linear miles stocked.**
  Using stocked warm water/cool water streams provided the opportunity to account for other species of fish stocked by the Commission besides trout. Many of these linear miles of stream were identified by stakeholders at the regional meetings. These waterways tend to be waters where boating can take place.
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[1] Strategic Plan for Management of Trout Fisheries In Pennsylvania, Pennsylvania Fish and Boat Commission, October 2009, Page 47
[2] Ibid, page 53

lakes were identified by stakeholders at the regional meetings. These lakes tend to be waters where boating can take place.

- **Existence of water trails and/or River Conservation Plans.**
  The number of water trails has grown in Pennsylvania. In fact, there are now twenty water trails. Because water trails are a popular way to float streams and rivers, the Commission has been supporting these trails by assisting in the production of water trail maps and guides. The existence of a water trail is likely to increase the public use of the waterway resulting in the need to have sufficient access points. River Conservation Plans play an important role in improving the quality and quantity of the water. River Conservation Plans typically address the issue of riparian buffers. Because the Commission's fishing access and conservation easements also preserve riparian buffers along streams, the existence of a Rivers Conservation Plan presents opportunities for partnering with the sponsoring agency.
- **Accesses per 10 miles of Stream Order 3 and higher.**[3]
  Generally, streams classified as Stream Order 3 and higher waterways are streams that provide fishing and/or unpowered boating opportunities. These streams received a number of recommendations for improvements by the stakeholders. This criterion is also a good indicator of whether sufficient take out and put in locations exist in the watershed.
- **Accesses per 10 miles of Stream Order 5 and higher**.
  Generally, streams classified as Stream Order 5 and higher are streams that provide powered boating opportunities. This criterion was included to ensure powered boating would be addressed and that sufficient access sites are provided.
- **Existence of Commission species of special concern as identified by the PA Natural Diversity Inventory per square mile.**
  The existence of species of special concern under Commission jurisdiction as identified by the PA Natural Diversity Inventory was included as a criterion as one indicator of the environmental value of the watershed. The PA Natural Diversity Inventory identifies the geographic location of special concern species and resources in Pennsylvania. Density per square mile was chosen as a method to establish a numerical value for this criterion.
- **Number of fishing licenses.**
  Although the location of where a fishing license was purchased does not always indicate where the angler is going to fish, the *Pennsylvania Trout Fishing Study* indicates that where the license is purchased and where the angler is fishing are often related. The study reported 49 percent of anglers fish within 15 miles of home and the median distance traveled was 20 miles.
- **Percent of the total population that purchased fishing licenses.**
  So that watersheds with small populations would not be penalized by the ranking system, the percentage of the total population that purchased a fishing license was also included as a criterion.

[3] Stream Order is a way to classify streams by size. A first order stream is the smallest in size; a twelve order stream is the largest in size.

- **Number of current boating registrations.**
  As with fishing licenses, the assumption was made that boat registrations can be used as one indicator of where registrants are boating.
- **Percent of the total population that purchased boat registrations**.
  So that watersheds with small populations would not be penalized by the ranking system, the percentage of the total population that purchased a boat registration was included as a criterion.
- **Total population of the watershed.**
  Total population was used as an indication of the need for access because the more people there are the more potential users of the resources. Growing population areas tend to be more impacted by sprawl which can impact access as properties are subdivided and posted.
- **Change in population of the watershed between 2000 and 2020.**
  Changes in population were considered a factor to ensure growing watersheds will have sufficient access locations to meet future population growth. As noted in the *Pennsylvania Trout Fishing Study (2008)*, anglers tend to fish more often close to home.
- **Availability of funding.**
  The Commission receives funding from a variety of sources other than the standard license and registration fees that dedicate all or a portion of the funds towards improving access. Funding is an important consideration since improving access usually requires some investment in either land or property rights acquisition or the construction of improvements. Funding sources can also have a limited time frame in which the money can be spent requiring more immediate action. Two examples of non-traditional funding sources are the Lake Erie fishing permit and monetary settlements derived from lawsuits.

Following the evaluation and analysis of the criteria using GIS, a spreadsheet was created to summarize the results. Table 1 provides the results for each of the fifty-two HUC 8 watersheds. The results of this evaluation were mapped on a statewide basis. These maps are found at the conclusion of this chapter.

To use the nineteen criteria to create the priority list of the HUC 8 watersheds, a classification method was chosen to generate a score for each watershed. For each criterion, the range of values was divided into six classes using the "Natural Breaks" classification method in ArcGIS 9.3.1. Software. As described in the software, "the Natural Breaks Classes are based on natural groupings inherent in the data. Arc GIS identifies break points by picking the class breaks that best group similar values and maximize the differences between classes. The features are divided into classes whose boundaries are set where there are relatively big jumps in the data values."[4] Each class of values was given a score of 1-6. Table 2 shows the natural break classes and assigned score. Due to the Commission's limited resources and the opportunities created by building upon existing and new investments in access and habitat by the Commission and its partners, the class with the highest values was assigned the highest score of six.

[4] ArcGIS 9.3.1 Software

Table 1 - Spreadsheet of criteria results for HUC 8 Watersheds

Watershed Name	Linear Miles Trout Stocked	# Stocked Lakes	# BFG	# Habitat Projects	WT/ RCP	# Access Improve-ments	Fund-ing	Total Pop.	Pop. Change	Species of Special Concern Density	% Public Land	# Accesses/10 Miles of Stream Order ≥ 3	# Fish Licenses	# Boat Registrants	% Pop. Bought 2008 Fishing License	% Pop. Current Boat Registrants	WW/CW Liner Miles Stocked	WW/ CW & Trout Stocked Lakes	# Accesses/10 Miles of Stream Order ≥ 5
Bald Eagle	68.59	0	0	10	RCP	11		116,962	12.90	0.04	25.696	0.319	8,774	2,920	7.50	2.50	0.00	1	2.307
Beaver	2.78	1	0	1	None	7		54,738	-5.64	0.34	0.340	1.141	3,627	1,502	6.63	2.74	12.36	1	1.864
Brandywine-Christina	48.35	0	0	5	RCP	5		256,170	25.06	0.11	1.133	0.192	10,524	4,202	4.11	1.64	0.00	3	0.945
Cacapon-Town	5.90	0	0	0	RCP	0		2,656	12.29	0.02	28.465	0.000	274	99	10.32	3.73	0.00	0	0.000
Chautauqua-Conneaut	36.34	3	1	4	None	13	Y	246,684	1.10	0.13	2.984	0.905	16,597	8,352	6.73	3.39	86.11	4	9.499
Cheat	9.36	0	0	0	WT	0		5,232	9.07	0.10	25.614	0.000	431	152	8.24	2.91	0.00	0	0.000
Chemung	10.37	0	0	0	WT	1		12,935	0.05	0.00	1.911	0.245	958	409	7.41	3.16	0.00	0	0.000
Chester-Sassafras	7.38	0	0	1	RCP	0		17,092	48.95	0.17	0.000	0.000	882	277	5.16	1.62	0.00	0	0.000
Clarion	246.32	3	0	3	Both	18		61,465	-4.22	0.08	17.789	0.474	6,990	2,439	11.37	3.97	0.00	6	1.653
Conemaugh	118.83	6	3	11	Both	23		243,982	-9.04	0.02	9.141	0.318	24,235	7,949	9.93	3.26	0.00	9	1.148
Conewango	15.43	0	0	1	None	1		13,216	-8.42	0.21	0.488	0.268	767	422	5.80	3.19	0.00	0	0.000
Connoquenessing	61.23	4	0	3	None	11		226,791	18.01	0.08	5.204	0.783	19,251	9,622	8.49	4.24	5.21	5	2.869
Conococheague-Opequon	128.02	1	0	11	None	6		127,899	18.51	0.07	14.106	0.093	9,575	3,767	7.49	2.95	0.00	2	0.390
Crosswicks-Neshaminy	3.15	2	1	0	Both	9		484,066	15.57	0.16	1.335	0.713	19,977	9,864	4.13	2.04	0.00	4	1.974
French	100.37	1	0	10	RCP	16		111,277	1.12	0.29	4.154	0.646	12,778	7,385	11.48	6.64	90.11	8	2.768
Kiskiminetas	41.42	5	1	11	Both	4		98,311	-0.67	0.14	4.566	0.491	11,102	3,579	11.29	3.64	0.00	6	1.572
Lackawaxen	66.95	5	0	3	RCP	20		49,272	38.02	0.05	9.716	0.904	5,712	5,071	11.59	10.29	0.00	11	3.524
Lehigh	214.39	4	4	17	Both	38		652,268	16.46	0.08	14.985	0.596	38,670	17,696	5.93	2.71	35.55	6	2.492
Lower Allegheny	60.09	4	2	4	Both	21		437,151	1.27	0.15	0.414	1.366	25,303	10,012	5.79	2.29	31.43	5	5.711
Lower Delaware	41.47	0	2	16	Both	18		1,923,572	-0.10	0.16	1.215	0.570	31,011	10,746	1.61	0.56	0.00	0	2.997
Lower Juniata	262.48	3	0	8	Both	12		101,243	7.20	0.08	17.057	0.389	13,467	5,224	13.30	5.16	59.65	3	1.246
Lower Monongahela	34.73	2	2	2	Both	12		767,201	-3.65	0.07	2.112	0.586	43,158	14,941	5.63	1.95	29.85	4	2.328
Lower Susquehanna	187.87	4	3	44	Both	38		1,064,111	23.20	0.06	2.002	0.845	61,697	26,894	5.80	2.53	23.09	9	4.263
Lower Susquehanna-Penns	210.06	2	4	13	Both	17		190,454	-0.89	0.06	16.334	0.445	17,622	6,461	9.25	3.39	3.64	4	1.553
Lower Susquehanna-Swatara	241.72	9	8	31	Both	25	Y	632,862	17.84	0.10	14.685	0.867	44,879	20,983	7.09	3.32	87.71	9	3.069

