

26.08.02.02-1

**.02-1 Support of Estuarine and Marine Aquatic Life and Shellfish Harvesting.**

A—E (Text Unchanged)

F. Seasonal Deep-Water Fish and Shellfish Subcategory. This subcategory includes waters of the Chesapeake Bay and its tidal tributaries that have the potential for or are supporting the survival, growth, and propagation of balanced, indigenous populations of important fish and shellfish species inhabiting deep-water habitats as described as follows:

(1) (text unchanged)

(2) From October 1 to May 31, *the open water fish and shellfish subcategory designated use applies*[criteria under §A(5) of this regulation apply].

G. Seasonal Deep-Channel Refuge Use.

(1)—(2) (text unchanged)

(3) From October 1 to May 31, *the open water fish and shellfish subcategory designated use applies*[criteria under §A(5) of this regulation apply].

26.08.02.07

**.07 Surface Water Use Designation.**

A—D (Text Unchanged)

[E. Stream segments, listed below in tabular form, shall be given the additional protection required for:

- (1) Shellfish harvesting waters (Class II waters);
- (2) Shallow water submerged aquatic vegetation (Class II waters);
- (3) Migratory fish spawning and nursery (Class II waters);
- (4) Natural trout waters (Class III and Class III-P waters);
- (5) Recreational trout waters (Class IV and Class IV-P waters);
- (6) Public water supply (Class I-P, II-P, III-P, and IV-P waters).]

26.08.02.08

**.08 Stream Segment Designations *and Existing Uses*.**

A. General

(1) All geographic coordinates provided within this regulation are expressed in decimal degrees latitude and longitude using the North American Datum of 1983. In this regulation, Maryland's waters are organized by sub-basin. For most Class I, I-P, III, III-P, IV, or IV-P waters, the limits indicate the most downstream boundary point or line for the segment. In some cases, an upstream point and a downstream point are provided to describe those uses that may apply only to a limited segment of a water body. In tidal areas, the segments are defined by polygons defined by three or more points as numbered and expressed in narrative format in column four and defined by latitude and longitude point locations in columns two and three. Any waterbody not specifically listed in the table is a Class I water.

(2)—(5) (Text Unchanged)

(6) *Existing Uses.* Several of the sub-basins in this regulation contain stream segments that support existing uses that require different water quality than the designated use. These existing uses have been determined in accordance with COMAR 26.08.02.04-1. The existing uses for these stream segments are described both in terms of the existing uses supported (e.g. naturalized reproducing brown trout population) and the water quality currently known to sustain them. For determining effluent limits, closure periods, and other regulatory protection measures, these existing uses and the water quality necessary to maintain them must be protected consistent with COMAR 26.08.02.04-1. These existing uses are maintained and can be accessed on the Department's website.

B. Sub-Basin 02-12-02: Lower Susquehanna River Area.

Designated Use Class and Waterbody	Latitude	Longitude	Limits
<i>(1) Class I-P:</i>			
[(1) Class I-P:](a) Susquehanna River [and all tributaries except those designated below as Class III-P or Class IV-P]	39.608971 [39.664764]	-76.143379 [-76.171530]	[Upstream of Conowingo Dam] From head of tide at Spencer Island upstream to MD/PA line
	39.608994 [39.656485]	-76.121094 [-76.176049]	
<i>(b) All tributaries to the Susquehanna River except those designated below as Class III-P or Class IV-P</i>			<i>This includes all tributaries to the Susquehanna River including those that drain to the tidal portion of the Susquehanna River</i>
<i>(2) Class II:</i>			
(a) Northern Chesapeake Bay (CB1TF2[-Class II-P]): [Susquehanna River mainstem from downstream side of Conowingo Dam on eastern and western shores to confluence with Chesapeake Bay.] <i>Includes the Upper Bay mainstem from the confluence with CB1TF1 and Northeast River (NORTF) to the mouth of the Susquehanna River.</i>	39.475132	-76.097580	(1) West side of Spesutie Narrows bridge
Designated Uses Present in Segment:	39.476006	-76.094421	(2) East side of Spesutie Narrows bridge
Migratory Spawning and Nursery Use: February 1 to May 31, inclusive	39.475323	-76.072807	(3) Locust Pt. on Spesutie Island

Shallow Water Submerged Aquatic Vegetation Use: April 1 to October 30, inclusive	39.449471	-76.010475	(4) Turkey Pt., 0.1 miles WSW of lighthouse
Application Depth: 2.0 meters, NGZ present	39.529629	-75.979271	(5) Red Pt.
Open Water Fish and Shellfish Use: January 1 to December 31, inclusive	39.540794	-76.002899	(6) East side of Carpenter Pt.
	39.540694	-76.084635	(7) Concord Point
	39.546806	-76.065148	(8) Perry Point
	[39.608994	-76.121094	(7) Port Deposit
	39.608959	-76.132683	(8) East side Spencer Island
	39.609001	-76.135147	(9) West side Spencer Island
	39.608971	-76.143379	(10) Just south of Rock Run on western shore]
(b) Northern Chesapeake Bay (CB1TF1): Upper Bay mainstem to confluence with CB1TF2 [(Susquehanna River)], [Northeast River (NORTF),] Elk River (ELKOH), and CB2OH.	39.420143	-76.123344	(1) 1,000 feet SW of Cherry Tree Pt., APG
Designated Uses Present in Segment:	39.401688	-76.035194	(2) North of Chesapeake Haven, Grove Neck
Migratory Spawning and Nursery Use: February 1 to May 31, inclusive	39.429420	-75.997681	(3) 1,300 feet SW of Wroth Pt.
Shallow Water Submerged Aquatic Vegetation Use: April 1 to October 30, inclusive	39.449200	-76.007698	(4) Turkey Pt.
Application Depth: 1 meters, NGZ present	39.449471	-76.010475	(5) Turkey Pt., 0.1 miles WSW of lighthouse
Open Water Fish and Shellfish Use: January 1 to December 31, inclusive	39.475323	-76.072807	(6) Locust Pt. on Spesutie Island
	39.476006	-76.094421	(7) East side of Spesutie Narrows bridge
	39.475132	-76.097580	(8) West side of Spesutie Narrows bridge
(3) Class II-P: Northern Chesapeake Bay (CB1TF2) - That portion of the Susquehanna River inclusive from the head of tide downstream to the mouth of the Susquehanna River is Class II-P.	39.608971	-76.143379	(1) Just south of Rock Run on western shore
	39.609001	-76.135147	(2) West side Spencer Island

	39.608959	-76.132683	(3) East side Spencer Island
	39.608994	-76.121094	(4) Port Deposit
	39.540694	-76.084635	(5) Concord Point
	39.546806	-76.065148	(6) Perry Point
([3]4) Class III: None			
([4]5) Class III-P:			
(a)—(r) (Text Unchanged)			
(s) Unnamed tributary to Deer Creek and all tributaries	39.643704	-76.41237	Runs parallel to Rocks Road
(t) Unnamed tributary to Falling Branch and all tributaries	39.683601	-76.439217	Flows through Rocks State Park near Falling Branch Road
(u) Unnamed tributary to Conowingo Reservoir and all tributaries	39.717647	-76.224782	Flows from Eckman Lane to Susquehanna River
([5]6) Class IV: None.			
([6]7) Class IV-P:			
(a)—(b) (Text Unchanged)			

C—G (text unchanged)

H. Sub-Basin 02-13-06: Elk River Area

Designated Use Class and Waterbody	Latitude	Longitude	Limits
(1)—(3) (text unchanged)			
(4) Class III-P: [None.]			
(a) Mill Creek	39.585249	-76.052864	Upstream of an unnamed tributary near Reservoir Rd.
(5)—(6) (text unchanged)			

I—J (text unchanged)

K. Sub-Basin 02-13-09: Patapsco River Area.

Designated Use Class and Waterbody	Latitude	Longitude	Limits
(1) Class I-P:			
(a) (text unchanged)			
(b) All tributaries to West Branch Patapsco River except those designated below as Class III-P or Class IV-P			
(c) All tributaries to Liberty Reservoir except those designated below as Class III-P or Class IV-P			Upstream of Liberty Reservoir
(2)—(3) (text unchanged)			
(4) Class III-P:			
(a)—(o) (text unchanged)			
<i>(p) Unnamed Tributary to North Branch Patapsco River and all tributaries</i>	39.534575	-76.891732	Near Wesley Road
<i>(q) Unnamed tributary to the West Branch North Branch Patapsco River and all tributaries</i>	39.574623	-76.955109	Near Tannery Road
<i>(r) Unnamed tributary to the West Branch North Branch Patapsco River and all tributaries</i>	39.559758	-76.927383	Near Dutrow Road
<i>(s) Unnamed tributary to the West Branch North Branch Patapsco River and all tributaries</i>	39.553998	-76.91500	Near Reese Road
<i>(t) Unnamed tributary to Cranberry Branch and all tributaries</i>	39.608109	-76.958926	Near Guadelupe Drive
<i>(u) Unnamed tributary to Liberty Reservoir and all tributaries</i>	39.432231	-76.940664	Flows from area near Woodridge Lane

<i>(v) Unnamed tributary to Liberty Reservoir and all tributaries</i>	39.432498	-76.940303	<i>Flows from area near Sykesville Road</i>
(5) Class IV:			
(a)—(f) (text unchanged)			
(g) Patapsco River	39.221606	[-]-76.713289	Mainstem only. B&O (Thomas) viaduct upstream to confluence of North Branch Patapsco and South Branch Patapsco.
	39.349903	-76.882211	
(h) (text unchanged)			
(6) Class IV-P:			
(a) North Branch Patapsco River	39.493185	[-]-76.872810	Mainstem only upstream of Liberty Reservoir
(b)—(c) (text unchanged)			

L—O (text unchanged)

P. Sub-Basin 02-14-03: Middle Potomac River Area.

Designated Use Class and Waterbody	Latitude	Longitude	Limits
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(1)—(3) (text unchanged)			
(4) Class III-P:			
(a)—(r) (text unchanged)			
<i>(s) Flickinger Branch and all tributaries</i>	39.450649	-77.135427	<i>Near unnamed road off of Black Ankle Road</i>
<i>(t) Unnamed Tributary to Big Pipe Creek and all tributaries</i>	39.675983	-76.919152	<i>Near Dug Hill Drive</i>
<i>(u) Unnamed Tributary to Big Pipe Creek and all tributaries</i>	39.657544	-76.92231	<i>Near Route 27 Manchester Road</i>
<i>(v) Weldon Creek</i>	39.478131	-77.11824	<i>Upstream of tributary near Hoopers Delight Road</i>
(5) (text unchanged)			
(6) Class IV-P:			
(a) (text unchanged)			
(b) Catoctin Creek	39.309777	[-]77.567051	Mainstem only, from mouth upstream to Alternate U.S. Rt. 40
	39.450300	-77.562603	
(c) (text unchanged)			

Q. (text unchanged)

R. Sub-Basin 02-14-10: North Branch Potomac River Area.

Designated Use Class and Waterbody	Latitude	Longitude	Limits
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(1)—(3) (text unchanged)			
(4) Class III-P:			
(a) North Branch Potomac River mainstem from below Jennings Randolph Dam downstream to the confluence with [Laurel Run near Bloomington] <i>Savage River</i>	39.480398 [39.4742592]	-79.067187[79.1054876]	Mainstem only. [From Jennings Randolph Dam downstream to the confluence with Laurel Run near Bloomington]
	39.4317897	-79.1167041	
(b) (text unchanged)			
(5) (text unchanged)			
(6) Class IV-P:			
(a) Wills Creek	39.648896	[-]-78.764400	Mainstem only
(b) (text unchanged)			
(c) Georges Creek	39.645609	-[-]78.915845	Mainstem only
	39.483470	-79.046265	

S. Sub-Basin 05-02-02: Youghiogheny River Area.

Designated Use Class and Waterbody	Latitude	Longitude	Limits
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								m ( $\mu\text{g/L}$ )		
Antimony	7440360							5.6	640	0.006
Arsenic <sup>[1]</sup>	7440382	340	150			69	36	0.18 <sup>d</sup>	1.4 <sup>a,d</sup>	0.010
Asbestos	1332214								7 million fibers/L	7 million fibers/L
Barium	7440393							1,000		2
Beryllium								4		0.004
Cadmium <sup>1</sup>	7440439	[2.0] 1.8	[0.25] 0.72			[40] 33.1 3	[8.8] 7.9	5		0.005
Chlorine <sup>2</sup>	7782505	19	11			13	7.5			
Chromium (total)	7440473							100		0.1
Chromium III <sup>1</sup>	16065831	570	74							
Chromium VI	18540299	16	11			1100	50			
Copper <sup>1</sup>	7440508	13	9	6.1		4.8	3.1	1,300 <sup>d</sup>		1.3 <sup>c</sup>
Cyanide	57125	22	5.2			1	1	140	140	0.2
Lead <sup>1</sup>	7439921	65	2.5			210	8.1			0.015 <sup>c</sup>
Mercury	7439976	1.4	0.77			1.8	0.94			0.002
Methylmercury <sup>b</sup>	22967926								0.3 mg/kg in fish tissue	
Nickel <sup>1</sup>	7440020	470	52			74	8.2	610	4,600	
Selenium	7782492	20	5			290	71	170	4,200	0.05
Silver <sup>1</sup>	7440224	3.2				1.9				0.10
Thallium	7440280							0.24	0.47	0.002
Zinc <sup>1</sup>	7440666	120	120			90	81	7,400	26,000	

<sup>1</sup> Refer to §D of this regulation.