Watershed Name	Linear Miles Trout Stocked	# Stocked Lakes	# BFG	# Habitat Projects	WT/ RCP	# Access Improve-ments	Fund-ing	Total Pop.	Pop. Change	Species of Special Concern Density	% Public Land	# Accesses/ 10 Miles of Stream Order ≥ 3	# Fish Licenses	# Boat Registrants	% Pop. 2008 Fishing Licenses	% Pop. Current Boat Registrants	WW/CW Liner Miles Stocked	WW/CW & Trout Stocked Lakes	# Accesses/ 10 Miles of Stream Order ≥ 5
Lower West Branch Susquehanna	226.54	2	2	10	Both	37		193,194	5.30	0.04	23.122	0.413	17,598	8,704	9.11	4.51	0.24	3	1.587
Mahoning	6.90	1	0	1	None	3		11,359	-15.02	0.42	0.000	0.413	1,013	381	8.92	3.35	0.00	1	0.000
Middle Allegheny-Redbank	225.02	3	0	7	RCP	50		145,977	-0.68	0.11	3.471	0.279	17,136	6,005	11.74	4.11	68.35	8	0.815
Middle Allegheny-Tionesta	320.83	2	3	7	Both	21		84,897	-6.25	0.17	7.002	0.426	9,963	5,442	11.74	6.41	101.78	6	1.541
Middle Delaware-Mongaup-Brodhead	60.93	6	0	4	Both	15		127,186	66.39	0.15	20.809	0.657	10,211	5,619	8.03	4.42	39.78	6	3.716
Middle Delaware-Musconetcong	33.79	1	0	6	Both	8		198,523	25.43	0.16	5.751	1.416	12,804	7,068	6.45	3.56	27.96	3	5.974
Middle West Branch Susquehanna	72.67	1	2	11	Both	10		19,924	-4.55	0.06	75.078	0.212	2,907	1,093	14.59	5.49	0.00	1	0.782
Monocacy	25.16	0	0	0	None	2		41,203	86.86	0.07	2.042	0.000	2,590	1,315	6.29	3.19	0.00	0	0.000
North Branch Potomac	53.19	1	1	1	None	5		7,426	0.23	0.01	14.223	0.164	1,113	384	14.99	5.17	0.00	2	0.997
Owego-Wappasening	0.00	0	0	0	WT	2		13,037	-4.41	0.04	6.824	0.949	836	440	6.41	3.37	6.75	0	0.000
Pine	99.53	3	1	5	Both	20		20,066	-0.34	0.04	52.324	0.359	2,644	1,120	13.18	5.58	0.00	3	1.367
Raystown	108.64	0	0	5	Both	9		49,645	7.13	0.02	12.610	0.556	5,765	2,291	11.61	4.61	32.95	2	1.800
Schuylkill	183.24	11	9	37	Both	41	Y	1,691,119	9.91	0.08	4.512	0.749	63,733	24,938	3.77	1.47	18.46	13	2.829
Shenango	82.20	1	0	4	RCP	15		163,830	-4.39	0.24	5.664	1.079	14,667	6,951	8.95	4.24	31.82	3	3.431
Sinnemahoning	163.23	2	0	9	None	17	Y	22,910	-2.58	0.07	59.955	0.168	3,241	766	14.15	3.34	0.00	2	0.661
Tioga	38.44	1	0	5	None	0		29,525	1.85	0.03	11.695	0.388	3,086	1,176	10.45	3.98	0.00	4	1.463
Upper Allegheny	214.31	3	0	7	WT	25	Y	80,738	-6.94	0.12	5.608	0.227	7,289	2,994	9.03	3.71	43.45	3	0.997
Upper Delaware	10.36	1	0	0	Both	17		9,272	35.19	0.16	3.984	0.602	1,315	818	14.18	8.82	0.00	1	3.348
Upper Genesee	17.58	0	0	1	None	0	Y	2,179	4.86	0.07	0.000	0.000	153	53	7.02	2.43	0.00	0	0.000
Upper Juniata	127.64	3	0	17	Both	11	Y	184,498	1.97	0.07	21.287	0.507	15,495	5,631	8.40	3.05	7.23	3	2.279
Upper Ohio	57.82	2	4	3	RCP	12		649,341	0.36	0.17	3.322	0.276	36,488	14,581	5.62	2.25	40.59	4	1.062
Upper Ohio-Wheeling	28.04	0	0	0	None	0		14,037	-9.34	0.03	4.020	0.286	1,304	434	9.29	3.09	0.00	0	1.345
Upper Susquehanna	33.15	1	0	0	Both	3		16,442	2.32	0.20	7.570	0.795	1,568	854	9.54	5.19	16.01	1	3.166
Upper Susquehanna-Lackawanna	136.44	13	6	8	Both	54		566,382	-5.66	0.07	9.282	0.586	39,193	19,053	6.92	3.36	74.75	13	2.778
Upper Susquehanna-Tunkhannock	203.20	6	0	5	Both	25		121,965	6.54	0.05	7.708	0.410	13,543	7,238	11.10	5.93	87.52	8	2.064
Upper West Branch Susquehanna	144.83	3	1	6	Both	22		102,550	-5.52	0.02	24.690	0.430	12,590	3,343	12.28	3.26	0.00	6	1.341
Youghiogheny	168.58	5	0	6	Both	15		273,178.43	-1.12	0.04	12.742	0.475	22,788	7,937	8.34	2.91	45.94	11	1.541

TABLE 2. Natural Breaks for Criteria

	CLASS/SCORE					
CRITERIA	**1**	**2**	**3**	**4**	**5**	**6**
Liner Miles Stocked	2.78 - 17.58	17.59 - 48.35	48.36 - 82.20	82.21 - 144.83	144.84 - 226.54	226.55 - 320.83
# Stocked Lakes	1	2	3 - 4	5 – 6	7 - 9	10 - 13
# BFG	1	2	3	4	5 - 6	7 - 9
# Projects	1 - 2	3 – 5	6 - 8	9 – 13	14 - 17	18 - 44
# Access Improvements	1 - 4	5 – 8	9 - 13	14 – 18	19 - 25	26 - 54
Total Population	2,179 - 61,465	61,466 - 163,830	163,831 - 273,178	273,179 - 767,201	767,202 - 1,064,111	1,064,112 - 1,923,572
Population Change	0.05 - 2.32	2.33 - 9.91	9.92 - 16.46	16.47 - 25.43	25.44 - 48.95	48.96 - 86.86
SSC Density	0.01 - 0.05	0.06 - 0.08	0.09 - 0.13	0.14 - 0.20	0.21 - 0.29	0.30 - 0.42
% Public Land	0.340 - 2.112	2.113 - 5.75	5.752 - 9.71	9.71 - 17.789	17.790 - 28.465	28.466 - 75.078
# Accesses/10 Miles of Stream Order ≥ 3	0.093 - 0.227	0.228 - 0.35	0.360 - 0.507	0.508 - 0.713	0.714 - 0.949	0.950 - 1.416
# Fish Licensees	153 - 3,627	3,6278 - 8,774	8,775 - 15,495	15,496 - 25,303	25,304 - 44,879	44,880 - 63,733
# Boat Registrants	53 - 440	441 - 1,502	1,503 - 4,202	4,203 - 8,704	8,705 - 14,941	14,942 - 26,894
% Pop. that bought Fishing License	1.61 - 4.13	4.14- 6.45	6.46 - 8.03	8.04 - 9.93	9.94 - 12.28	12.29- 14.99
% Pop. Current Boat Registrants	0.56 - 2.04	2.05 - 2.95	2.96 - 3.73	3.74 - 4.61	4.62 - 6.64	6.65 - 10.29
WW/CW Liner Miles Stocked	0.24 - 7.23	7.24 - 23.09	23.10 - 35.55	35.56 - 45.94	45.95 - 74.75	74.76 - 101.78
WW/CW & Trout Stocked Lakes	1 - 2	3	4 - 5	6	7 - 9	10 - 13
# Accesses/10 Miles of Stream Order ≥ 5	0.390 - 0.997	0.998 - 1.463	1.464 - 2.064	2.065 - 3.069	3.070 - 4.263	4.264 - 9.499

The Natural Breaks classification method was not used for the Rivers Conservation Plan/Water Trails or availability of funding criteria. Watersheds received one point for a Rivers Conservation Plan and two points for water trails. Up to fifty bonus points were awarded for funding based on the amount and type of funding available. It also should be

noted that watersheds with a projected loss in population did not receive any points in the Change in Population category.

The scores for each criterion were totaled for each of the watersheds. The higher the score, the higher the watershed would be in the overall ranking indicating a greater priority for establishing and expanding access in the watershed.

In addition to the ranking system that resulted from using the natural break classification system, some criteria were also evaluated using the raw value and ranking the watersheds from the highest to lowest values. This analysis was done to further understand the values from a statewide perspective since the watersheds are not equal in land area and population. For example, watersheds were evaluated in this manner for linear miles stocked. The Middle Allegheny-Tionesta watershed had the most stocked miles of waterways with 320 miles giving it a rank of 1 in this category. The Owego-Wappasening watershed had no stocked miles giving it a rank of 52 since it was the only watershed with no stocked miles. The tables for the criteria evaluated in this manner can be found in Appendix D.

The analysis of the criteria for this first tier of evaluation resulted in the priority ranking of the watersheds as shown in Table 3. The top fifteen watersheds are also shown on Map 21 at the conclusion of this chapter.

TABLE 3. Priority ranking of HUC 8 Watersheds

Watershed Name	Score	Priority Rank
Chautauqua-Conneaut	104	**1**
Lower Susquehanna-Swatara	89	**2**
Upper Juniata	88	**3**
Schuylkill	80	**4**
Sinnemahoning	78	**5**
Lehigh	75	**6**
Upper Susquehanna-Lackawanna	72	**7**
Lower Susquehanna	71	**8**
Middle Delaware-Mongaup-Brodhead	65	**9**
Middle Allegheny-Tionesta	64	**10**
French	61	**11**
Upper Susquehanna-Tunkhannock	61	**12**
Lower Allegheny	59	**13**
Lower West Branch Susquehanna	59	**14**
Youghiogheny	58	**15**
Lower Juniata	57	**16**
Lower Susquehanna-Penns	56	**17**
Lackawaxen	55	**18**

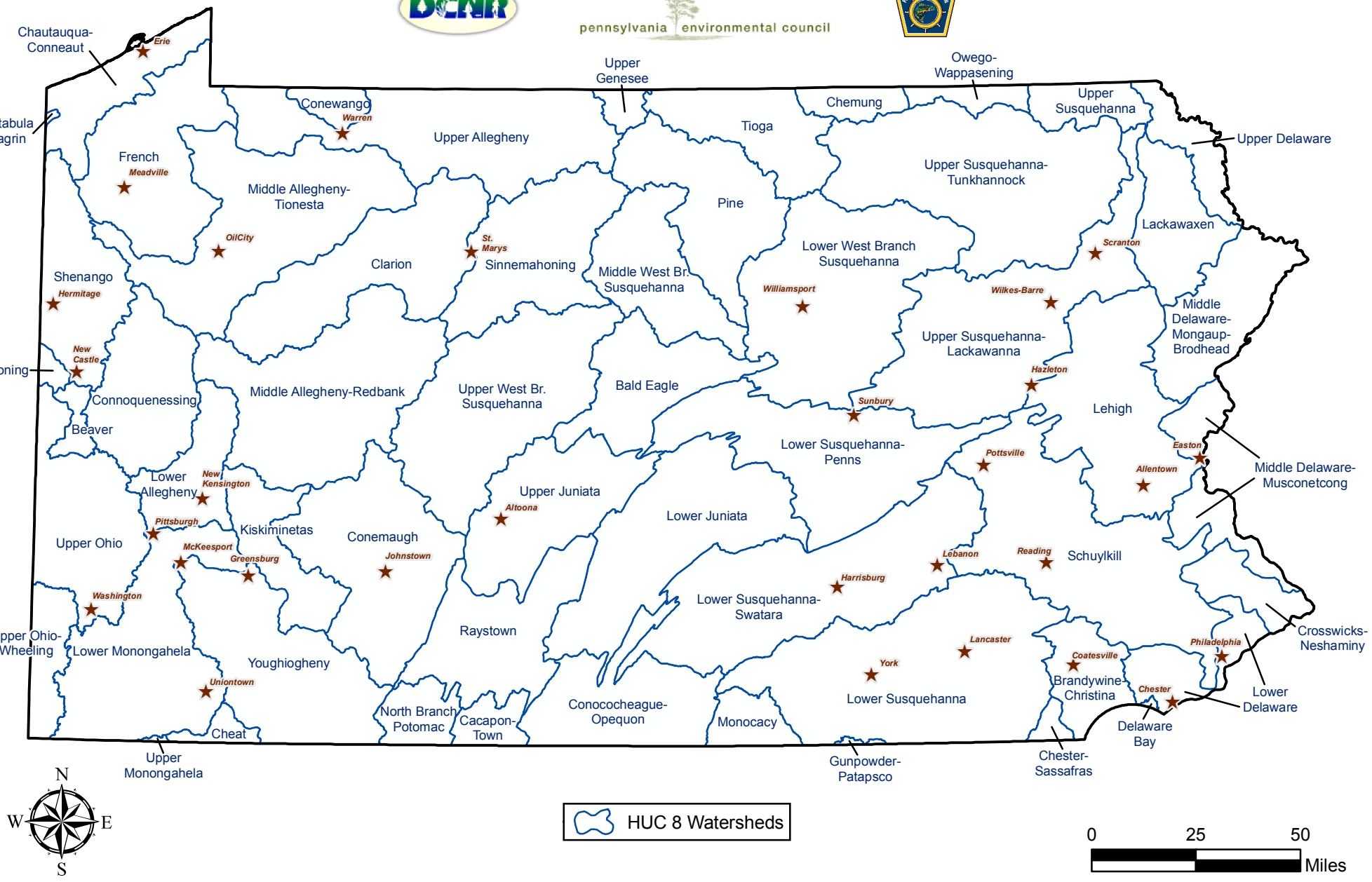
Middle Allegheny-Redbank	55	**19**
Conemaugh	54	**20**
Middle Delaware-Musconetcong	54	**21**
Clarion	53	**22**
Connoquenessing	53	**23**
Shenango	52	**24**
Pine	51	**25**
Upper Ohio	50	**26**
Upper West Branch Susquehanna	50	**27**
Lower Monongahela	48	**28**
Upper Allegheny	48	**29**
Lower Delaware	46	**30**
Kiskiminetas	46	**31**
Raystown	45	**32**
Upper Delaware	45	**33**
Crosswicks-Neshaminy	44	**34**
Middle West Branch Susquehanna	42	**35**
Conococheague-Opequon	41	**36**
Bald Eagle	39	**37**
Upper Susquehanna	38	**38**
Tioga	37	**39**
North Branch Potomac	31	**40**
Brandywine-Christina	30	**41**
Beaver	29	**42**
Mahoning	24	**43**
Cacapon-Town	22	**44**
Cheat	21	**45**
Monocacy	21	**46**
Owego-Wappasening	21	**47**
Conewango	19	**48**
Upper Genesee	19	**49**
Upper Ohio-Wheeling	19	**50**
Chester-Sassafras	18	**51**
Chemung	15	**52**