<sup>2</sup> The more stringent of these criteria or the discharge requirements in COMAR 26.08.03.06 shall be used as the basis for determining discharge permit limitations.

<sup>a</sup> This criterion will be applied against the actual measurement of inorganic arsenic (As<sup>+3</sup>) rather than total arsenic.

<sup>b</sup> Per EPA recommendation, total mercury concentrations, as opposed to methylmercury, will be used in MDE fish consumption risk-calculation. This approach is deemed to be most protective of human health and most cost-effective.

<sup>c</sup> Lead and Copper are regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. The values listed are technically action levels.

<sup>d</sup> Criterion is based on a carcinogenic risk level of  $10^{-5}$

\* Drinking water MCLs apply to Public Water Supply designated waters only.

(2) Table 2. Coefficients used to adjust applicable numerical toxic substance Fresh Water aquatic life criteria.\*

Substance	CAS#	<i>mA</i>	<i>bA</i>	<i>mC</i>	<i>bC</i>
Cadmium	7440439	0.9789	-3.866	0.7977	-3.909
Chromium III	16065831	0.8190	3.7256	0.8190	0.6848
Lead	7439921	1.273	-1.460	1.273	-4.705
Nickel	7440020	0.8460	2.255	0.8460	0.0584
Silver	7440224	1.72	-6.59	-	-
Zinc	7440666	0.8473	0.884	0.8473	0.884

(3) Table 3. Conversion Factors used to adjust applicable numerical toxic substance Fresh Water aquatic life criteria.

Substance	CAS#	Freshwater Acute Conversion Factor (CF)	Freshwater Chronic Conversion Factor (CF)
Cadmium	7440439	$1.136672 \cdot \text{LN}(\text{Hardness}) * 0.041838$	$1.101672 \cdot \text{LN}(\text{Hardness}) * 0.041838$
Chromium III	16065831	0.316	0.86
Lead	7439921	$1.46203 \cdot \text{LN}(\text{Hardness}) * 0.145712$	$1.46203 \cdot \text{LN}(\text{Hardness}) * 0.145712$
Nickel	7440020	0.998	0.997
Silver	7440224	0.85	-
Zinc	7440666	0.978	0.986

\*Hardness-dependent criteria may be calculated from the following:

$$\text{Acute Criteria} = e^{mA \cdot \text{LN}(\text{hardness}) + bA} * CF$$

$$\text{Chronic Criteria} = e^{mC \cdot \text{LN}(\text{hardness}) + bC} * CF$$

([2]4) Table [2]4. Toxic Substances for Ambient Water Quality Criteria — Organic Compounds.

Substance	CAS#	Aquatic Life ( $\mu\text{g/L}$ )				Human Health for Consumption of:		
		Fresh Water		Salt Water		Drinking Water + Organism ( $\mu\text{g/L}$ )	Organism Only ( $\mu\text{g/L}$ )	Drinking Water MCL (mg/L)
		Acute	Chronic	Acute	Chronic			
1,1 Dichloroethylene (DCE)	75354					[330] 300	[7100] 20000	0.007
1,1,1-Trichloroethane (TCA)	71556					200		0.2
1,1,2,2-Tetrachloroethane	79345					1.7 <sup>a</sup>	40 <sup>a</sup>	
1,1,2-Trichloroethane	79005					5.9 <sup>a</sup>	160 <sup>a</sup>	0.005
1,2,4-Trichlorobenzene	120821					35 <sup>a</sup>	70 <sup>a</sup>	0.07
<i>1,2,4,5-Tetrachlorobenzene</i>	<i>95943</i>					0.03	0.03	
1,2-Dichlorobenzene	95501					[420] 1000	[1300] 3000	0.6
1,2-Dichloroethane	107062					[3.8] 99 <sup>a</sup>	[370] 6500 <sup>a</sup>	0.005
1,2-Dichloropropane	78875					5 <sup>a</sup>	150 <sup>a</sup>	0.005
1,2-Diphenylhydrazine	122667					[0.36] 0.3 <sup>a</sup>	[2] 2 <sup>a</sup>	
1,2-Trans-Dichloroethylene	156605					[140] 100	[10000] 4000	0.1
1,3-Dichlorobenzene	541731					320	960	
1,3-Dichloropropene	542756					3.4 <sup>a</sup>	210 <sup>a</sup>	
1,4-Dichlorobenzene	106467					[63] 300	[190] 900	0.075
<i>2,4,5-Trichlorophenol</i>	<i>95954</i>					300	600	
2,4,6-Trichlorophenol	88062					14 <sup>a</sup>	24 <sup>a</sup>	
2,4-Dichlorophenol	120832					77	290	
2,4-Dimethylphenol	105679					[380] 100	[850] 3000	
[2,4-Dinitrophenol	51285					69	5300]	
2,4-Dinitrotoluene	121142					1.1 <sup>a</sup>	34 <sup>a</sup>	
2-Chloronaphthalene	91587					[1000] 800	[1600] 1000	
2-Chlorophenol	95578					81	150	
2-Methyl-4,6-Dinitrophenol	534521					[13] 2	[280] 30	
3,3'-Dichlorobenzidine	91941					[0.21] 0.49 <sup>a</sup>	[0.28] 1.5 <sup>a</sup>	
<i>3-Methyl-4-Chlorophenol</i>	<i>59507</i>					500	2000	
Acrolein	107028	3	3			6	9	
Acrylonitrile	107131					[0.51] 0.61 <sup>a</sup>	[2.5] 70 <sup>a</sup>	
Benzene	71432					22 <sup>a</sup>	510 <sup>a</sup>	0.005
Benzidine	92875					[0.00086] 0.0014 <sup>a</sup>	[0.002] 0.11 <sup>a</sup>	
Bis(2-Chloroethyl) Ether	111444					0.3 <sup>a</sup>	[5.3] 22 <sup>a</sup>	
Bis2(Chloroisopropyl) Ether	108601					[1400] 200	[65000] 4000	
<i>Bis(Chloromethyl) Ether</i>	<i>542881</i>					0.0015 <sup>a</sup>	0.17 <sup>a</sup>	
Bromoform <sup>1</sup>	75252					See Trihalomethanes	1400 <sup>a</sup>	
Carbon tetrachloride	56235					[2.3] 4 <sup>a</sup>	[16] 50 <sup>a</sup>	0.005
Chlorobenzene	108907					130	1600	0.1

Chlorodibromomethane <sup>1</sup>	124481					[See Trihalomethanes ] 8 <sup>a</sup>	[130] 210 <sup>a</sup>	
Chloroform <sup>1</sup>	67663					[See Trihalomethanes ] 60	[4700] 2000	
<i>Chlorophenoxy Herbicide (2,4-D)</i>	94757					1300	12000	
<i>Chlorophenoxy Herbicide (2,4,5-TP)</i>	93721					100	400	
Dichlorobromomethane <sup>1</sup>	75274					See Trihalomethanes	170 <sup>a</sup>	
<i>Dinitrophenols</i>	255505 87					10	1000	
Ethylbenzene	100414					530	2100	0.7
Hexachlorobenzene	118741					[0.0028] 0.00079 <sup>a</sup>	[0.0029] 0.00079 <sup>a</sup>	0.001
Hexachlorobutadiene	87683					4.4 <sup>a</sup>	180 <sup>a</sup>	
Hexachlorocyclopentadiene	77474					[40] 4	[1100] 4	0.05
Hexachloroethane	67721					14 <sup>a</sup>	33 <sup>a</sup>	
<i>Hexachlorocyclohexane (HCH)-Technical</i>	608731					0.066 <sup>a</sup>	0.1 <sup>a</sup>	
Isophorone	78591					[350] 340 <sup>a</sup>	[9600] 18000 <sup>a</sup>	
<i>Methoxychlor</i>	72435					0.02	0.02	
Methyl bromide	74839					[47] 100	[1500] 10000	
Methylene chloride	75092					[46] 200 <sup>a</sup>	[5900] 10000 <sup>a</sup>	0.005
Nitrobenzene	98953					[17] 10	[690] 600	
N-Nitrosodimethylamine	62759					0.0069 <sup>a</sup>	30 <sup>a</sup>	
N-Nitrosodi-n-Propylamine	621647					0.05 <sup>a</sup>	5.1 <sup>a</sup>	
N-Nitrosodiphenylamine	86306					33 <sup>a</sup>	60 <sup>a</sup>	
Nonylphenol	848521 53	28	6.6	7	1.7			
Phenol	108952					[10000] 4000	[860000] 300000	
Tetrachloroethylene	127184					[6.9] 100 <sup>a</sup>	[33] 290 <sup>a</sup>	0.005
Toluene	108883					1300	15000	1
Trichloroethylene (TCE)	79016					[25] 6 <sup>a</sup>	[300] 70 <sup>a</sup>	0.005
Trihalomethanes <sup>1</sup>						80		0.08
Vinyl chloride	75014					[0.25] 0.22 <sup>a</sup>	[24] 16 <sup>a</sup>	0.002

<sup>1</sup> Four compounds (bromoform, chlorodibromomethane, chloroform, and *dichlorobromomethane*[dichlorodibromomethane]) are found in combination and comprise a category of contaminants called "trihalomethanes" formed as a result of drinking water disinfection. The concentration of any of these compounds individually, or all of them in sum, may not exceed 80 micrograms per liter. This criterion is equal to the Safe Drinking Water Act Maximum Contaminant Level.

<sup>a</sup> Criterion is based on a carcinogenic risk level of 10<sup>-5</sup>

\* Drinking water MCLs apply to Public Water Supply designated waters only.

([3]5) Table [3]5. Toxic Substances for Ambient Water Quality Criteria-Polycyclic Aromatic Hydrocarbons and Phthalates.

Substance	CAS #	Aquatic Life ( $\mu\text{g/L}$ )				Human Health for Consumption of:		
		Fresh Water		Salt Water		Drinking Water + Organism ( $\mu\text{g/L}$ )	Organism Only ( $\mu\text{g/L}$ )	Drinking Water MCL (mg/L)
		Acute	Chronic	Acute	Chronic			
Acenaphthene	83329					[670] 70	[990] 90	
Anthracene	120127					[8,300] 300	[40,000] 400	
Benzo(a)Anthracene	56553					[0.038] 0.012 <sup>a</sup>	[0.18] 0.013 <sup>a</sup>	
Benzo(a)Pyrene	50328					[0.038] 0.0012 <sup>a</sup>	[0.18] 0.0013 <sup>a</sup>	0.0002
Benzo(b)Fluoranthene	205992					[0.038] 0.012 <sup>a</sup>	[0.18] 0.013 <sup>a</sup>	
Benzo(k)Fluoranthene	207089					[0.038] 0.12 <sup>a</sup>	[0.18] 0.13 <sup>a</sup>	
Chrysene	218019					0.038 <sup>a</sup>	0.18 <sup>a</sup>	
Dibenzo(a,h)Anthracene	53703					[0.038] 0.0012 <sup>a</sup>	[0.18] 0.0013 <sup>a</sup>	
Fluoranthene	206440					[130] 20	[140] 20	
Fluorene	86737					[1,100] 50	[5,300] 70	
Ideno(1,2,3-cd)Pyrene	193395					[0.038] 0.012 <sup>a</sup>	[0.18] 0.013 <sup>a</sup>	
Pyrene	129000					[830] 20	[4,000] 30	
Bis(2-Ethylhexyl) Phthalate	117817					[12] 3.2 <sup>a</sup>	[22] 3.7 <sup>a</sup>	0.006
Butylbenzyl Phthalate	85687					[1,500] 1 <sup>a</sup>	[1,900] 1 <sup>a</sup>	
Diethyl Phthalate	84662					[17,000] 600	[44,000] 600	
Dimethyl Phthalate	131113					[270,000] 2000	[1,100,000] 2000	
Di-n-Butyl Phthalate	84742					[2,000] 20	[4,500] 30	

\* Drinking water MCLs apply to Public Water Supply designated waters only.

<sup>a</sup> Criterion is based on a carcinogenic risk level of  $10^{-5}$

([4]6) Table [4]6. Toxic Substances for Ambient Water Quality Criteria — Pesticides and Chlorinated Compounds.