Implementation of the Priority Ranking System

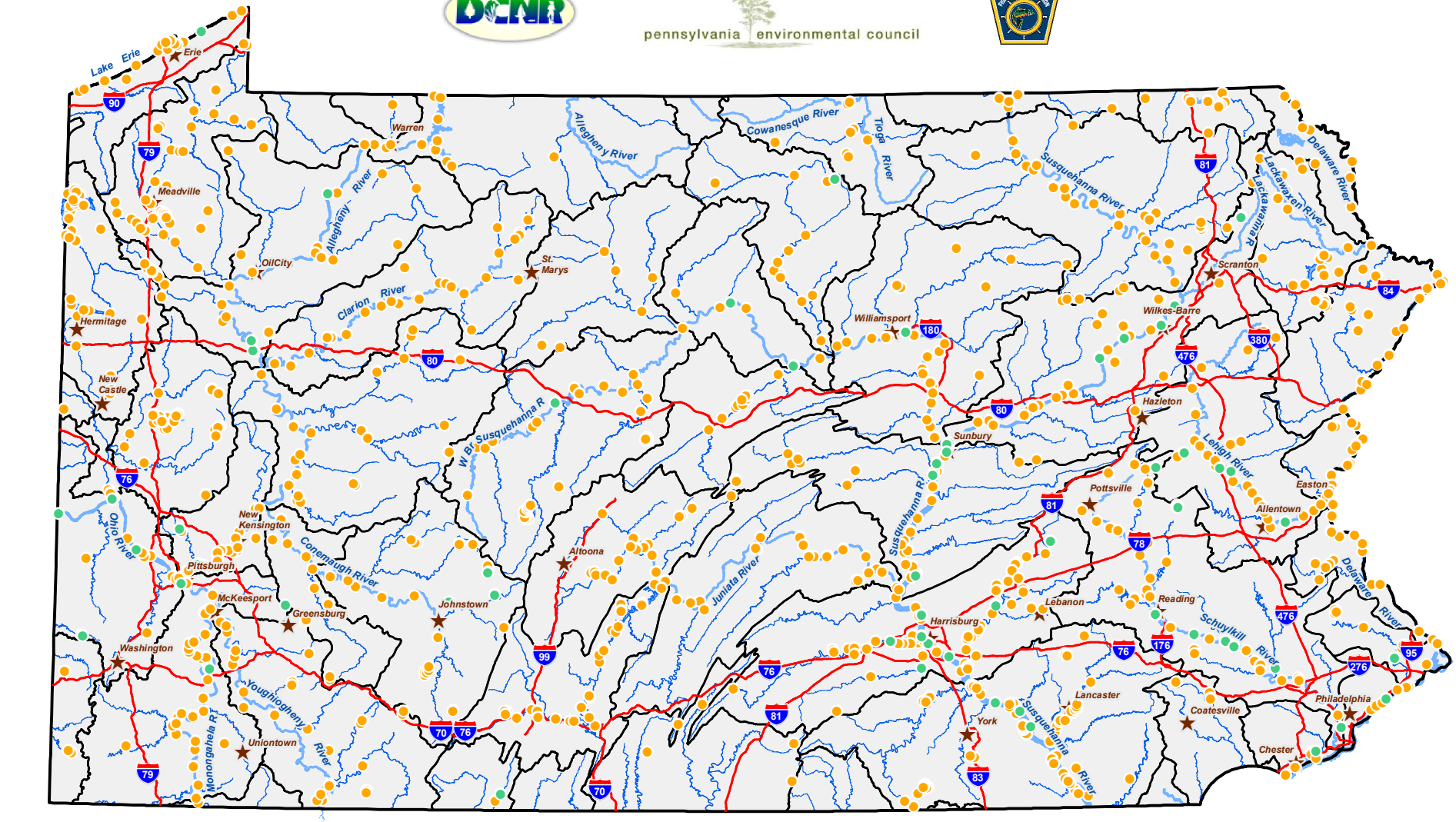
Each year, a minimum of five HUC 8 watersheds moving down the priority list above will be evaluated using the second tier of the review process for improving access within the watersheds. Because of the unique funding circumstances that currently exist with the Chautauqua-Conneaut, Upper Juniata, and Sinnemahoning watersheds, these three watersheds received the highest scores and will be evaluated in the first year. The Lower Susquehanna-Swatara and Schuylkill ranked two and four respectively and will make-up

the balance of the first year watersheds to be evaluated. In year two, the Lehigh, Upper Susquehanna-Lackawanna, Lower Susquehanna, Middle Delaware-Mongaup-Brodhead and Middle Allegheny-Tionesta will be evaluated. In the third year, plans will be developed for the next five watersheds and so on down the list. If staffing and resources permit, more than five watersheds could be evaluated in a year completing the first tier process in a shorter time frame. This priority list may be adjusted if significant funding becomes available for a specific watershed. The decision to combine smaller watersheds lower in rank with larger watersheds to more effectively evaluate a waterway may also occur as the watershed access plans are being developed.

MAP 2. Pennsylvania Fishing and Boating Access Strategy
HUC 8 Watersheds



MAP 3. Pennsylvania Fishing and Boating Access Strategy
Existing Fishing and/or Boating Access Locations



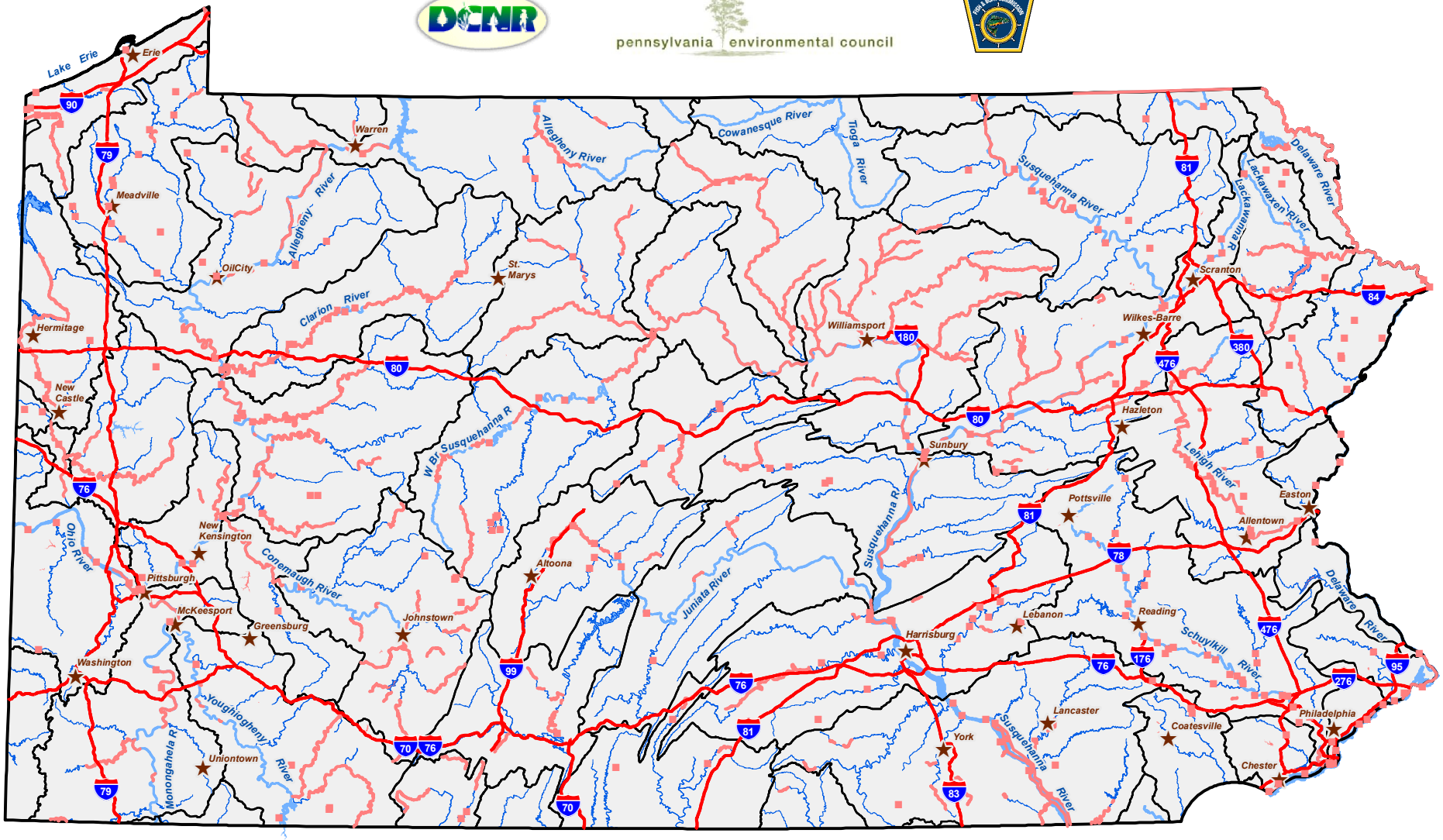
Legend

- Boating Facilities Grant Locations
- Existing Accesses
- HUC 8 Watersheds

N W E S

0 25 50 Miles

MAP 4. Pennsylvania Fishing and Boating Access Strategy
Access Improvement Locations