Substance	CAS#	Aquatic Life ( $\mu\text{g/L}$ )				Human Health for Consumption of:		
		Fresh Water		Salt Water		Drinking Water + Organism ( $\mu\text{g/L}$ )	Organism Only ( $\mu\text{g/L}$ )	Drinking Water MCL (mg/L)
		Acute	Chronic	Acute	Chronic			
2, 3, 7, 8-TCDD (Dioxin)	1746016					0.00000005 <sup>a</sup>	0.00000051 <sup>a</sup>	3 X 10-8
4,4'-DDD	72548					[0.0031] 0.0012 <sup>a</sup>	[0.0031] 0.0012 <sup>a</sup>	
4,4'-DDE	72559					[0.0022] 0.00018 <sup>a</sup>	[0.0022] 0.00018 <sup>a</sup>	
4,4'-DDT	50293	1.1	0.001	0.13	0.001	[0.0022] 0.0003 <sup>a</sup>	[0.0022] 0.0003 <sup>a</sup>	
Aldrin	309002	3		1.3		[0.00049] 0.0000077 <sup>a</sup>	[0.00050] 0.0000077 <sup>a</sup>	
alpha-BHC	319846					[0.026] 0.0036 <sup>a</sup>	[0.049] 0.0039 <sup>a</sup>	
alpha-Endosulfan	959988	0.22	0.056	0.034	0.0087	[62] 20	[89] 30	
Atrazine	[319857] 1912249					3		0.003
beta-BHC	319857					[0.091] 0.08 <sup>a</sup>	[0.17] 0.14 <sup>a</sup>	
beta-Endosulfan	33213659	0.22	0.056	0.034	0.0087	[62] 20	[89] 40	
Carbaryl	63252	2.1	2.1	1.6				
Chlordane	57749	2.4	0.0043	0.09	0.004	[0.0080] 0.0031 <sup>a</sup>	[0.0081] 0.0032 <sup>a</sup>	0.002
Chlorpyrifos	2921882	0.083	0.041	0.011	0.0056			
Diazinon	333415	0.17	0.17	0.82	0.82			
Dieldrin	60571	0.24	0.056	0.71	0.0019	[0.00052] 0.000012 <sup>a</sup>	[0.00054] 0.000012 <sup>a</sup>	
Endosulfan Sulfate	1031078					[62] 20	[89] 40	
Endrin	72208	0.086	0.036	0.037	0.0023	0.059	0.060	0.002
Endrin Aldehyde	7421934					[0.29] 1	[0.30] 1	
gamma-BHC (Lindane)	58899	0.95		0.16		[0.98] 4.2	[1.8] 4.4	0.0002
Heptachlor	76448	0.52	0.0038	0.053	0.0036	[0.00079] 0.000059 <sup>a</sup>	[0.00079] 0.000059 <sup>a</sup>	0.0004
Heptachlor Epoxide	1024573	0.52	0.0038	0.053	0.0036	[0.00039] 0.00032 <sup>a</sup>	[0.00039] 0.00032 <sup>a</sup>	0.0002
Polychlorinated Biphenyls PCBs			0.014		0.03	0.00064 <sup>a</sup>	0.00064 <sup>a</sup>	0.0005
Toxaphene	8001352	0.73	0.002	0.21	0.002	[0.0028] 0.007 <sup>a</sup>	[0.0028] 0.0071 <sup>a</sup>	0.003

Tributyltin (TBT)		0.46	0.072	0.42	0.0074			
Pentachlorobenzene	608935					0.1	0.1	
Pentachlorophenol (PCP)[1]	87865	19	15	13	7.9	2.7 <sup>a</sup>	30 <sup>a</sup>	0.001

[<sup>1</sup> Refer to §D of this regulation.]

<sup>a</sup> Criterion is based on a carcinogenic risk level of 10<sup>-5</sup>

\* Drinking water MCLs apply to Public Water Supply designated waters only.

H. Acute Numeric Toxic Substance Criteria for Ammonia for the Protection of Fresh Water Aquatic Life [(Table 1)].

(1) The use of Table 3 and 4 requires documentation acceptable to the Department of the absence of fresh water mussels using the methods outlined in the document, “Procedures for Applying the Mussel-Absent Ammonia Criteria to Maryland Surface waters”, which is incorporated by reference.

[(1)2] Presence of Salmonid Fish. In Class III, III-P, IV, and IV-P waters, the concentration of total ammonia (in milligrams of nitrogen per liter) may not exceed the acute criterion listed [under “Salmonids Present”] in Table 1.

[(2)3] Absence of Salmonid Fish. In Class I and I-P waters, the concentration of total ammonia (in milligrams of nitrogen per liter) may not exceed the acute criterion listed [under “Salmonids Absent”] in Table [1]2.

(4) Presence of Salmonid Fish and absence of freshwater mussels. In Class III, III-P, IV, and IV-P waters, the concentration of total ammonia (in milligrams of nitrogen per liter) may not exceed the acute criterion listed in Table 3.

(5) Absence of Salmonid Fish and absence of freshwater mussels. In Class I and I-P waters, the concentration of total ammonia (in milligrams of nitrogen per liter) may not exceed the acute criterion listed in Table 4.

[(3)6] Table 1. Acute Water Quality Criteria for freshwater Aquatic Life for Ammonia where Salmonids may be present (milligrams of nitrogen per liter)<sup>1</sup>.

[

pH	Salmonids Present <sup>1</sup>	Salmonids Absent <sup>2</sup>
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0



6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

<sup>1</sup> The acute water quality criteria for total ammonia where salmonids may be present was calculated using the following equation, which may also be used to calculate unlisted values: Acute water quality criteria for ammonia (salmonids present) =

$$\frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}}$$

<sup>2</sup> The acute water quality criteria for total ammonia where salmonids are absent were calculated using the following equation, which may also be used to calculate unlisted values: Acute water quality criteria for ammonia (salmonids absent) =

$$\frac{0.411}{1 + 10^{7.204 - pH}} + \frac{58.4}{1 + 10^{pH - 7.204}}$$

1

Temperature (°C)																	
pH	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	32.6	32.6	31.6	29.1	26.8	24.6	22.7	20.9	19.2	17.7	16.3	15.0	13.8	12.7	11.7	10.8	9.9
6.6	31.3	31.3	30.3	27.9	25.7	23.6	21.8	20.0	18.4	17.0	15.6	14.4	13.2	12.2	11.2	10.3	9.5
6.7	29.8	29.8	28.8	26.5	24.4	22.5	20.7	19.0	17.5	16.1	14.9	13.7	12.6	11.6	10.7	9.8	9.0
6.8	28.0	28.0	27.2	25.0	23.0	21.2	19.5	18.0	16.5	15.2	14.0	12.9	11.9	10.9	10.0	9.2	8.5
6.9	26.2	26.2	25.3	23.3	21.5	19.8	18.2	16.7	15.4	14.2	13.1	12.0	11.1	10.2	9.4	8.6	7.9
7.0	24.1	24.1	23.3	21.5	19.8	18.2	16.8	15.4	14.2	13.1	12.0	11.1	10.2	9.4	8.6	7.9	7.3
7.1	21.9	21.9	21.3	19.6	18.0	16.6	15.3	14.0	12.9	11.9	11.0	10.1	9.3	8.5	7.9	7.2	6.7
7.2	19.7	19.7	19.1	17.6	16.2	14.9	13.7	12.6	11.6	10.7	9.8	9.1	8.3	7.7	7.1	6.5	6.0
7.3	17.5	17.5	17.0	15.6	14.4	13.2	12.2	11.2	10.3	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.3
7.4	15.3	15.3	14.9	13.7	12.6	11.6	10.7	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.7
7.5	13.3	13.3	12.9	11.8	10.9	10.0	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	11.4	11.4	11.0	10.1	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	9.6	9.6	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	2.9
7.8	8.1	8.1	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.5
7.9	6.8	6.8	6.6	6.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8.0	5.6	5.6	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	4.6	4.6	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4
8.2	3.8	3.8	3.7	3.4	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	3.1	3.1	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	1.0
8.4	2.6	2.6	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8
8.5	2.1	2.1	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.8	0.7	0.6
8.6	1.8	1.8	1.7	1.6	1.5	1.3	1.2	1.1	1.0	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5
8.7	1.5	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4
8.8	1.2	1.2	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4
8.9	1.0	1.0	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3
9.0	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3

<sup>1</sup> The acute water quality criteria for total ammonia where salmonids may be present was calculated using the following equation, which may also be used to calculate unlisted values: Acute water quality criteria for ammonia (salmonids present) =

$$CMC = MIN \left[ \left( \frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39}{1 + 10^{pH - 7.204}} \right), \left( 0.7249 * \left( \frac{0.0114}{1 + 10^{7.204 - pH}} + \frac{1.6181}{1 + 10^{pH - 7.204}} \right) * (23.12 * 10^{0.036 * (20 - T)}) \right) \right]$$

Where MIN indicates the lesser of the two values separated by a comma.

(7) Table 2. Acute Water Quality Criteria for freshwater Aquatic Life for Ammonia where Salmonids are absent (milligrams of nitrogen per liter)<sup>1</sup>.

pH	Temperature (°C)																				
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	50.9	47.8	44.0	40.5	37.3	34.3	31.6	29.1	26.8	24.6	22.7	20.9	19.2	17.7	16.3	15.0	13.8	12.7	11.7	10.8	9.9
6.6	48.9	45.9	42.2	38.9	35.8	32.9	30.3	27.9	25.7	23.6	21.8	20.0	18.4	17.0	15.6	14.4	13.2	12.2	11.2	10.3	9.4
6.7	46.5	43.6	40.2	37.0	34.0	31.3	28.8	26.5	24.4	22.5	20.7	19.0	17.5	16.1	14.9	13.7	12.6	11.6	10.7	9.8	8.9
6.8	43.8	41.1	37.9	34.8	32.1	29.5	27.2	25.0	23.0	21.2	19.5	18.0	16.5	15.2	14.0	12.9	11.9	10.9	10.0	9.2	8.3
6.9	40.8	38.3	35.3	32.5	29.9	27.5	25.3	23.3	21.5	19.8	18.2	16.7	15.4	14.2	13.1	12.0	11.1	10.2	9.4	8.6	7.7
7.0	37.6	35.3	32.5	29.9	27.6	25.4	23.3	21.5	19.8	18.2	16.8	15.4	14.2	13.1	12.0	11.1	10.2	9.4	8.6	7.9	7.1
7.1	34.3	32.2	29.6	27.3	25.1	23.1	21.3	19.6	18.0	16.6	15.3	14.0	12.9	11.9	11.0	10.1	9.3	8.5	7.9	7.2	6.4
7.2	30.8	28.9	26.6	24.5	22.6	20.8	19.1	17.6	16.2	14.9	13.7	12.6	11.6	10.7	9.8	9.1	8.3	7.7	7.1	6.5	5.8
7.3	27.3	25.7	23.6	21.7	20.0	18.4	17.0	15.6	14.4	13.2	12.2	11.2	10.3	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.2
7.4	24.0	22.5	20.7	19.1	17.5	16.1	14.9	13.7	12.6	11.6	10.7	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.6
7.5	20.7	19.5	17.9	16.5	15.2	14.0	12.9	11.8	10.9	10.0	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	17.8	16.7	15.4	14.1	13.0	12.0	11.0	10.1	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.4
7.7	15.1	14.1	13.0	12.0	11.0	10.1	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	2.9
7.8	12.7	11.9	10.9	10.1	9.3	8.5	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.4
7.9	10.6	9.9	9.1	8.4	7.7	7.1	6.6	6.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.0
8.0	8.8	8.2	7.6	7.0	6.4	5.9	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	7.2	6.8	6.3	5.8	5.3	4.9	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4
8.2	6.0	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.1
8.3	4.9	4.6	4.2	3.9	3.6	3.3	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.9
8.4	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.7
8.5	3.3	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.8	0.7	0.6
8.6	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.5	1.3	1.2	1.1	1.0	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5
8.7	2.3	2.2	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4
8.8	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.3
8.9	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3
9.0	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.2

<sup>1</sup> The acute water quality criteria for total ammonia where salmonids are absent were calculated using the following equation, which may also be used to calculate unlisted values: Acute water quality criteria for ammonia (salmonids absent) =

$$CMC = \left[ 0.7249 * \left( \frac{0.0114}{1 + 10^{7.204 - pH}} + \frac{1.6181}{1 + 10^{pH - 7.204}} \right) * \text{MIN} \left( 51.93, 23.12 * 10^{0.036 * (20 - T)} \right) \right]$$

Where MIN indicates the lesser of the two values separated by a comma.

(8) Table 3. Acute Water Quality Criteria for freshwater Aquatic Life for Ammonia where Salmonids may be present and freshwater mussels are absent (milligrams of nitrogen per liter)<sup>1</sup>.

Temperature (°C)																	
pH	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	31.4	28.9	26.6
6.6	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	30.1	27.7	25.5
6.7	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	28.7	26.4	24.3
6.8	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	27.0	24.9	22.9
6.9	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	25.2	23.2	21.3
7.0	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	23.2	21.4	19.7
7.1	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.1	19.5	17.9
7.2	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.0	17.5	16.1
7.3	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.9	15.5	14.3
7.4	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	14.8	13.6	12.5
7.5	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	12.8	11.8	10.8
7.6	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.0	10.1	9.3
7.7	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.3	8.5	7.9
7.8	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	7.8	7.2	6.6
7.9	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.5	6.0	5.5
8.0	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.4	5.0	4.6
8.1	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.5	4.1	3.8
8.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.7	3.4	3.1
8.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	2.8	2.6
8.4	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.3	2.1
8.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.9	1.7
8.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.4
8.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.3	1.2
8.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.0
8.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.8
9.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.7

<sup>1</sup> The acute water quality criteria for total ammonia where salmonids are present and freshwater mussels are absent were calculated using the following equation, which may also be used to calculate unlisted values: Acute water quality criteria for ammonia (salmonids present and freshwater mussels absent) =

$$MIN \left[ \left( \frac{0.275}{1+10^{7.204-pH}} + \frac{39}{1+10^{pH-7.204}} \right), \left( 0.7249 * \left( \frac{0.0114}{1+10^{7.204-pH}} + \frac{1.6181}{1+10^{pH-7.204}} \right) * (62.15 * 10^{0.036*(20-T)}) \right) \right]$$

Where MIN indicates the lesser of the two values separated by a comma.

(9) Table 4. Acute Water Quality Criteria for freshwater Aquatic Life for Ammonia where Salmonids are absent and freshwater mussels are absent (milligrams of nitrogen per liter)<sup>1</sup>.

pH	Temperature (°C)																
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9	47.5	43.8	40.3	37.1	34.1	31.4	28.9	26.6
6.6	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	45.6	42.0	38.6	35.6	32.7	30.1	27.7	25.5
6.7	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	43.4	39.9	36.8	33.8	31.1	28.7	26.4	24.3
6.8	43.8	43.8	43.8	43.8	43.8	43.8	43.8	43.8	43.8	40.9	37.6	34.6	31.9	29.3	27.0	24.9	22.9
6.9	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	38.1	35.1	32.3	29.7	27.4	25.2	23.2	21.3
7.0	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	35.1	32.3	29.8	27.4	25.2	23.2	21.4	19.7
7.1	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	32.0	29.4	27.1	24.9	23.0	21.1	19.5	17.9
7.2	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	28.8	26.5	24.4	22.4	20.6	19.0	17.5	16.1
7.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	25.5	23.5	21.6	19.9	18.3	16.9	15.5	14.3
7.4	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	22.4	20.6	18.9	17.4	16.1	14.8	13.6	12.5
7.5	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	19.4	17.8	16.4	15.1	13.9	12.8	11.8	10.8
7.6	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	16.6	15.3	14.0	12.9	11.9	11.0	10.1	9.3
7.7	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	14.1	12.9	11.9	11.0	10.1	9.3	8.5	7.9
7.8	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	11.8	10.9	10.0	9.2	8.5	7.8	7.2	6.6
7.9	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	9.9	9.1	8.4	7.7	7.1	6.5	6.0	5.5
8.0	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.2	7.5	6.9	6.4	5.9	5.4	5.0	4.6
8.1	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.8	6.2	5.7	5.3	4.9	4.5	4.1	3.8
8.2	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1
8.3	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6
8.4	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.8	3.5	3.2	2.9	2.7	2.5	2.3	2.1
8.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.1	2.9	2.6	2.4	2.2	2.1	1.9	1.7
8.6	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4
8.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2
8.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0
8.9	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8
9.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7

<sup>1</sup> The acute water quality criteria for total ammonia where salmonids are present and freshwater mussels are absent were calculated using the following equation, which may also be used to calculate unlisted values: Acute water quality criteria for ammonia (salmonids present and freshwater mussels absent) =

$$\left[ 0.7249 * \left( \frac{0.0114}{1 + 10^{7.204 - pH}} + \frac{1.6181}{1 + 10^{pH - 7.204}} \right) * \text{MIN} \left( 51.93, 62.15 * 10^{0.036 * (20 - T)} \right) \right]$$

Where MIN indicates the lesser of the two values separated by a comma.

I. Chronic Numeric Toxic Substance Criteria for Ammonia, Expressed as a 30-day Average, for the Protection of Fresh Water Aquatic Life [(Tables 1 and 2)].

(1) Averaging Period. The concentration of total ammonia nitrogen (in milligrams of nitrogen per liter) expressed as a 30-day average may not exceed the chronic criterion listed in Tables 1 [or], 2 or 3.

(2) The use of Table [2]3 requires documentation acceptable to the Department of the absence of fish early life stages.

(3) The use of Table 2 or 3 requires documentation acceptable to the Department of the absence of fresh water mussels using the methods outlined in the document Procedures for Applying Mussel-Absent Ammonia Criteria to Maryland Surface Waters.

([3]4) In addition, the highest 4-day average within the 30-day period may not exceed 2 1/2 times the chronic criterion.

([4]5) Table 1. Chronic Ammonia Criteria for Waters Where Freshwater Fish Early Life Stages May Be Present (milligrams of nitrogen per liter).1

[

Temperature (°C)										
P H	0	14	16	18	20	22	24	26	28	30
6 · 5	6.6 7	6.6 7	6.0 6	5.3 3	4.6 8	4.1 2	3.6 2	3.1 8	2.8 0	2.4 6
6 · 6	6.5 7	6.5 7	5.9 7	5.2 5	4.6 1	4.0 5	3.5 6	3.1 3	2.7 5	2.4 2
6 · 7	6.4 4	6.4 4	5.8 6	5.1 5	4.5 2	3.9 8	3.5 0	3.0 7	2.7 0	2.3 7
6 · 8	6.2 9	6.2 9	5.7 2	5.0 3	4.4 2	3.8 9	3.4 2	3.0 0	2.6 4	2.3 2
6 · 9	6.1 2	6.1 2	5.5 6	4.8 9	4.3 0	3.7 8	3.3 2	2.9 2	2.5 7	2.2 5

7 · 0	5.9 1	5.9 1	5.3 7	4.7 2	4.1 5	3.6 5	3.2 1	2.8 2	2.4 8	2.1 8
7 · 1	5.6 7	5.6 7	5.1 5	4.5 3	3.9 8	3.5 0	3.0 8	2.7 0	2.3 8	2.0 9
7 · 2	5.3 9	5.3 9	4.9 0	4.3 1	3.7 8	3.3 3	2.9 2	2.5 7	2.2 6	1.9 9
7 · 3	5.0 8	5.0 8	4.6 1	4.0 6	3.5 7	3.1 3	2.7 6	2.4 2	2.1 3	1.8 7
7 · 4	4.7 3	4.7 3	4.3 0	3.7 8	3.3 2	2.9 2	2.5 7	2.2 6	1.9 8	1.7 4
7 · 5	4.3 6	4.3 6	3.9 7	3.4 9	3.0 6	2.6 9	2.3 7	2.0 8	1.8 3	1.6 1
7 · 6	3.9 8	3.9 8	3.6 1	3.1 8	2.7 9	2.4 5	2.1 6	1.9 0	1.6 7	1.4 7
7 · 7	3.5 8	3.5 8	3.2 5	2.8 6	2.5 1	2.2 1	1.9 4	1.7 1	1.5 0	1.3 2
7 · 8	3.1 8	3.1 8	2.8 9	2.5 4	2.2 3	1.9 6	1.7 3	1.5 2	1.3 3	1.1 7
7 · 9	2.8 0	2.8 0	2.5 4	2.2 4	1.9 6	1.7 3	1.5 2	1.3 3	1.1 7	1.0 3
8 · 0	2.4 3	2.4 3	2.2 1	1.9 4	1.7 1	1.5 0	1.3 2	1.1 6	1.0 2	0.8 97
8 · 1	2.1 0	2.1 0	1.9 1	1.6 8	1.4 7	1.2 9	1.1 4	1.0 0	0.8 79	0.7 73

8 · 2	1.7 9	1.7 9	1.6 3	1.4 3	1.2 6	1.1 1	0.9 73	0.8 55	0.7 52	0.6 61
8 · 3	1.5 2	1.5 2	1.3 9	1.2 2	1.0 7	0.9 41	0.8 27	0.7 27	0.6 39	0.5 62
8 · 4	1.2 9	1.2 9	1.1 7	1.0 3	0.9 06	0.7 96	0.7 00	0.6 15	0.5 41	0.4 75
8 · 5	1.0 9	1.0 9	0.9 90	0.8 70	0.7 65	0.6 72	0.5 91	0.5 20	0.4 57	0.4 01
8 · 6	0.9 20	0.9 20	0.8 36	0.7 35	0.6 46	0.5 68	0.4 99	0.4 39	0.3 86	0.3 39
8 · 7	0.7 78	0.7 78	0.7 07	0.6 22	0.5 47	0.4 80	0.4 22	0.3 71	0.3 26	0.2 87
8 · 8	0.6 61	0.6 61	0.6 01	0.5 28	0.4 64	0.4 08	0.3 59	0.3 15	0.2 77	0.2 44
8 · 9	0.5 65	0.5 65	0.5 13	0.4 51	0.3 97	0.3 49	0.3 06	0.2 69	0.2 37	0.2 08
9 · 0	0.4 86	0.4 86	0.4 42	0.3 89	0.3 42	0.3 00	0.2 64	0.2 32	0.2 04	0.1 79

<sup>1</sup> The freshwater chronic water quality criteria for total ammonia where fish early life stages may be present were calculated using the following equation, which may also be used to calculate unlisted values:

Freshwater chronic water quality criterion for ammonia (fish early life stages present)

$$\left( \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) \times \text{MIN}(2.85, 1.45 \times 10^{0.028 \times (25 - T)})$$

=

Where MIN indicates the lesser of the two values separated by a comma.]

	<i>Temperature (°C)</i>
--	-------------------------



pH	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	4.9	4.6	4.3	4.0	3.8	3.6	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1
6.6	4.8	4.5	4.3	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1
6.7	4.7	4.4	4.2	3.9	3.7	3.4	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1
6.8	4.6	4.3	4.1	3.8	3.6	3.4	3.1	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.5	1.5	1.4	1.3	1.2	1.1	1.1
6.9	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0
7	4.3	4.1	3.8	3.6	3.4	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.5	1.5	1.4	1.3	1.2	1.1	1.1	1.0
7.1	4.2	3.9	3.7	3.4	3.2	3.0	2.8	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9
7.2	3.9	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9
7.3	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9	0.8
7.4	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9	0.8	0.8
7.5	3.2	3.0	2.8	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7
7.6	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.7
7.7	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6
7.8	2.3	2.1	2.0	1.9	1.8	1.7	1.5	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5
7.9	2.0	1.9	1.7	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5
8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4
8.1	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3
8.2	1.2	1.2	1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
8.3	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2
8.4	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
8.5	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
8.7	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
8.8	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8.9	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
9	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

<sup>1</sup> The freshwater chronic water quality criteria for total ammonia where fish early life stages may be present were calculated using the following equation, which may also be used to calculate unlisted values:

Freshwater chronic water quality criterion for ammonia (fish early life stages present)=

$$\left[ 0.9405 * \left( \frac{0.0278}{1 + 10^{7.688 - pH}} + \frac{1.1994}{1 + 10^{pH - 7.688}} \right) * \text{MIN} \left( 6.920, 7.547 * 10^{0.028 * (20 - T)} \right) \right]$$

Where MIN indicates the lesser of the two values separated by a comma.