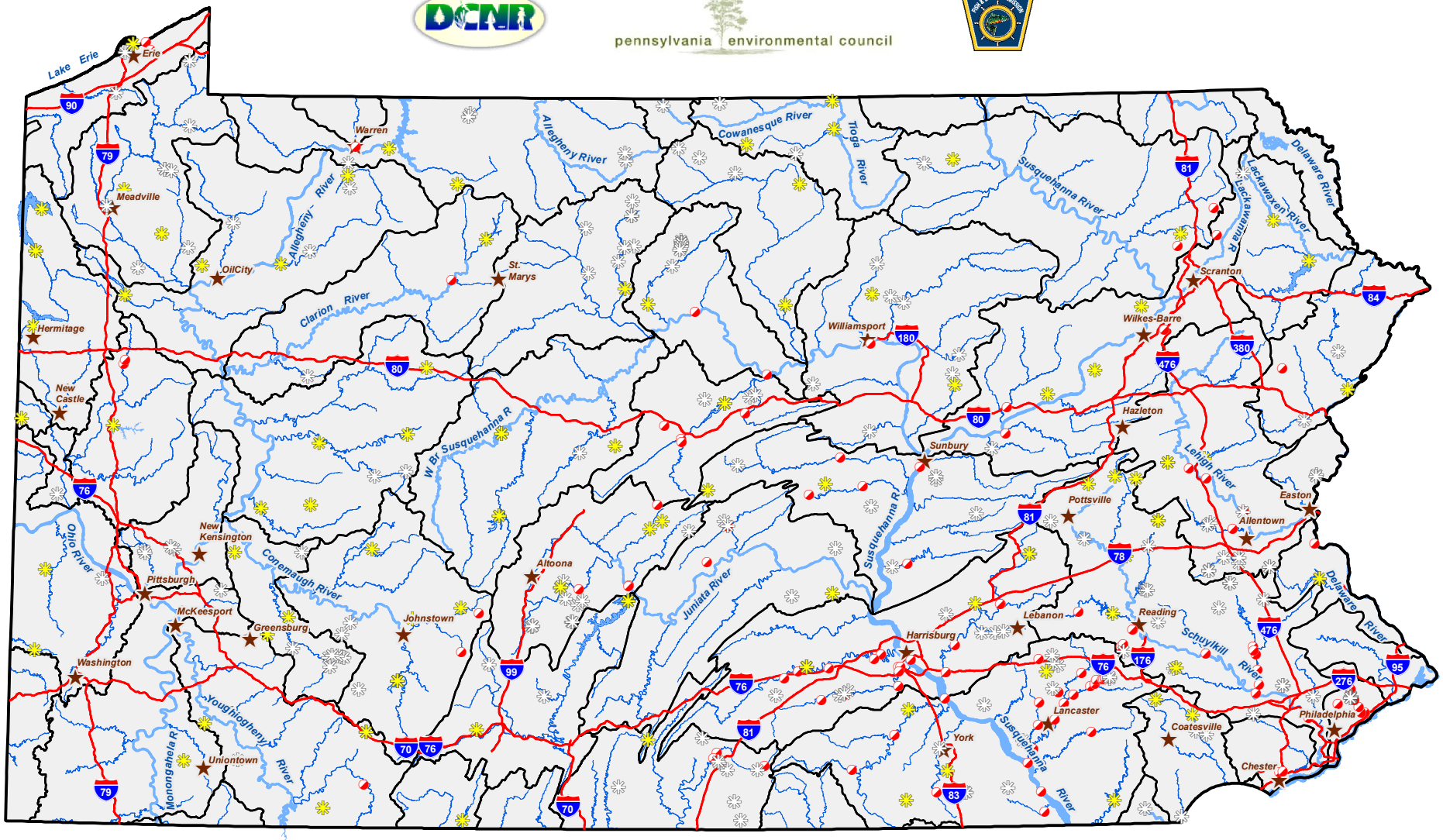
Legend

HUC 8 Watersheds

Improvement Locations

0 25 50 Miles

MAP 5. Pennsylvania Fishing and Boating Access Strategy
Habitat Improvement and Fish Passage Projects



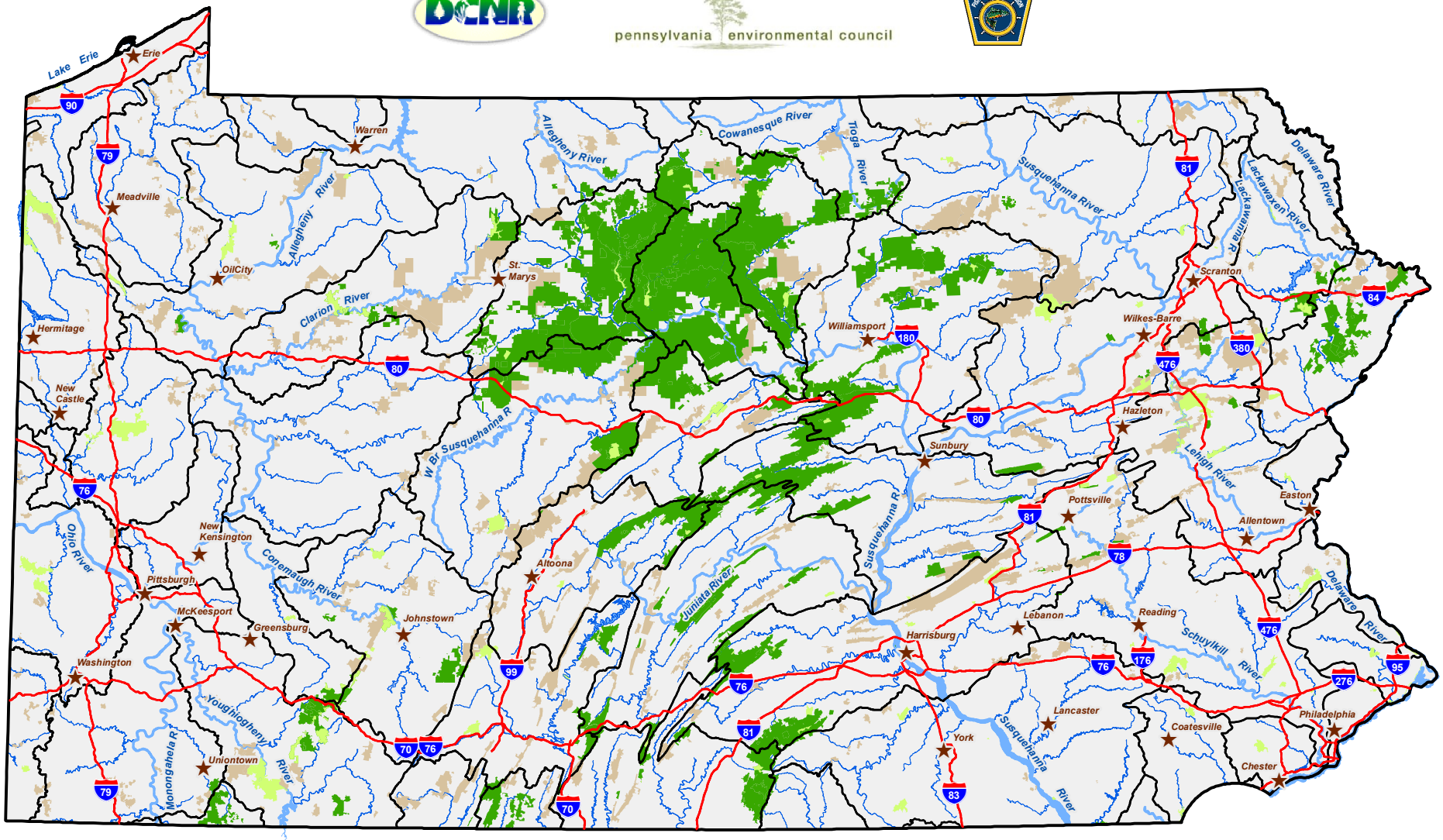
Legend

- Habitat Projects - Lakes
- Habitat Projects - Flowing Waters
- Fish Passage Projects
- HUC 8 Watersheds