([5]6) Table 2. Chronic Ammonia Criteria for Waters Where Freshwater Fish Early Life Stages Are [Absent] Present and Freshwater mussels are absent (milligrams of nitrogen per liter).<sup>1</sup>

[

Temperature (°C)										
P H	0— 7	8	9	10	11	12	13	14	15 <sup>2</sup>	16 <sup>2</sup>
6 · 5	10. 8	10. 1	9.5 1	8.9 2	8.3 6	7.8 4	7.3 5	6.8 9	6.4 6	6.0 6
6 · 6	10. 7	9.9 9	9.3 7	8.7 9	8.2 4	7.7 2	7.2 4	6.7 9	6.3 6	5.9 7
6 · 7	10. 5	9.8 1	9.2 0	8.6 2	8.0 8	7.5 8	7.1 1	6.6 6	6.2 5	5.8 6
6 · 8	10. 2	9.5 8	8.9 8	8.4 2	7.9 0	7.4 0	6.9 4	6.5 1	6.1 0	5.7 2
6 · 9	9.9 3	9.3 1	8.7 3	8.1 9	7.6 8	7.2 0	6.7 5	6.3 3	5.9 3	5.5 6
7 · 0	9.6 0	9.0 0	8.4 3	7.9 1	7.4 1	6.9 5	6.5 2	6.1 1	5.7 3	5.3 7
7 · 1	9.2 0	8.6 3	8.0 9	7.5 8	7.1 1	6.6 7	6.2 5	5.8 6	5.4 9	5.1 5
7 · 2	8.7 5	8.2 0	7.6 9	7.2 1	6.7 6	6.3 4	5.9 4	5.5 7	5.2 2	4.9 0
7 · 3	8.2 4	7.7 3	7.2 5	6.7 9	6.3 7	5.9 7	5.6 0	5.2 5	4.9 2	4.6 1
7 · 4	7.6 9	7.2 1	6.7 6	6.3 3	5.9 4	5.5 7	5.2 2	4.8 9	4.5 9	4.3 0

7 · 5	7.0 9	6.6 4	6.2 3	5.8 4	5.4 8	5.1 3	4.8 1	4.5 1	4.2 3	3.9 7
7 · 6	6.4 6	6.0 5	5.6 7	5.3 2	4.9 9	4.6 8	4.3 8	4.1 1	3.8 5	3.6 1
7 · 7	5.8 1	5.4 5	5.1 1	4.7 9	4.4 9	4.2 1	3.9 5	3.7 0	3.4 7	3.2 5
7 · 8	5.1 7	4.8 4	4.5 4	4.2 6	3.9 9	3.7 4	3.5 1	3.2 9	3.0 9	2.8 9
7 · 9	4.5 4	4.2 6	3.9 9	3.7 4	3.5 1	3.2 9	3.0 9	2.8 9	2.7 1	2.5 4
8 · 0	3.9 5	3.7 0	3.4 7	3.2 6	3.0 5	2.8 6	2.6 8	2.5 2	2.3 6	2.2 1
8 · 1	3.4 1	3.1 9	2.9 9	2.8 1	2.6 3	2.4 7	2.3 1	2.1 7	2.0 3	1.9 1
8 · 2	2.9 1	2.7 3	2.5 6	2.4 0	2.2 5	2.1 1	1.9 8	1.8 5	1.7 4	1.6 3
8 · 3	2.4 7	2.3 2	2.1 8	2.0 4	1.9 1	1.7 9	1.6 8	1.5 8	1.4 8	1.3 9
8 · 4	2.0 9	1.9 6	1.8 4	1.7 3	1.6 2	1.5 2	1.4 2	1.3 3	1.2 5	1.1 7
8 · 5	1.7 7	1.6 6	1.5 5	1.4 6	1.3 7	1.2 8	1.2 0	1.1 3	1.0 6	0.9 90
8 · 6	1.4 9	1.4 0	1.3 1	1.2 3	1.1 5	1.0 8	1.0 1	0.9 51	0.8 92	0.8 36

8 · 7	1.2 6	1.1 8	1.1 1	1.0 4	0.9 76	0.9 15	0.8 58	0.8 05	0.7 54	0.7 07
8 · 8	1.0 7	1.0 1	0.9 44	0.8 85	0.8 29	0.7 78	0.7 29	0.6 84	0.6 41	0.6 01
8 · 9	0.9 17	0.8 60	0.8 06	0.7 56	0.7 09	0.6 64	0.6 23	0.5 84	0.5 48	0.5 13
9 · 0	0.7 90	0.7 40	0.6 94	0.6 51	0.6 10	0.5 72	0.5 36	0.5 03	0.4 71	0.4 42

<sup>1</sup>The freshwater chronic water quality criteria for total ammonia where fish early life stages are absent were calculated using the following equation, which may also be used to calculate unlisted values:

Freshwater chronic water quality criterion for ammonia (fish early life stages absent) =

$$\left( \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) \times 1.45 \times 10^{0.028 \times (25 - \text{MAX}(T, 7))}$$

Where MAX indicates the greater of the two values separated by a comma.

<sup>2</sup>At 15°C and above, the criterion for fish early life stage absent is the same as the criterion for fish early life stage present. ]

Temperature (oC)																	
pH	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.0	6.6	6.2	5.8	5.4	5.1	4.8	4.5	4.2
6.6	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9	6.5	6.1	5.7	5.3	5.0	4.7	4.4	4.1
6.7	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	6.8	6.4	6.0	5.6	5.2	4.9	4.6	4.3	4.1
6.8	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.6	6.2	5.8	5.5	5.1	4.8	4.5	4.2	4.0
6.9	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.4	6.0	5.7	5.3	5.0	4.7	4.4	4.1	3.8
7	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.2	5.8	5.5	5.1	4.8	4.5	4.2	4.0	3.7
7.1	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	5.9	5.6	5.2	4.9	4.6	4.3	4.0	3.8	3.6
7.2	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.6	5.3	5.0	4.7	4.4	4.1	3.8	3.6	3.4
7.3	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.3	5.0	4.7	4.4	4.1	3.8	3.6	3.4	3.2
7.4	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	4.9	4.6	4.3	4.1	3.8	3.6	3.4	3.1	2.9
7.5	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.5	4.3	4.0	3.7	3.5	3.3	3.1	2.9	2.7
7.6	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.1	3.9	3.6	3.4	3.2	3.0	2.8	2.6	2.5
7.7	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.7	3.5	3.2	3.0	2.9	2.7	2.5	2.3	2.2

7.8	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	1.9
7.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7
8	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5
8.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2
8.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.5	1.5	1.4	1.3	1.2	1.1	1.1
8.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.9
8.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7
8.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6
8.6	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5
8.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4
8.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3
8.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2

<sup>1</sup> The freshwater chronic water quality criteria for total ammonia where fish early life stages are present but freshwater mussels are absent were calculated using the following equation, which may also be used to calculate unlisted values:

Freshwater chronic water quality criterion for ammonia (fish early life stages present and freshwater mussels absent)=

$$\left[ 0.9405 * \left( \frac{0.0278}{1 + 10^{7.688 - pH}} + \frac{1.1994}{1 + 10^{pH - 7.688}} \right) * \text{MIN} \left( 6.920, 7.547 * 10^{0.028 * (20 - T)} \right) \right]$$

Where MIN indicates the lesser of the two values separated by a comma.

(7) Table 3. Chronic Ammonia Criteria for Waters Where Freshwater Fish Early Life Stages Are Absent and Freshwater Mussels are Absent (milligrams of nitrogen per liter).1

pH	Temperature (°C)																							
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	18.5	17.3	16.2	15.2	14.3	13.4	12.6	11.8	11.0	10.3	9.7	9.1	8.5	8.0	7.5	7.0	6.6	6.2	5.8	5.4	5.1	4.8	4.5	4.2
6.6	18.2	17.1	16.0	15.0	14.1	13.2	12.4	11.6	10.9	10.2	9.6	9.0	8.4	7.9	7.4	6.9	6.5	6.1	5.7	5.3	5.0	4.7	4.4	4.1
6.7	17.8	16.7	15.7	14.7	13.8	12.9	12.1	11.4	10.7	10.0	9.4	8.8	8.2	7.7	7.2	6.8	6.4	6.0	5.6	5.2	4.9	4.6	4.3	4.0
6.8	17.4	16.3	15.3	14.4	13.5	12.6	11.8	11.1	10.4	9.8	9.1	8.6	8.0	7.5	7.1	6.6	6.2	5.8	5.5	5.1	4.8	4.5	4.2	3.9
6.9	16.9	15.9	14.9	13.9	13.1	12.3	11.5	10.8	10.1	9.5	8.9	8.3	7.8	7.3	6.9	6.4	6.0	5.7	5.3	5.0	4.7	4.4	4.1	3.8
7	16.3	15.3	14.4	13.5	12.6	11.8	11.1	10.4	9.8	9.1	8.6	8.0	7.5	7.1	6.6	6.2	5.8	5.5	5.1	4.8	4.5	4.2	3.9	3.6
7.1	15.6	14.7	13.8	12.9	12.1	11.3	10.6	10.0	9.3	8.8	8.2	7.7	7.2	6.8	6.3	5.9	5.6	5.2	4.9	4.6	4.3	4.0	3.7	3.4
7.2	14.9	13.9	13.1	12.2	11.5	10.8	10.1	9.5	8.9	8.3	7.8	7.3	6.9	6.4	6.0	5.6	5.3	5.0	4.7	4.4	4.1	3.8	3.5	3.2
7.3	14.0	13.1	12.3	11.5	10.8	10.1	9.5	8.9	8.3	7.8	7.3	6.9	6.4	6.0	5.7	5.3	5.0	4.7	4.4	4.1	3.8	3.6	3.3	3.0
7.4	13.0	12.2	11.4	10.7	10.0	9.4	8.8	8.3	7.8	7.3	6.8	6.4	6.0	5.6	5.3	4.9	4.6	4.3	4.1	3.8	3.6	3.4	3.1	2.8
7.5	11.9	11.2	10.5	9.8	9.2	8.6	8.1	7.6	7.1	6.7	6.3	5.9	5.5	5.2	4.8	4.5	4.3	4.0	3.7	3.5	3.3	3.1	2.8	2.5
7.6	10.8	10.2	9.5	8.9	8.4	7.8	7.4	6.9	6.5	6.1	5.7	5.3	5.0	4.7	4.4	4.1	3.9	3.6	3.4	3.2	3.0	2.8	2.5	2.2
7.7	9.7	9.1	8.5	8.0	7.5	7.0	6.6	6.2	5.8	5.4	5.1	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3.0	2.9	2.7	2.5	2.2	1.9

7.8	8.6	8.0	7.5	7.1	6.6	6.2	5.8	5.5	5.1	4.8	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2
7.9	7.5	7.0	6.6	6.2	5.8	5.4	5.1	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1
8	6.5	6.0	5.7	5.3	5.0	4.7	4.4	4.1	3.9	3.6	3.4	3.2	3.0	2.8	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1
8.1	5.5	5.2	4.8	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1
8.2	4.6	4.3	4.1	3.8	3.6	3.4	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.5	1.5	1.4	1.3	1.2	1
8.3	3.9	3.6	3.4	3.2	3.0	2.8	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0
8.4	3.2	3.0	2.8	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0
8.5	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0
8.6	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0
8.7	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0
8.8	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0
8.9	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0
9	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0

<sup>1</sup> The freshwater chronic water quality criteria for total ammonia where fish early life stages are present but freshwater mussels are absent were calculated using the following equation, which may also be used to calculate unlisted values:

Freshwater chronic water quality criterion for ammonia (fish early life stages present and freshwater mussels absent)=

$$\left( 0.9405 * \left( \frac{0.0278}{1 + 10^{7.688 - pH}} + \frac{1.1994}{1 + 10^{pH - 7.688}} \right) * \left( 7.547 * 10^{0.028 * (20 - MAX(T, 7))} \right) \right)$$

Where MAX indicates the greater of the two values separated by a comma.

J—K (text unchanged)

26.08.02.03-3

**.03-3 Water Quality Criteria Specific to Designated Uses**

A.— B. (Text Unchanged)

C. Criteria for Class II Waters — Support of Estuarine and Marine Aquatic Life and Shellfish Harvesting.

(1)— (7) (Text Unchanged)

(8) Dissolved Oxygen Criteria for Class II Waters.

(a) (Text Unchanged)

(b) Seasonal and Migratory Fish Spawning and Nursery Subcategory. The dissolved oxygen concentrations in areas designated as migratory spawning and nursery seasonal use shall be:

(i) Greater than or equal to 6 milligrams/liter for a 7-day averaging period from February 1 through May 31 (salinity less than or equal to 0.5 parts per thousand);

(ii) (Text Unchanged)

(iii) (Text Unchanged)

(c)— (d) (Text Unchanged)

(e) Seasonal Deep-Water Fish and Shellfish Subcategory. The dissolved oxygen concentrations in areas designated as seasonal deep-water fish and shellfish subcategory shall be:

(i) —(iv) (Text Unchanged)

(v) For the dissolved oxygen criteria restoration variance for Chesapeake Bay Mainstem Segment 4 mesohaline (CB4MH) seasonal deep-water fish and shellfish subcategory, not lower for dissolved oxygen in segment CB4MH than the stated criteria for the seasonal deep-water seasonal fish and shellfish use for more than [7]5 percent spatially and temporally (in combination), from June 1 to September 30; and

[(vi) For dissolved oxygen criteria restoration variance for Patapsco River mesohaline (PATMH) seasonal deep-water fish and shellfish subcategory, not lower for dissolved oxygen in segment PATMH than the stated criteria for the deep-water seasonal fish and shellfish use for more than 7 percent spatially and temporally (in combination), from June 1 to September 30.]