N W E S

0 25 50 Miles

MAP 6. Pennsylvania Fishing and Boating Access Strategy
State Owned Land



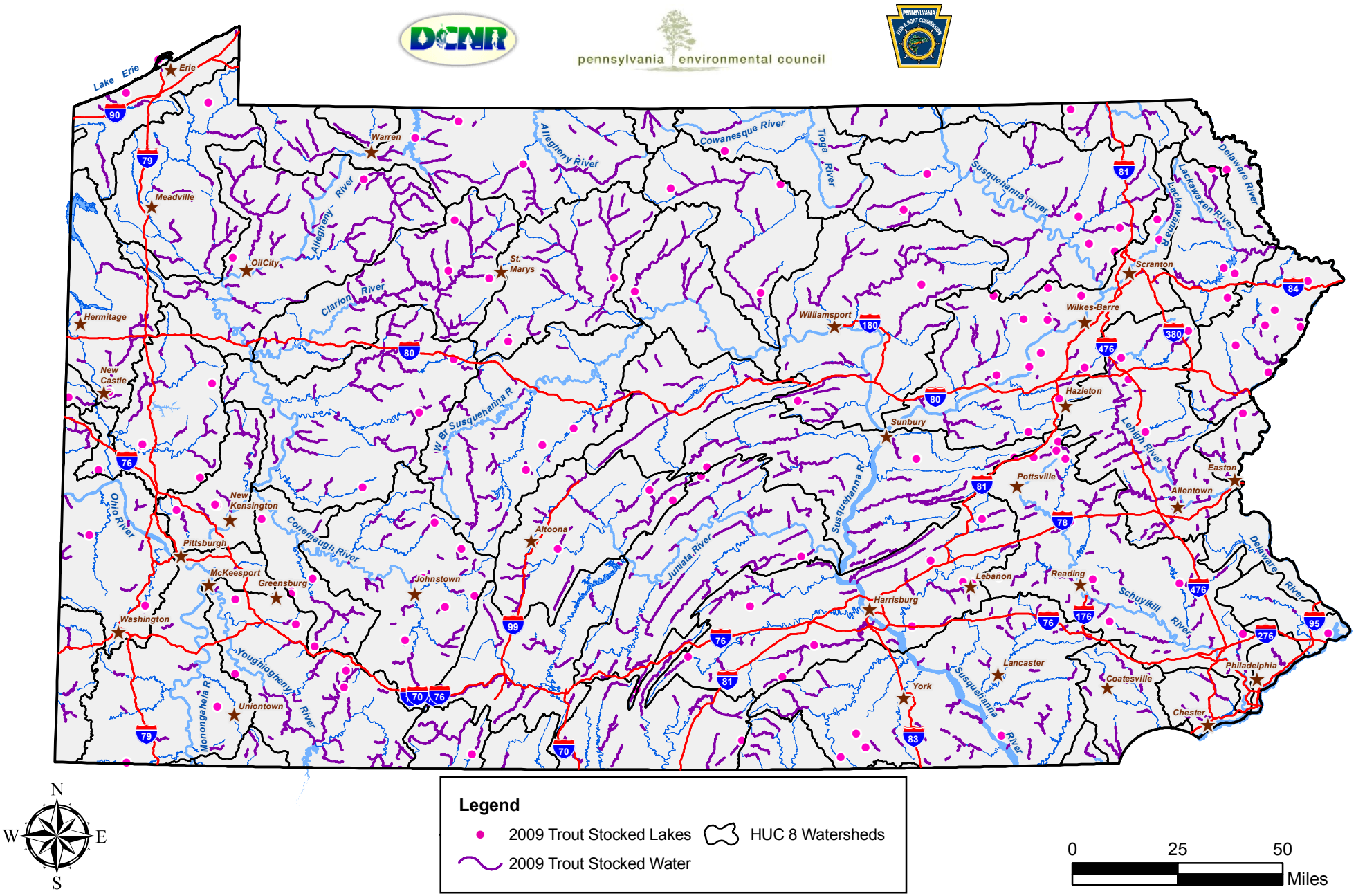
Legend

- HUC 8 Watersheds
- State Forests
- State Parks
- State Gamelands

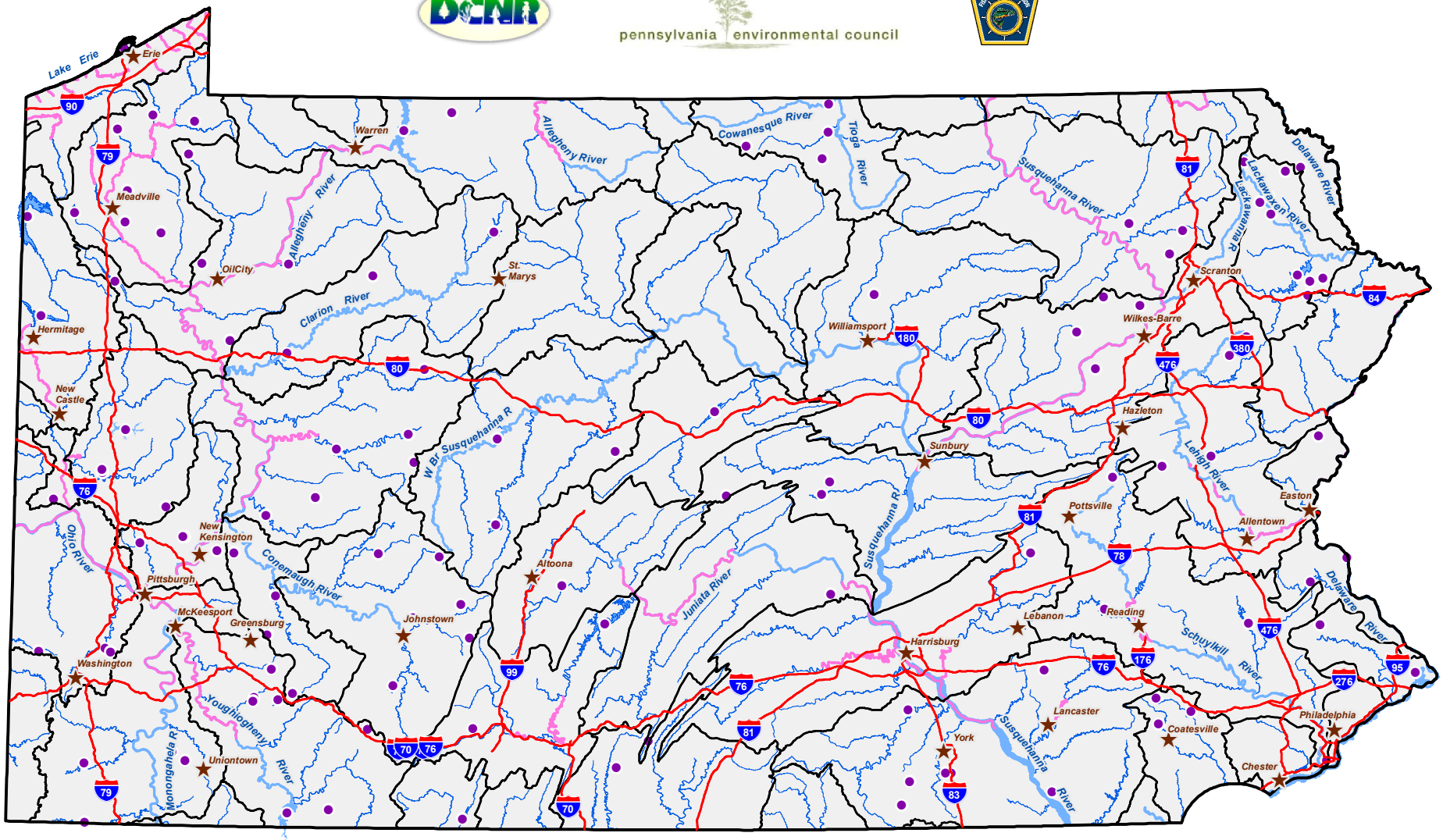
N W E S

0 25 50 Miles

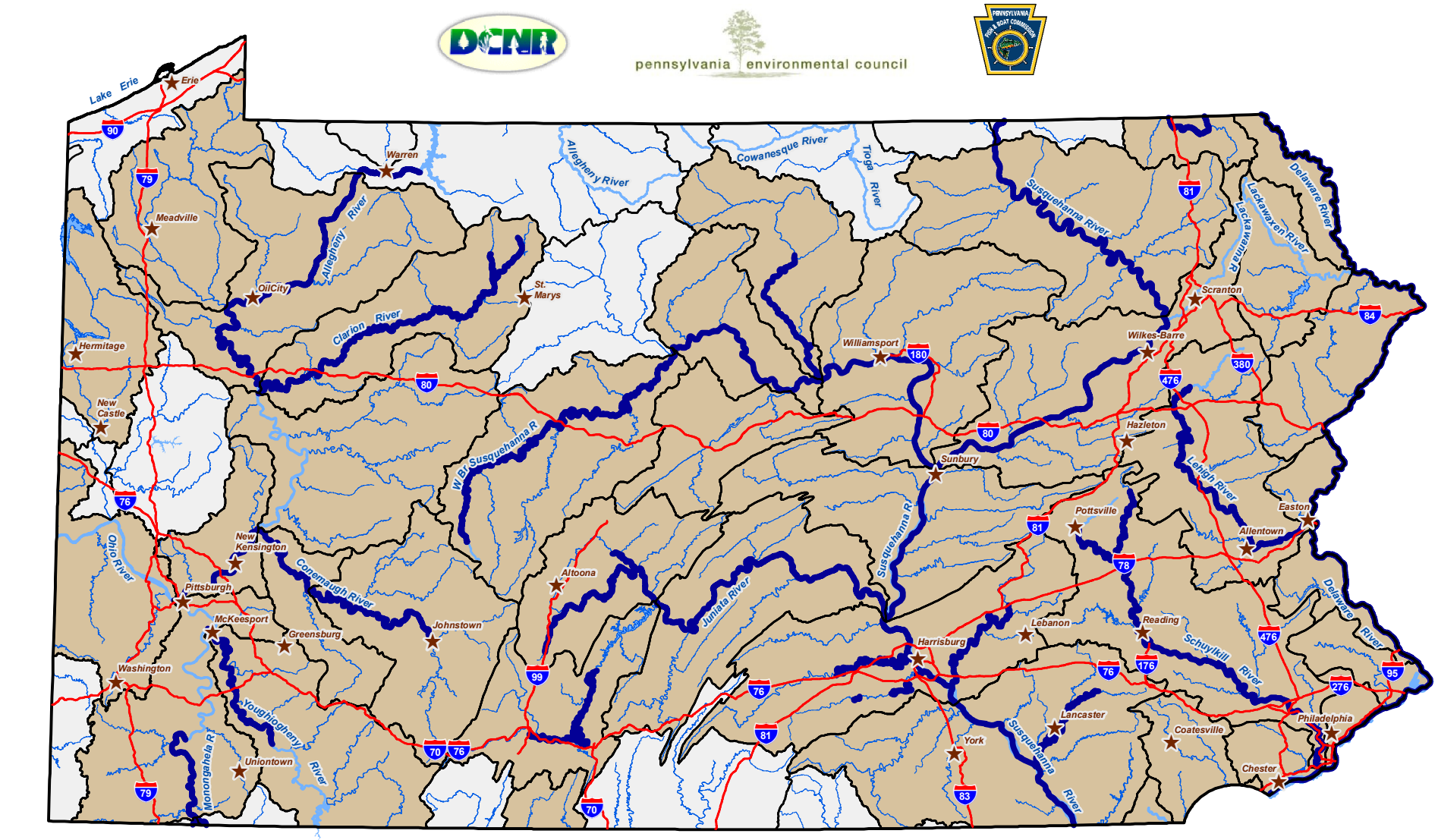
MAP 7. Pennsylvania Fishing and Boating Access Strategy
2009 Trout Stocking



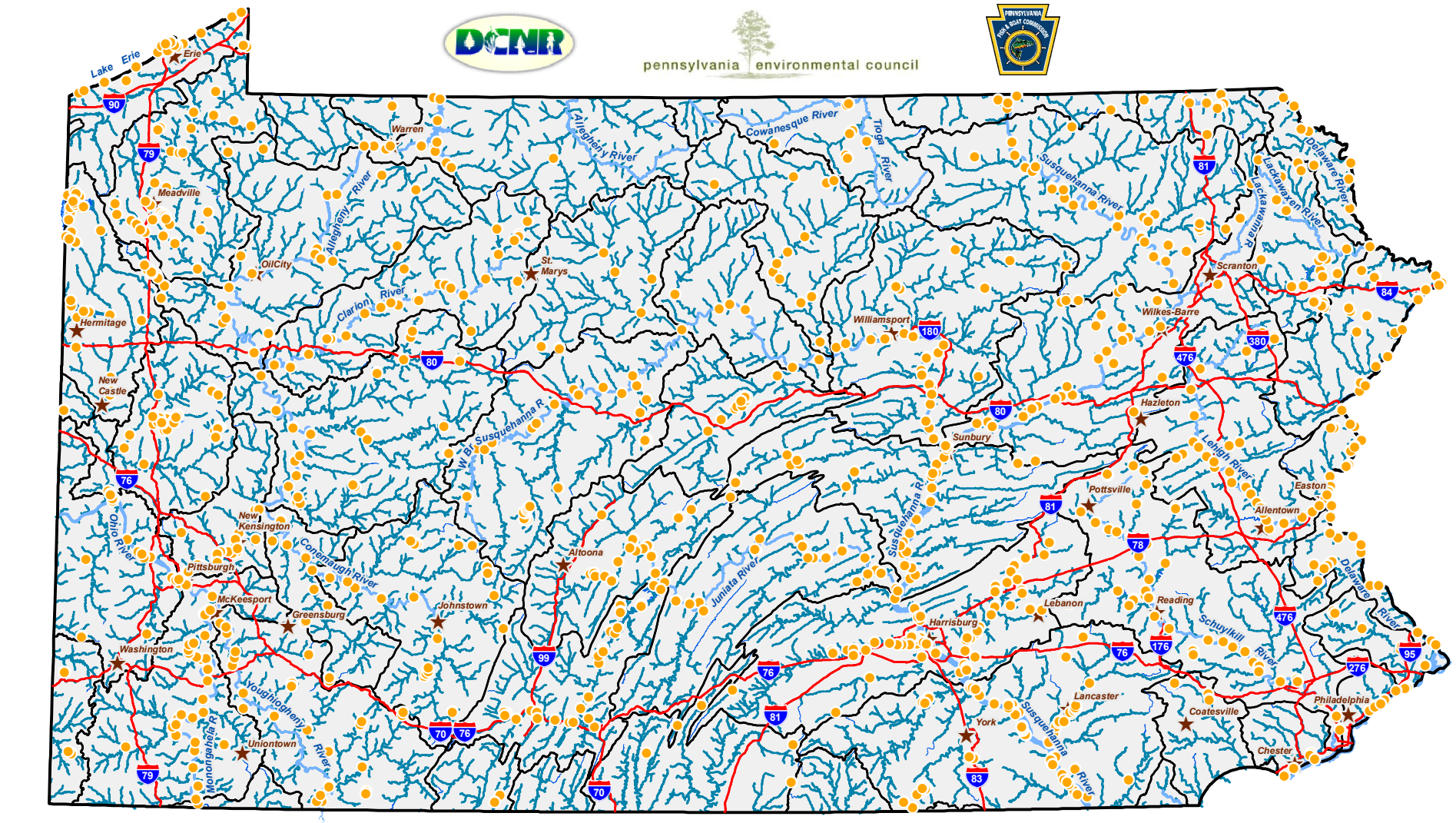
MAP 8. Pennsylvania Fishing and Boating Access Strategy
2009 WW/CW Stocking



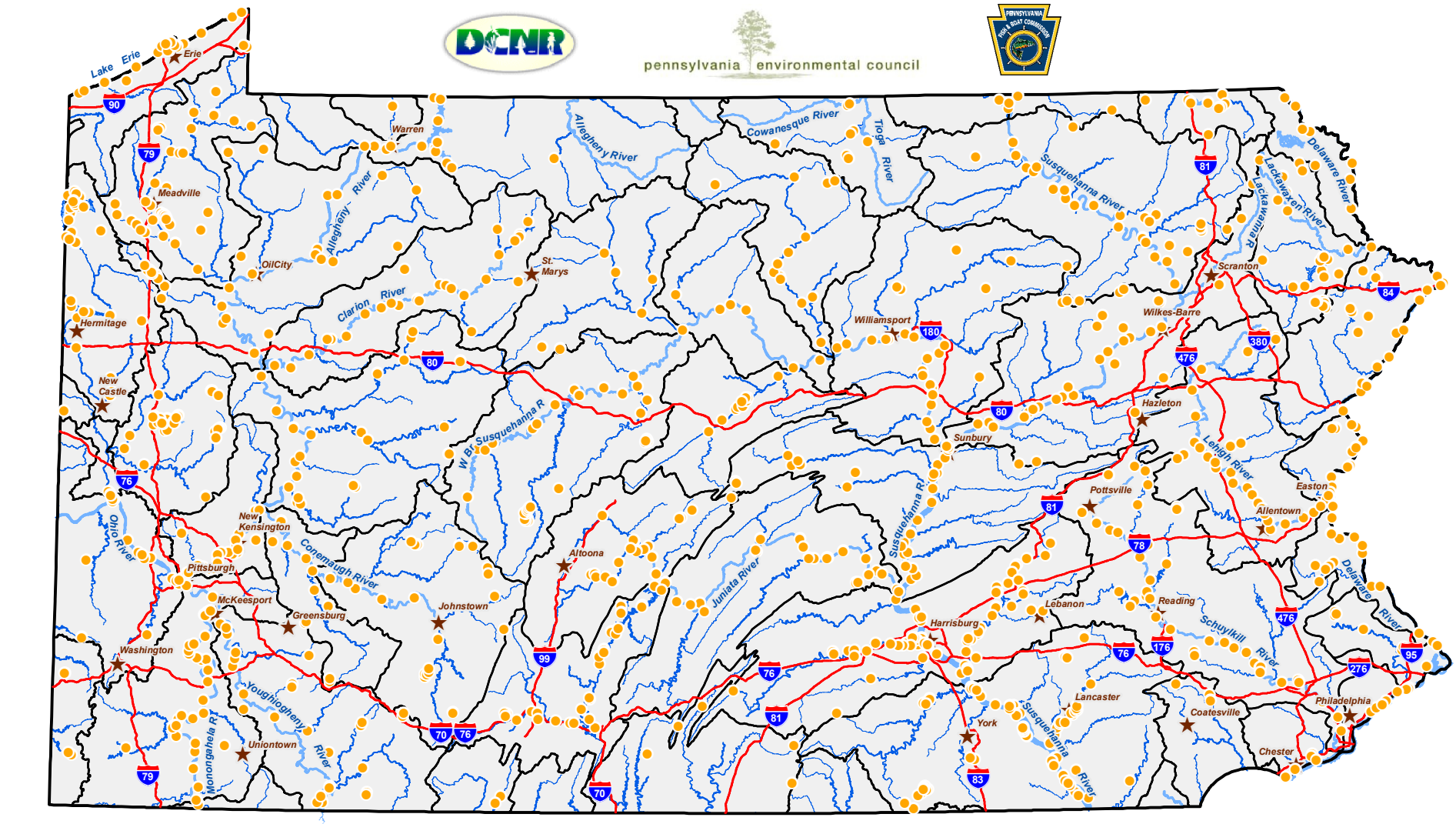
MAP 9. Pennsylvania Fishing and Boating Access Strategy
Water Trails & Watersheds with River Conservation Plans



MAP 10. Pennsylvania Fishing and Boating Access Strategy
Existing Fishing and/or Boating Access Locations
Streams of Order 3 and Higher



MAP 11. Pennsylvania Fishing and Boating Access Strategy
Existing Fishing and/or Boating Access Locations
Streams of Order 5 and Higher



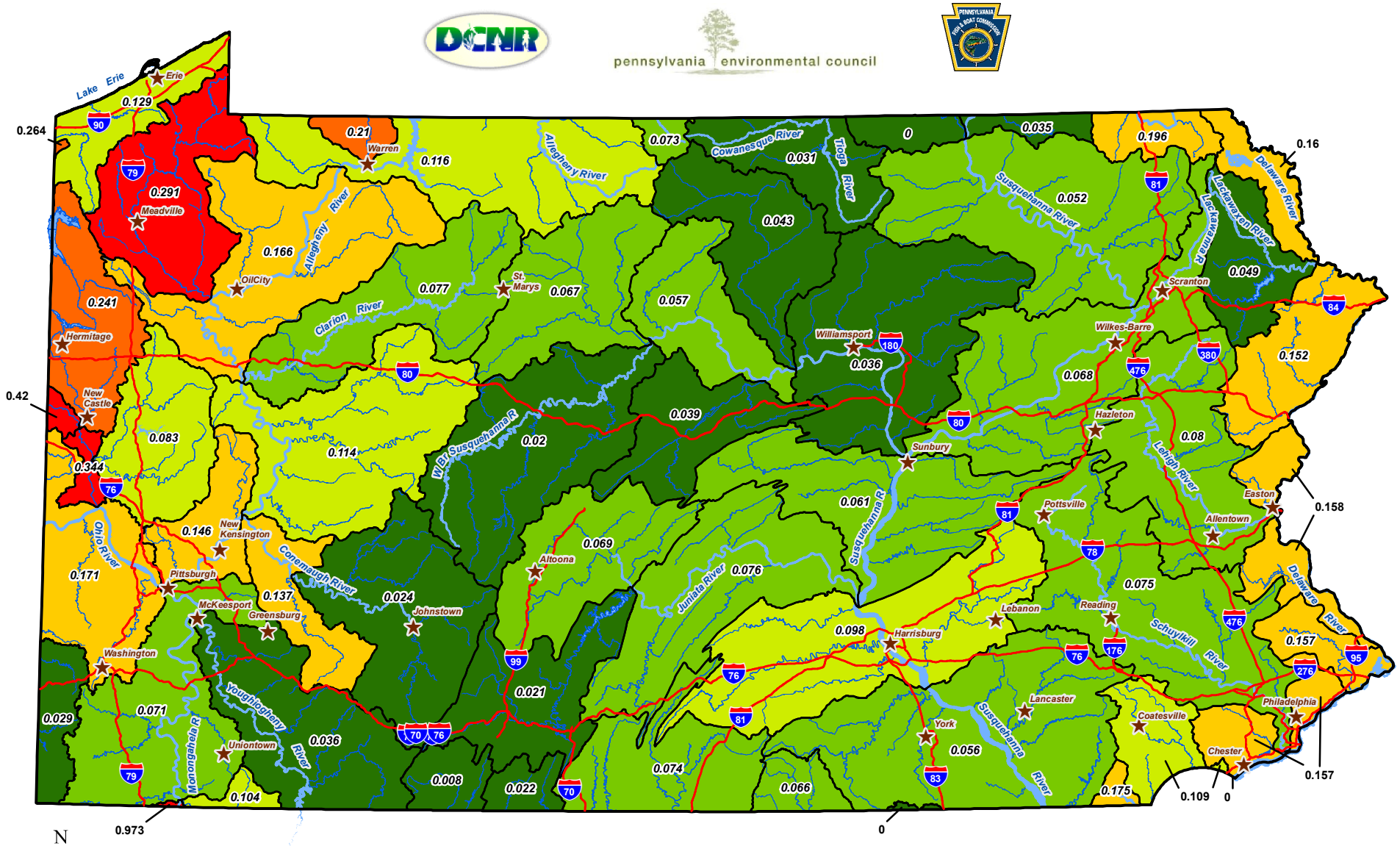
Legend

- Existing Accesses
- Streams > Stream Order 5
- HUC 8 Watersheds

N
W E
S

0 25 50
Miles

MAP 12. Pennsylvania Fishing and Boating Access Strategy
Species of Special Concern Density



N
W E
S

SSC's/Sq. Mile

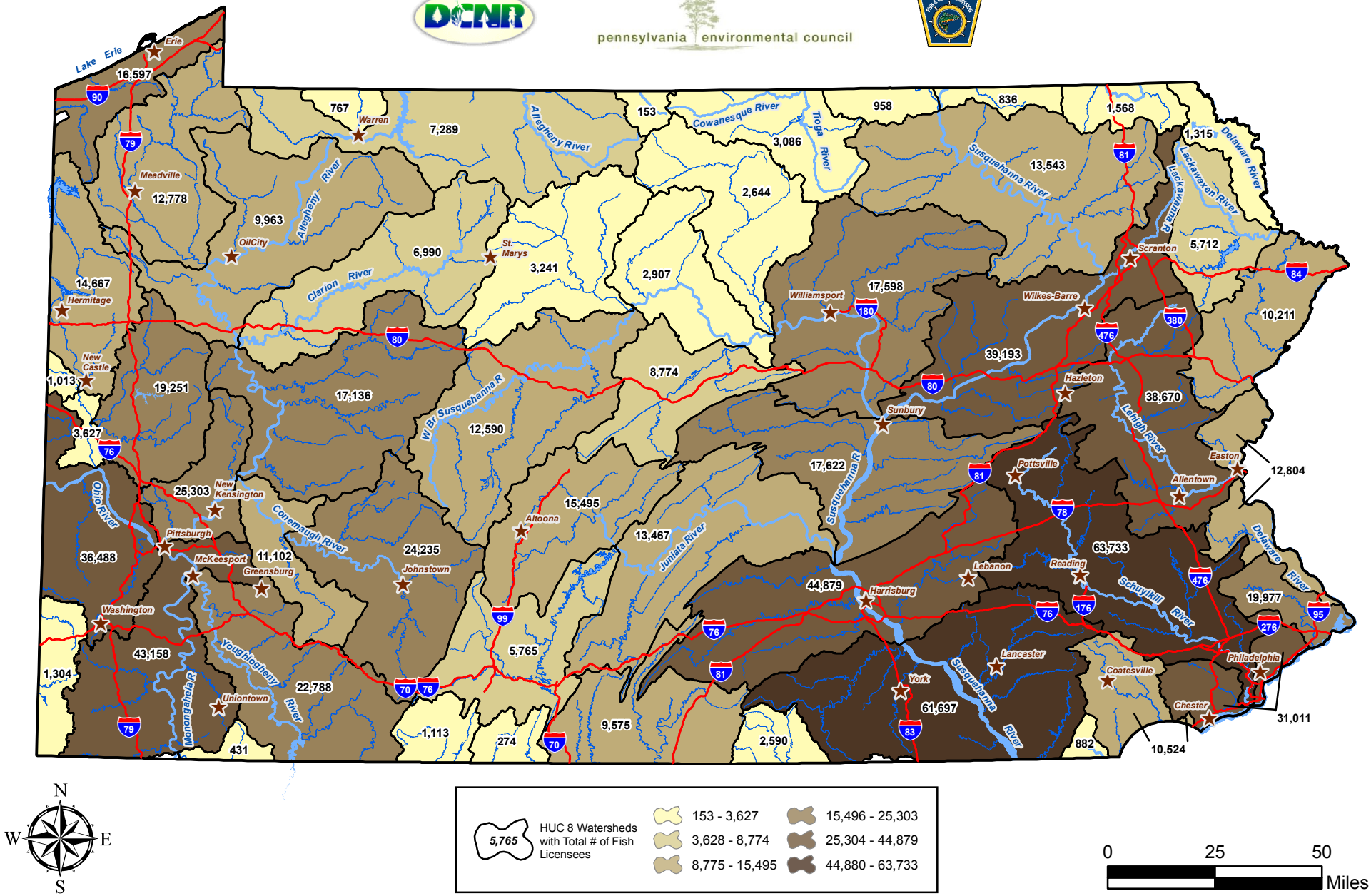
0.00 - 0.05	0.13 - 0.20
0.05 - 0.08	0.20 - 0.29
0.08 - 0.13	0.29+