(f) Seasonal Deep-Channel Refuge Subcategory. The dissolved oxygen concentrations in areas designated as deep-channel seasonal refuge use shall be:

(i) (Text Unchanged)

(ii) For dissolved oxygen criteria restoration variance for Chesapeake Bay Mainstem Segment 4 mesohaline (CB4MH) deep-channel refuge subcategory, not lower for dissolved oxygen in segment CB4MH than the stated criteria for the seasonal deep-channel refuge for more than [2]6 percent spatially or temporally (in combination), from June 1 to September 30;

[(iii) For the dissolved oxygen criteria restoration variance for Lower Chester River Mesohaline (CHSMH) seasonal deep-channel refuge subcategory, not lower for dissolved oxygen in segment CHSMH than the stated criteria for the seasonal deep-channel refuge use for more than 16 percent spatially and temporally (in combination), from June 1 to September 30;]

[(iv)](iii) For the dissolved oxygen criteria restoration variance for Eastern Bay Mesohaline (EASMH) seasonal deep-channel refuge subcategory, not lower for dissolved oxygen in segment EASMH than the stated criteria for the seasonal deep-channel refuge use for more than 2 percent spatially and temporally (in combination), from June 1 to September 30; and

[(v)](iv) The same as for the open-water fish and shellfish subcategory from October 1 to May 31.

(g) Implementation of the Dissolved Oxygen Water Quality Standard. The attainment of the dissolved oxygen criteria that apply to the Chesapeake Bay and tidally influenced tributary waters shall be determined using the guidelines established in the U.S. Environmental Protection Agency publications "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and its Tidal Tributaries (EPA 903-R-03-002), Chapter III"[, "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and its Tidal Tributaries (EPA 903-R-03-002), Chapter III",]; "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and its Tidal Tributaries—2004 Addendum (EPA 903-R-04-005), Chapter V"[,]; "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and its Tidal Tributaries—2007 Addendum (EPA 903-R-07-003), Chapter IV"[,]; "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries — 2008 Technical Support for Criteria Assessment Protocols Addendum (EPA 903-R-08-001), Chapter III"[,]; [and] "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries — 2010 Technical Support for Criteria Assessment Protocols Addendum (EPA 903-R-10-002), Chapters II and III"[,]; and "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries — 2017 Technical Addendum (EPA 903-R-17-002), Chapters II and III"; which are incorporated by reference.

(h) (Text Unchanged)

(9) Water Clarity Criteria for Seasonal Shallow-Water Submerged Aquatic Vegetation Subcategory.

(a) Water Clarity Criteria Measurement. A Bay segment has attained the shallow water designated use if:

(i) Submerged aquatic vegetation (SAV) acreage meets or exceeds the SAV acreage restoration goal in Table [2]3 of this regulation;

(ii) The shallow-water acreage that meets or exceeds the water clarity criterion expressed in Secchi depth equivalence from Table [1]2 of this regulation at the segment specific application depth specified in Regulation .08 of this chapter (excluding SAV no grow zones) is 2.5 times greater than the SAV Acreage Restoration Goal from Table [2]3 of this regulation; or

(iii) (Text Unchanged)

(a-1) (Text Unchanged)

(b) — (c) (Text Unchanged)

(d) SAV No Grow Zones. Certain Chesapeake Bay segments contain areas designated as shallow water use that are not suitable for growth of submerged aquatic vegetation due to natural conditions and permanent physical alterations. Tables V-1 and Figures V-1 to V-12 in the 2004 U.S. Environmental Protection Agency publication "Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability — 2004 Addendum (EPA 903-R-04-006)", which is incorporated by reference, indicate the SAV No Grow Zones. The segments Upper Choptank River (CHOTF), Upper Nanticoke River (NANT[D]F), Upper Pocomoke River (POCTF), and Middle Pocomoke River Oligohaline (POCOH) are entirely SAV no grow zones, therefore, the shallow-water designated use does not apply to these segments.

(e) (Text Unchanged)

(10) — (11) (Text Unchanged)

C-1. — H. (Text Unchanged)

26.08.02.04

#### **.04 Antidegradation[Anti-Degradation] Policy.**

A. Waters of this State shall be protected and maintained for existing uses and the basic uses of water contact recreation, fishing, protection of aquatic life and wildlife, and agricultural and industrial water supply as identified in [Class I] *the Use Class designations*.

*B. Consistent with the Federal Act, existing uses and the level of water quality necessary to protect existing uses for any water body must be maintained.*

[B]C. Certain waters of this State possess an existing quality that is better than the water quality standards established for them. The quality of these waters shall be maintained unless:

(1) — (2) (Text Unchanged)

[C]D. To accomplish the objective of maintaining existing water quality:

(1) — (2) (Text Unchanged)

[D]E. *The Department shall ensure that existing uses are maintained and protected and support changes to designated uses and associated criteria in any circumstances where the designated use and criteria do not reflect and protect uses that are being attained. Changes in designated uses and associated criteria to less stringent uses and criteria may only be undertaken when:* [The Department shall discourage the downgrading of any stream from a designated use with more stringent criteria to one with less stringent criteria. Downgrading may only be considered if:]

(1) — (3) (Text Unchanged)

[E]F. The Department shall provide public notice and opportunity for a public hearing on the proposed change before:

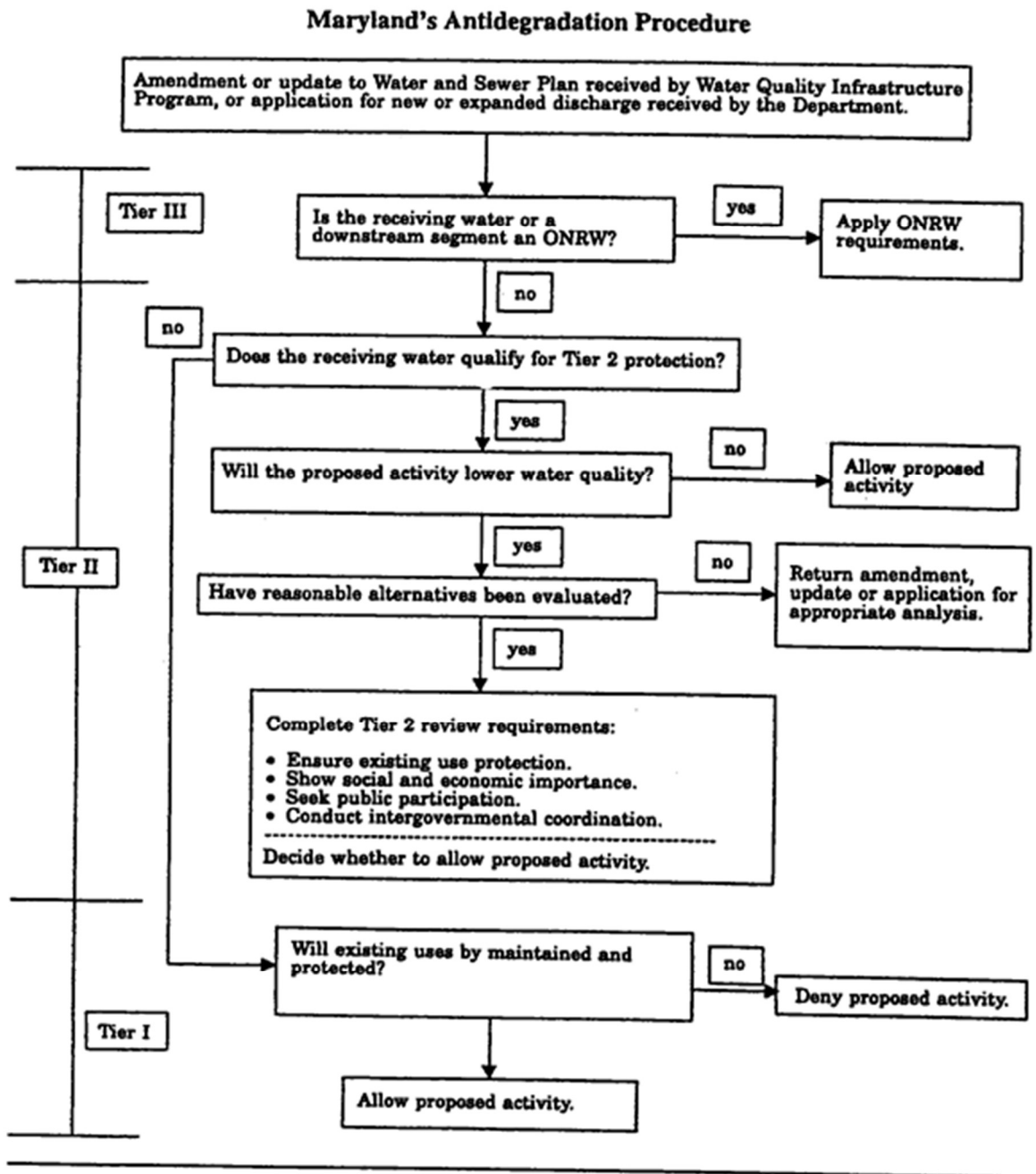


- (1) (Text Unchanged)
- (2) Changing the [Downgrading any] stream use designation.

[F]G. Water which does not meet the standards established for it shall be improved to meet the standards.

*H. Maryland's Antidegradation Procedure Flow Chart*

*Click here to view flow chart*



26.08.02.04

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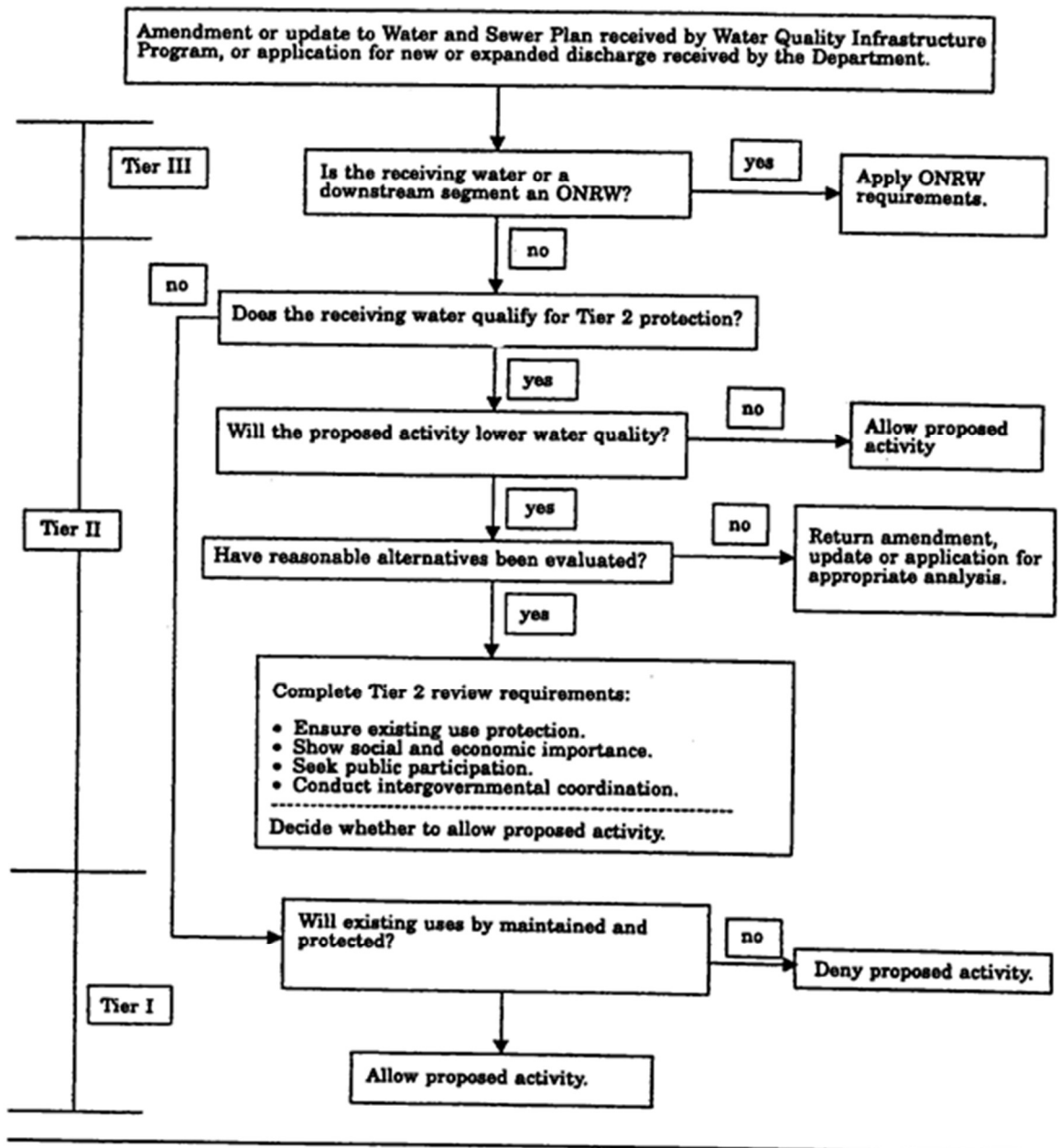
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*H. Maryland's Antidegradation Procedure Flow Chart*

*Click here to view flow chart*

### Maryland's Antidegradation Procedure



26.08.02.04-1

Repeal existing regulation 04.-1

***.04-1 Antidegradation Policy Implementation Procedures: Tier I Level of Protection - Existing Uses and Designated Uses.***