0.039 HUC 8 Watersheds with SSC's/Sq. Mile

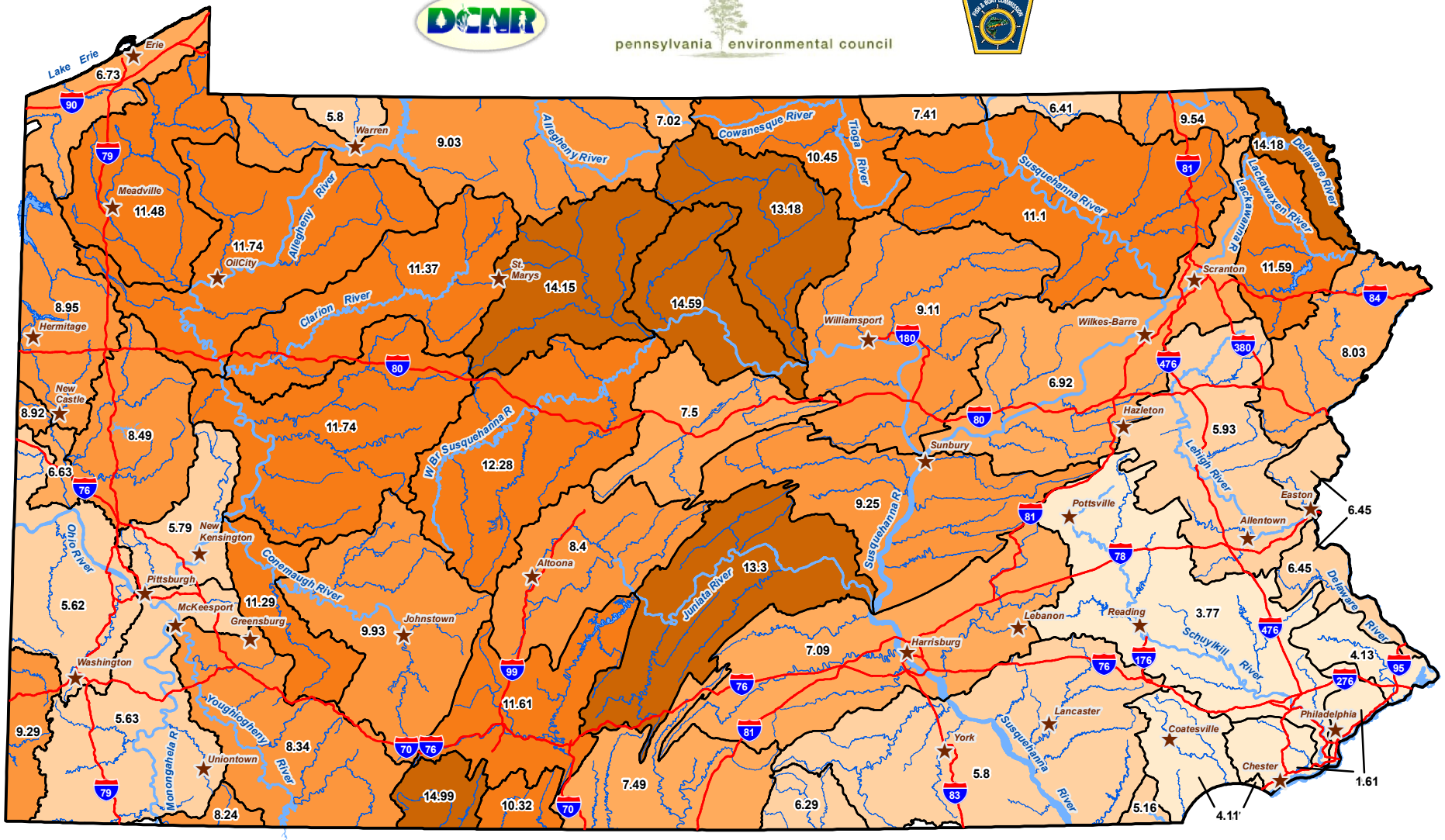
SSC = Species of Special Concern

0 25 50 Miles

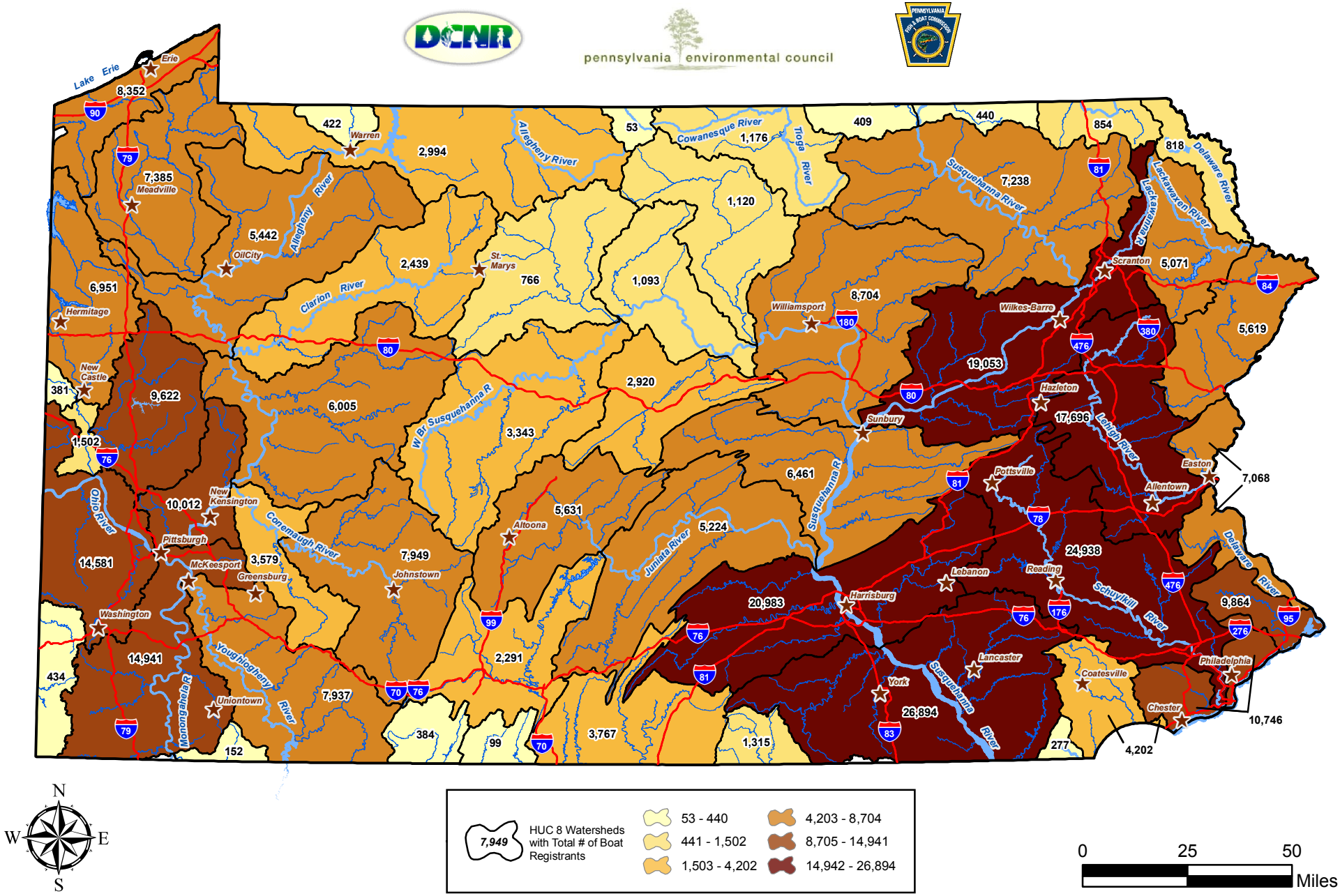
MAP 13. Pennsylvania Fishing and Boating Access Strategy
Total # of 2008 Fishing Licensees



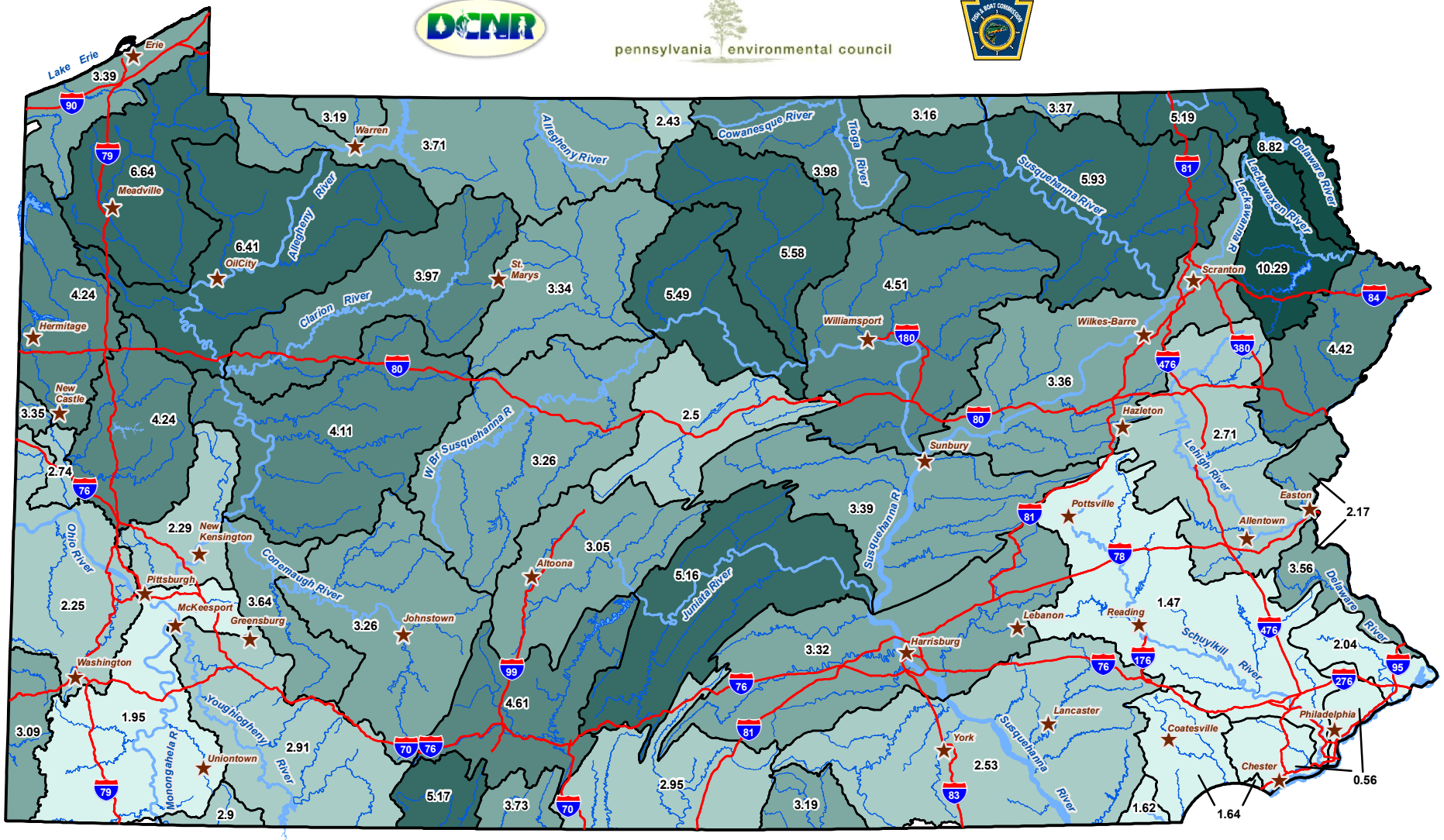
MAP 14. Pennsylvania Fishing and Boating Access Strategy
% Population that Bought 2008 Fishing License



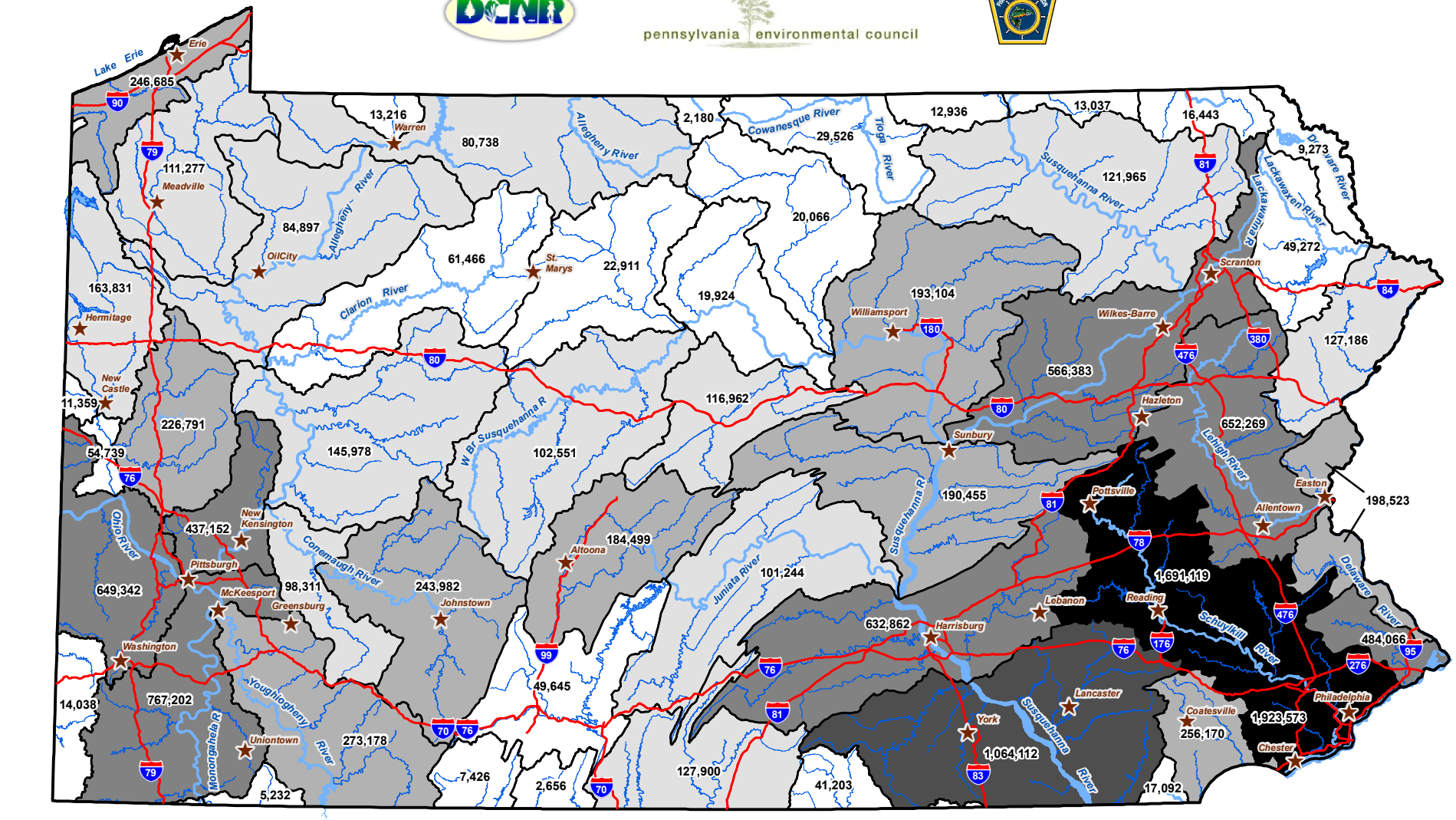
MAP 15. Pennsylvania Fishing and Boating Access Strategy
Total # of Current Boat Registrants



MAP 16. Pennsylvania Fishing and Boating Access Strategy
% of Population that are Current Boat Registrants



MAP 17. Pennsylvania Fishing and Boating Access Strategy
Total Population by Watershed (2000)



2,656 HUC 8 Watersheds with Total Population

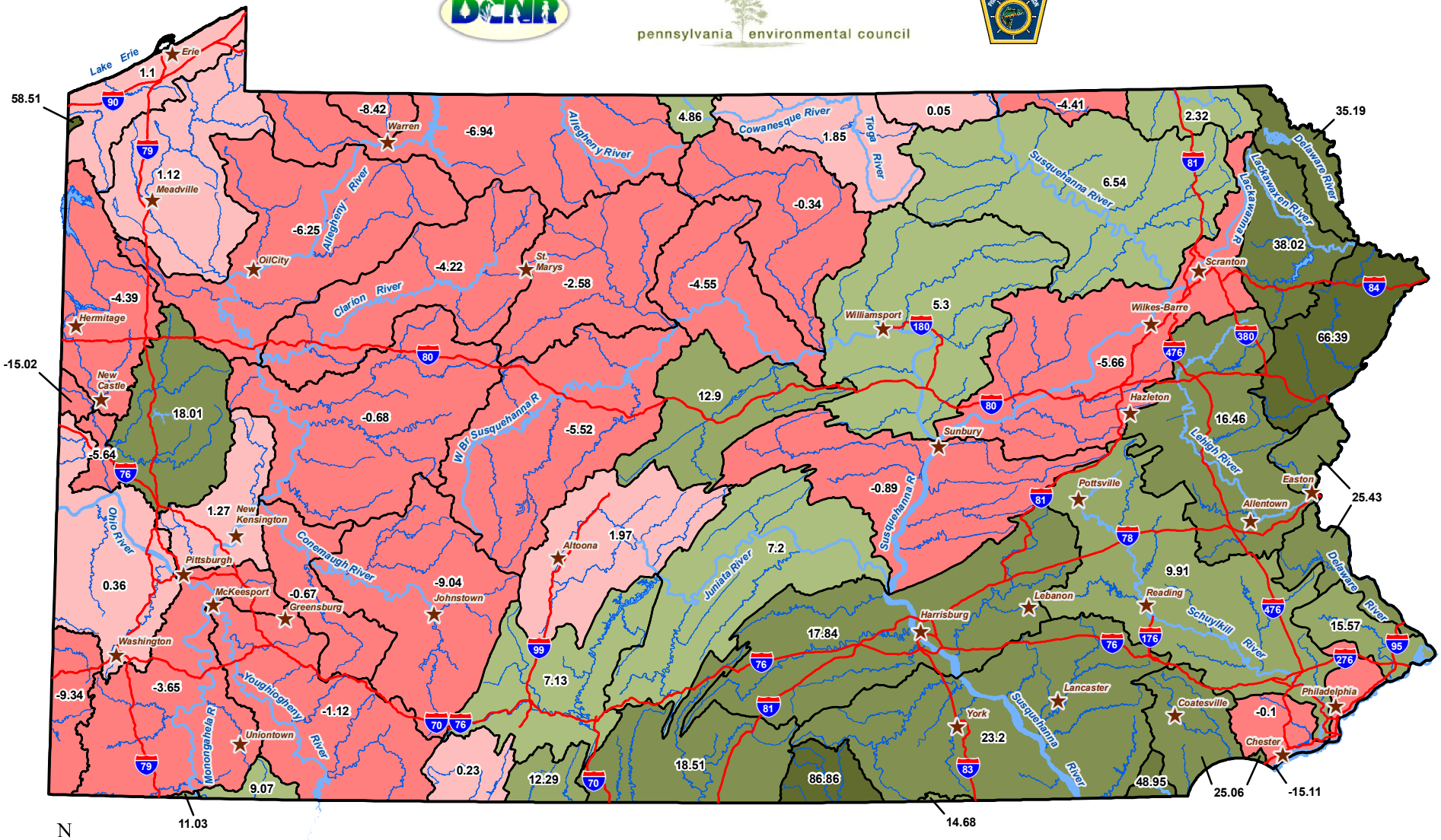
Total Population

2,180 - 61,466	273,179 - 767,202
61,467 - 163,831	767,203 - 1,064,112
163,832 - 273,178	1,064,113 - 1,923,573

0 25 50 Miles

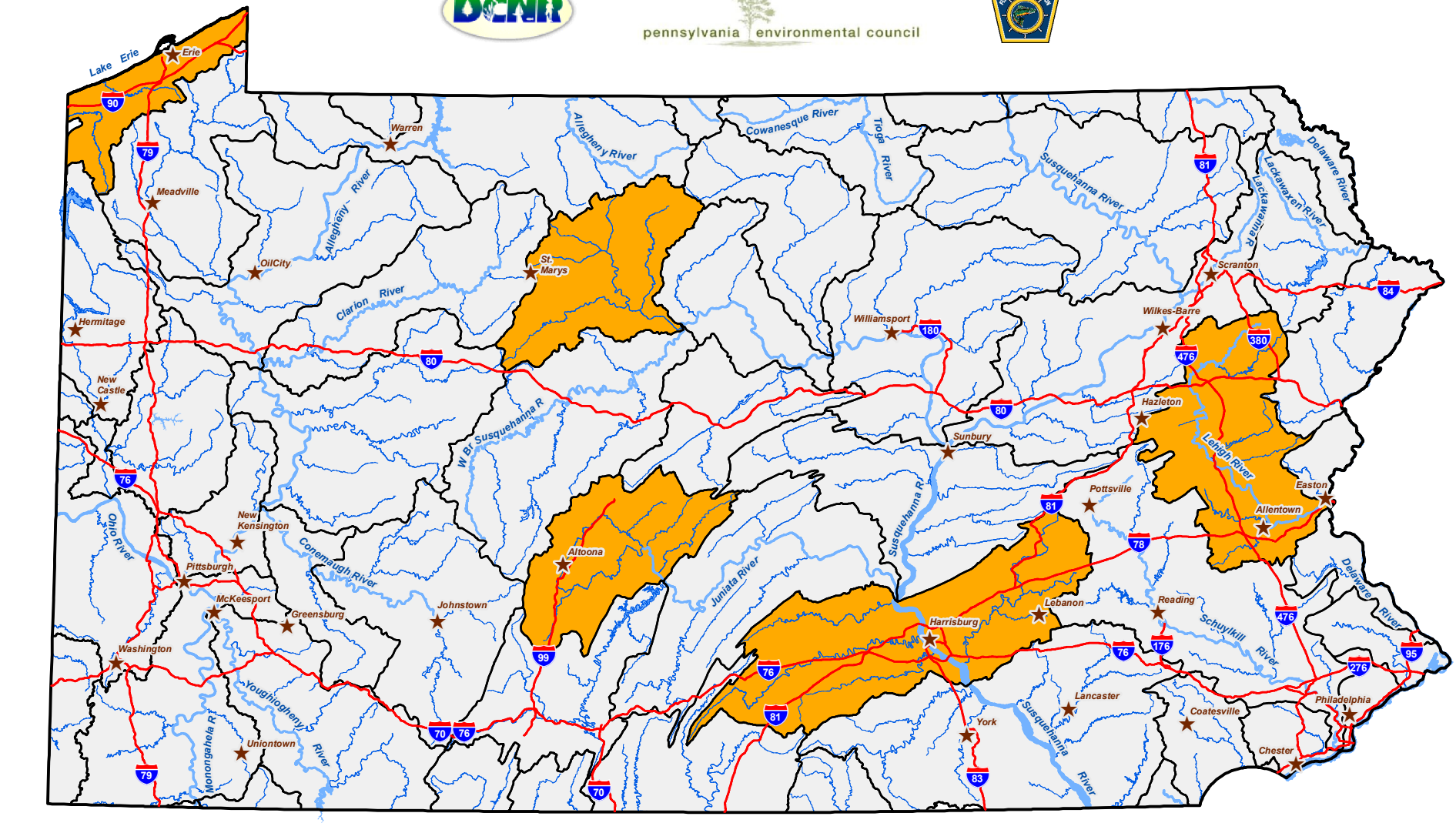
Population Data from US Census Bureau, PA State Data Center, and PA Dept. of Env. Protection, 2006

MAP 18. Pennsylvania Fishing and Boating Access Strategy
Projected Population Change by Watershed 2000 - 2020



Population Projection Data from US Census Bureau, PA State Data Center, and PA Dept. of Env. Protection, 2006

MAP 19. Pennsylvania Fishing and Boating Access Strategy
Availability of Funding by Watershed



Legend

HUC 8 Watersheds

Funding Available

0 25 50

Miles

MAP 20. Pennsylvania Fishing and Boating Access Strategy
Top 15 HUC 8 Watersheds