*A. All waters of the State shall receive Tier I protection which requires the protection and maintenance of existing uses and designated uses.*

*B. Protections. Waters that have demonstrated an existing use that is not protected by the water quality criteria specified for the current designated use for this water body shall be protected so as to maintain the existing use and the water quality necessary to protect the existing use.*

*C. Implementation of the Tier I level of protection for cold water existing uses. The determination and protection of cold water existing uses in Maryland will be implemented according to the “Cold Water Existing Use Determinations: Policy and Procedures (Maryland Department of the Environment, May 12, 2021)”, which is incorporated by reference.*

*D. Compilation and Maintenance of the List of Waters with Existing Uses. The Department shall compile and maintain, on its website, a public list of the waters with an existing use that is not protected by the currently designated use and associated water quality criteria.*

26.08.02.04-2

Repeal existing regulation 04-2

***04-2 Antidegradation Policy Implementation Procedures: Tier II Level of Protection - High Quality Waters.***

*A. In Maryland, the term “Tier II water” is defined as a water body with water quality that measures significantly better than that required by water quality standards to support its designated uses. A Tier II watershed is defined as the area of land that contributes runoff to a Tier II waterbody, and any discharges to streams, upstream of, and including the Tier II waterbody. Significantly better is evaluated statistically to demonstrate at least a 90 percent certainty that the mean of the available data is better than the applicable standard (for example, the criterion is outside the outer bound of the 90 percent confidence interval). Water quality is considered significantly better and waters may be listed as Tier II, if the exclusion under §D of this regulation does not apply and if:*

*(a) Measured water quality characteristics for which numeric criteria have been promulgated are significantly better than the water quality criteria specified in Regulations .03—.03-3 of this chapter; or*

*(b) Maryland Biological Stream Survey assessment data indicate that both fish and benthic values of the index of biological integrity are 4.00 or greater.*

*B. Compilation and Maintenance of the List of High Quality Tier II Waters. The Department shall compile and maintain a public list of the Tier II waters. That list is contained in §N of this regulation. All readily available information may be considered to determine a listing. Tier II listings shall be made only for those specific characteristics for which monitoring data indicates the water body exceeds numeric water quality criteria or thresholds established under the narrative standards for biocriteria. The Department shall consider information available from the categories listed under §A and §D of this regulation.*

*C. Designation for Specific Water Quality Measures. Where a water body is designated a Tier II water based on a specific water quality measure, potential impacts to only that specific characteristic shall be subject to Tier II review. For example, where a water body is designated Tier II because of high dissolved oxygen, only potential impacts to dissolved oxygen are subject to Tier II review.*

*D. Waters That May Not be Listed as Tier II. Water bodies included in the List of Impaired Waters (303(d) List) are not Tier II waters for the impairing substance.*

*E. Antidegradation Review - General. An antidegradation review of updated, new, or proposed amendments to Water and Sewerage Plans ("County Plans"), wetlands and waterways permits, water quality certifications, or discharge permits in a Tier II watershed is required to assure consistency with antidegradation requirements. An applicant for proposed amendments to County Plans, a wetlands and waterways permit, water quality certification, or discharge permits in a Tier II watershed that will result in a new, or an increased, permitted annual discharge of pollutants or a potential impact to water quality, shall evaluate alternatives to eliminate or reduce discharges or impacts. If impacts are unavoidable (as defined in §H of this regulation), an applicant shall prepare and document a social and economic justification. The Department shall determine, through the public processes for each of these permits or authorizations, whether these activities can be justified.*

*F. Need for Tier II Antidegradation Review.*

*(1) Permits and Authorizations. Before submitting an application for a new or major modification of an existing discharge permit or Notice of Intent for authorization under a general permit, wetlands and waterways permit, or water quality certification, the discharger or applicant shall determine whether the receiving water body is in a Tier II watershed by consulting the list of Tier II waters.*

*(2) County Plans. As part of its continuing planning process, the Department shall review proposed updates or amendments to County Plans for any new or major modifications to discharges to a Tier II watershed. If a proposed update or amendment to a County Plan results in a new discharge or a major modification of an existing discharge to a Tier II watershed, the applicant shall perform a Tier II antidegradation review.*

*(a) State final action letters for updated County Plans or proposed amendments to the County Plan, such as changes to water or sewerage service areas shall, at a minimum, include notification that portions of the updated Plan or amendments to service areas may impact Tier II watersheds; and*

*(b) For updates or amendments to the County Plans that require discharge permits that grant new discharges or an increase or modification to an existing discharge, the County shall be notified that the applicant for the permit will be required to complete an antidegradation review.*

*(3) Exemptions. The requirement to perform a Tier II antidegradation review does not apply to individual discharges of treated sanitary wastewater of less than 5,000 gallons per day, if all of the existing and designated uses continue to be met.*

*G. Tier II Antidegradation Review.*

*(1) If a Tier II antidegradation review is required, the applicant shall provide an analysis of reasonable alternatives that do not require direct discharge or a potential water quality impact to a Tier II watershed. The analysis shall include cost data and estimates to determine the cost effectiveness and feasibility of the alternatives.*

*(2) If the analysis in subsection (1) shows that the alternatives are cost effective and feasible, the alternative is required as a condition of the permit, authorization, or amendment to the County Plan.*

*(3) If the analysis in subsection (1) shows that the alternatives are not cost effective and feasible, the applicant shall provide the Department with plans to configure or structure the discharge or other regulated activities that may cause a potential water quality impact so as to minimize the use of the*

*assimilative capacity of the water body. The assimilative capacity of the water body is the difference between the water quality at the time the water body was designated as Tier II, the baseline, and the water quality criterion.*

*(4) An applicant shall update an antidegradation review when applying for a new or major modification to an existing permit or authorization.*

#### *H. Potential Determinations Resulting from Antidegradation Reviews.*

*(1) If there is a cost-effective alternative to direct discharge or water quality impacts, the applicant shall implement the alternative and it shall be a condition of the permit or authorization.*

*(2) If there is no cost-effective alternative to direct discharge or water quality impacts, but there is potential for further minimization of the use of assimilative capacity, the applicant shall revise the initial application to further minimize the use of assimilative capacity, and it shall be a condition of the permit or authorization. If the minimization of the use of assimilative capacity is adequate, then no social and economic justification (SEJ) is required.*

*(3) If there is no cost-effective alternative to direct discharge or water quality impacts, minimization of the use of assimilative capacity is not adequate and, the SEJ does not justify the water quality impact, the permit application or authorization shall be denied.*

*(4) If there is no cost-effective alternative to direct discharge or water quality impacts, all reasonable efforts have been made to minimize the use of assimilative capacity, and the SEJ is adequate and justifies the discharge or water quality impacts, the discharge permit shall be granted subject to other applicable requirements.*

#### *I. Social and Economic Justification (SEJ).*

*(1) An SEJ shall be submitted if:*

*(a) No cost effective alternative to the discharge or water quality impacts is available; or*

*(b) The cumulative degradation resulting from nonpoint source pollution and any other permitted discharges would diminish water quality.*

*(2) To allow for natural variability, water quality shall be considered diminished only if the assimilative capacity as defined in §G(3) of this regulation is cumulatively reduced by more than 25 percent from the baseline water quality of either benthic or fish IBI value used to make the Tier II stream designation identified in §O of this regulation.*

#### *J. Demonstrating Social and Economic Justification for an Impact to Tier II Waters.*

*(1) In order to promote compact development, maintain habitat and open lands, and minimize water impacts in undeveloped areas, the requirement for social and economic justification is met if the following demonstrations are made:*

*(a) The watershed affecting the Tier II water is located in a priority funding area as defined in State Finance and Procurement Article, §5-7B-02, Annotated Code of Maryland; and*

*(b) The Department determines, in consultation with the Maryland Department of Planning, that the local jurisdiction in which the watershed affecting Tier II waters are located, is using to the extent reasonably practical, innovative development approaches to minimize impacts to water quality from development; and*

*(c) Physical development after the date of the Tier II listing is necessary to accommodate the projected growth within the watershed, and use of innovative development approaches are maximized to the extent reasonably practicable to encourage redevelopment, reuse and infill development; and*

*(d) If the Department of Planning's growth projections for the watershed affecting the Tier II waters demonstrate that additional physical development of undeveloped land is*

*required to accommodate the projected growth and that development is consistent with the applicable county master plan.*

*(2) The approaches described in §J(1)(b) of this regulation include, but are not limited to, innovative stormwater management and sediment and erosion control design practices, green building design techniques, nutrient removal technology for septic systems, innovative technologies designed to reduce point source discharges of pollutants, uniform building codes designed to remove impediments to rehabilitation projects, model infill development guidelines designed by the Maryland Department of Planning, and transit-oriented development.*

*K. Components of the Social and Economic Justification.*

*(1) Components of the SEJ may vary depending on factors including, but not limited to, the extent and duration of the impact from the proposed discharge or regulated activity and the existing uses of the water body.*

*(2) The economic analyses shall include impacts that result from treatment beyond the costs to meet technology-based or water quality-based requirements.*

*(3) The economic analysis shall address the cost of maintaining high water quality in Tier II waters and the economic benefit of maintaining Tier II waters.*

*(4) The economic analysis shall determine whether the costs of the pollution controls needed to maintain the Tier II water would limit growth or development in the watershed including the Tier II water.*

*L. Department Responsibilities.*

*(1) The Department shall determine whether the SEJ is adequate and demonstrates that the costs of water pollution controls are reasonable and would not limit development or growth and, if not, shall determine whether lowering of the water quality is unavoidable for necessary development or growth to take place in the watershed.*

*(2) The Department shall determine whether the SEJ demonstrates that the impact to water quality is necessary for development or growth to take place in the watershed. Evaluation of the SEJ shall consider the relative magnitude of costs and benefits of development, recognizing the difficulty in quantifying benefits, and the extent to which denial of the amendment, permit, or authorization would substantially impact future development within the watershed.*

*(3) When the Department proposes to issue a tentative determination to either issue or deny the permit application, the notice of tentative determination shall state that these waters are designated as Tier II and, if applicable, that a social and economic justification is available for review.*

*(4) Existing in-stream water uses and the level of water quality necessary to protect existing uses shall be maintained and protected.*

*(5) All required point and nonpoint source controls under State statutes and regulations shall be achieved.*

*M. Public Participation.*

*(1) Public participation for a permit to discharge to a Tier II watershed is the same as that required for any permit subject to the Administrative Procedure Act or the requirements of Environment Article, Title 1, Subtitle 6, Annotated Code of Maryland.*

*(2) If an SEJ is not required, the public notice shall reflect the Tier II status of the waterbody and note that an SEJ is not required and note the justification.*

*(3) If an SEJ is required, the public notice shall reflect the Tier II status of the waterbody and note that an SEJ is required, and the Department shall make the SEJ available for review.*

*N. List of Tier II Waters based on Maryland Biological Stream Survey (fish and benthic macroinvertebrate) Index Scores.*

<i>Date</i>	<i>Stream Name</i>	<i>County</i>	<i>12-Digit Watershed</i>	<i>From Lat</i>	<i>From Long</i>	<i>To Lat</i>	<i>To Long</i>	<i>Baseline: Fish IBI</i>	<i>Benthic IBI</i>
2007	<i>Black Sulphur Run 1</i>	<i>Allegany</i>	<i>021405110138</i>	<i>39.66571</i>	<i>-78.49952</i>	<i>39.65183</i>	<i>-78.47808</i>	<i>4.33</i>	<i>4.25</i>
2007	<i>Elklick Run 1</i>	<i>Allegany</i>	<i>021410040090</i>	<i>39.57690</i>	<i>-78.91140</i>	<i>39.57095</i>	<i>-78.93507</i>	<i>4.00</i>	<i>4.50</i>
2007	<i>Fifteenmile Creek 1</i>	<i>Allegany</i>	<i>021405110137</i>	<i>39.71230</i>	<i>-78.44577</i>	<i>39.70747</i>	<i>-78.45106</i>	<i>4.67</i>	<i>4.25</i>
2003	<i>Fifteenmile Creek 3</i>	<i>Allegany</i>	<i>021405110135</i>	<i>39.64046</i>	<i>-78.39719</i>	<i>39.63082</i>	<i>-78.38600</i>	<i>5.00</i>	<i>4.25</i>
2007	<i>Fifteenmile Creek 4</i>	<i>Allegany</i>	<i>021405110137</i>	<i>39.71921</i>	<i>-78.44378</i>	<i>39.71230</i>	<i>-78.44577</i>	<i>4.67</i>	<i>4.00</i>
2007	<i>Fifteenmile Creek 5</i>	<i>Allegany</i>	<i>021405110137</i>	<i>39.70188</i>	<i>-78.44975</i>	<i>39.69293</i>	<i>-78.45128</i>	<i>4.67</i>	<i>4.25</i>
2011	<i>Fifteenmile Creek 6</i>	<i>Allegany</i>	<i>021405110135</i>	<i>39.65610</i>	<i>-78.40009</i>	<i>39.65591</i>	<i>-78.39701</i>	<i>4.67</i>	<i>4.00</i>
2007	<i>Town Creek 1</i>	<i>Allegany</i>	<i>021405120122</i>	<i>39.54048</i>	<i>-78.54280</i>	<i>39.52337</i>	<i>-78.54404</i>	<i>4.67</i>	<i>4.25</i>
2007	<i>White Sulphur Run 1</i>	<i>Allegany</i>	<i>021405110137</i>	<i>39.65183</i>	<i>-78.47808</i>	<i>39.66107</i>	<i>-78.45709</i>	<i>4.00</i>	<i>4.25</i>
2003	<i>Sideling Hill Creek 1</i>	<i>Allegany, Washington</i>	<i>021405100148</i>	<i>39.66097</i>	<i>-78.36225</i>	<i>39.63948</i>	<i>-78.33408</i>	<i>4.67</i>	<i>4.25</i>



202 1	<i>Wilson Owens Branch 1</i>	<i>Anne Arundel</i>	<i>0213110209 14</i>	<i>38.8256 26</i>	<i>- 76.6862 4</i>	<i>38.8258 34</i>	<i>- 76.69711 9</i>	<i>4.67</i>	<i>4.14</i>
200 3	<i>Lyons Creek 1</i>	<i>Anne Arundel, Calvert</i>	<i>0213110209 10</i>	<i>38.7680 7</i>	<i>- 76.6220 4</i>	<i>38.7669 3</i>	<i>- 76.63353</i>	<i>5.00</i>	<i>4.71</i>
201 1	<i>Lyons Creek 3</i>	<i>Anne Arundel, Calvert</i>	<i>0213110209 09</i>	<i>38.7647 2</i>	<i>- 76.6590 5</i>	<i>38.7557 2</i>	<i>- 76.67206</i>	<i>4.33</i>	<i>4.00</i>
200 9	<i>Patuxent River 1</i>	<i>Anne Arundel, Prince George's</i>	<i>0213110409 37</i>	<i>39.0111 0</i>	<i>- 76.7367 6</i>	<i>39.0070 9</i>	<i>- 76.73319</i>	<i>4.00</i>	<i>4.71</i>
200 7	<i>Beetree Run 1</i>	<i>Baltimore Co.</i>	<i>0213080503 11</i>	<i>39.6832 3</i>	<i>- 76.6659 1</i>	<i>39.6663 3</i>	<i>- 76.67247</i>	<i>4.33</i>	<i>5.00</i>
200 7	<i>Blackrock Run 1</i>	<i>Baltimore Co.</i>	<i>0213080503 03</i>	<i>39.5423 0</i>	<i>- 76.7338 4</i>	<i>39.5273 9</i>	<i>- 76.72217</i>	<i>4.67</i>	<i>4.00</i>
202 1	<i>Bush Cabin Run 1</i>	<i>Baltimore Co.</i>	<i>0213080503 06</i>	<i>39.5990 83</i>	<i>- 76.7071 07</i>	<i>39.6104 8</i>	<i>- 76.68179 3</i>	<i>4.00</i>	<i>4.84</i>
200 7	<i>Cooks Branch 1</i>	<i>Baltimore Co.</i>	<i>0213090710 48</i>	<i>39.4361 6</i>	<i>- 76.8402 6</i>	<i>39.4378 9</i>	<i>- 76.86894</i>	<i>4.67</i>	<i>4.84</i>
200 7	<i>Cooks Branch 2</i>	<i>Baltimore Co.</i>	<i>0213090710 48</i>	<i>39.4379 2</i>	<i>- 76.8687 9</i>	<i>39.4382 5</i>	<i>- 76.87277</i>	<i>4.84</i>	<i>5.00</i>
202 1	<i>Deer Creek 1</i>	<i>Baltimore Co.</i>	<i>0212020203 32</i>	<i>39.7130 68</i>	<i>- 76.5976 28</i>	<i>39.7074 2</i>	<i>- 76.59009 6</i>	<i>4.67</i>	<i>4.33</i>
202 1	<i>Deer Creek 9</i>	<i>Baltimore Co.</i>	<i>0212020203 32</i>	<i>39.7211 7</i>	<i>- 76.6092 65</i>	<i>39.7130 68</i>	<i>- 76.59762 8</i>	<i>4.67</i>	<i>4.67</i>

2007	Delaware Run 1	Baltimore Co.	021308050303	39.49910	-76.77293	39.50196	-76.76216	4.00	4.33
2011	Harris Mill Creek 1	Baltimore Co.	021202020332	39.71528	-76.62412	39.71307	-76.59763	4.67	4.00
2003	Keysers Run 1	Baltimore Co.	021309071048	39.46914	-76.83976	39.47156	-76.87929	5.00	4.00
2008	Little Falls 1	Baltimore Co.	021308050309	39.62193	-76.63046	39.61385	-76.62302	4.33	4.00
2007	North Branch Patapsco River UT 1	Baltimore Co.	021309071048	39.48558	-76.84373	39.49465	-76.86359	4.67	4.67
2011	North Branch Patapsco River UT 2	Baltimore Co.	021309071048	39.494629	-76.86357	39.49571	-76.837947	4.17	4.56
2007	Peggys Run 1	Baltimore Co.	021308060314	39.60906	-76.79718	39.61597	-76.79254	5.00	4.00
2007	Peggys Run UT 1	Baltimore Co.	021308060314	39.60402	-76.82804	39.60906	-76.79718	5.00	4.67
2007	Red Run 1	Baltimore Co.	021309051045	39.41111	-76.81224	39.40074	-76.79887	4.67	4.17
2005	Timber Run 1	Baltimore Co.	021309071048	39.44400	-76.84151	39.43794	-76.86878	4.48	4.57
2007	Gunpowder Falls 1	Baltimore Co., Carroll	021308060316	39.69574	-76.80339	39.68389	-76.76963	4.00	4.50

201 1	Murphy Run 1	Baltimore Co., Carroll	0213080603 14	39.6263 9	- 76.8308 7	39.6200 4	- 76.81855	5.00	4.00
200 7	First Mine Branch 1	Baltimore Co., Harford	0213080503 09	39.6270 0	- 76.5554 9	39.6252 4	- 76.59857	4.33	4.33
200 3	Little Gunpowder Falls 1	Baltimore Co., Harford	0213080402 98	39.5045 3	- 76.4298 2	39.4859 2	- 76.42739	4.00	4.33
200 3	Little Gunpowder Falls 2	Baltimore Co., Harford	0213080402 98	39.4815 0	- 76.4251 6	39.4730 6	- 76.40243	4.33	4.17
200 8	Little Gunpowder Falls 3	Baltimore Co., Harford	0213080402 98	39.5293 0	- 76.5133 4	39.5256 1	- 76.49405	4.00	4.00
201 1	Little Gunpowder Falls 4	Baltimore Co., Harford	0213080402 98	39.4730 6	- 76.4024 3	39.4610 8	- 76.39091	4.00	4.33
200 7	Choptank River UT 1	Caroline	0213040404 94	38.8992 1	- 75.8025 0	38.9003 2	- 75.82887	4.33	4.43
200 7	Faulkner Branch 1	Caroline	0213030606 11	38.7117 8	- 75.7938 1	38.7100 2	- 75.77321	4.00	4.71
200 7	Forge Branch 1	Caroline	0213040405 05	38.9941 1	- 75.8191 2	38.9635 6	- 75.82510	4.67	4.14
200 8	Herring Run 1 (Caroline Co.)	Caroline	0213040404 90	38.8516 3	- 75.7839 3	38.8481 4	- 75.80201	5.00	4.43
200 8	Hog Creek 1	Caroline	0213040404 84	38.7561 4	- 75.9084 6	38.7827 4	- 75.93954	5.00	4.71

200 7	Hunting Creek 1	Caroline	0213040304 71	38.7184 8	- 75.8822 5	38.7038 9	- 75.89296	4.33	4.43
200 9	Marsh Creek 1	Caroline	0213040404 76	38.7148 7	- 75.9356 1	38.7031 0	- 75.94396	4.00	4.71
200 7	Robins Creek 1	Caroline	0213040404 86	38.7965 1	- 75.8443 0	38.8148 2	- 75.86926	4.67	4.43
200 8	Sullivan Branch 1	Caroline	0213030606 14	38.7539 8	- 75.7825 7	38.7292 7	- 75.76085	4.33	4.43
200 8	Tull Branch 1	Caroline	0213030606 13	38.7412 8	- 75.7990 2	38.7184 3	- 75.77007	4.33	4.14
200 8	Watts Creek 1	Caroline	0213040404 92	38.8770 4	- 75.7888 0	38.8575 0	- 75.81524	4.67	5.00
200 8	Tuckahoe River 1	Caroline, Queen Anne's	0213040505 31	38.9906 7	- 75.9297 2	38.9812 8	- 75.93486	4.67	5.00
201 6	Tuckahoe River 2	Caroline, Queen Anne's	0213040505 33	38.9812 8	- 75.9348 6	38.9727 8	- 75.93518	4.67	5.00
200 7	Beaver Run 1	Carroll	0213090710 57	39.5256 4	- 76.9433 9	39.5155 3	- 76.93306	4.67	4.00
201 2	Beaver Run 2	Carroll	0213090710 57	39.5155 5	- 76.9330 2	39.5030 2	- 76.91245	4.50	4.00
200 7	Gillis Falls 1	Carroll	0213090810 30	39.4184 3	- 77.0716 9	39.4137 0	- 77.07350	5.00	4.33
200 3	Gillis Falls 2	Carroll	0213090810 25	39.3857 3	- 77.0875 5	39.3620 2	- 77.06503	4.67	4.00

200 7	Joe Branch 1	Carroll	0213090710 50	39.4968 4	- 76.9876 3	39.4730 8	- 76.98504	5.00	4.67
200 7	Little Morgan Run 1	Carroll	0213090710 49	39.4430 3	- 77.0040 5	39.4366 7	- 76.98714	5.00	5.00
200 8	Little Morgan Run 2	Carroll	0213090710 49	39.4341 8	- 76.9778 2	39.4266 7	- 76.96086	4.00	4.33
200 3	Little Morgan Run UT 1	Carroll	0213090710 49	39.4473 2	- 77.0260 9	39.4430 3	- 77.00405	5.00	5.00
200 7	Little Morgan Run UT 2	Carroll	0213090710 49	39.4528 4	- 76.9993 6	39.4366 7	- 76.98714	4.33	4.00
200 8	Middle Run 1	Carroll	0213090710 56	39.4924 6	- 76.9448 5	39.4767 9	- 76.92717	5.00	4.33
200 7	Morgan Run 1	Carroll	0213090710 50	39.4789 2	- 76.9991 2	39.4730 8	- 76.98504	4.33	4.00
200 7	Morgan Run UT 1	Carroll	0213090710 47	39.4190 9	- 76.9462 4	39.4250 4	- 76.94703	4.67	4.00
200 7	North Branch Patapsco River 1	Carroll	0213090710 48	39.5224 5	- 76.8752 7	39.5101 0	- 76.88719	4.00	4.17
200 9	Piney Branch 2 (Carroll Co.)	Carroll	0213090810 26	39.3731 8	- 77.0118 9	39.3570 3	- 76.99621	4.67	4.00
200 7	South Branch Gunpowder Falls UT 1	Carroll	0213080603 17	39.6666 1	- 76.8838 6	39.7083 5	- 76.85661	5.00	4.00

200 7	South Branch Patapsco River 1	Carroll, Howard	0213090810 25	39.3632 2	- 77.0750 7	39.3620 2	- 77.06503	5.00	4.00
200 7	Basin Run 1	Cecil	0212020303 44	39.6561 5	- 76.0816 4	39.6553 0	- 76.11020	4.33	4.67
200 7	Big Elk Creek 1	Cecil	0213060603 86	39.6698 5	- 75.8281 6	39.6629 4	- 75.82655	4.00	4.33
200 7	Big Elk Creek 2	Cecil	0213060603 86	39.6629 7	- 75.8265 6	39.6173 7	- 75.82005	4.67	4.43
200 7	Gramies Run 1	Cecil	0213060603 87	39.7036 0	- 75.8595 8	39.6698 3	- 75.82808	4.50	4.67
200 3	Little North East Creek 1	Cecil	0213060803 77	39.7256 6	- 75.9585 3	39.6662 5	- 75.93462	4.67	4.67
200 7	Mill Creek 1	Cecil	0212020103 19	39.5851 5	- 76.0527 5	39.5646 0	- 76.06549	4.00	4.33
200 7	Principio Creek 1	Cecil	0213060903 80	39.6441 5	- 76.0355 8	39.6143 4	- 76.03344	4.67	4.00
200 7	Principio Creek 2	Cecil	0213060903 80	39.5945 4	- 76.0251 9	39.5870 7	- 76.02894	4.00	4.67
200 9	Principio Creek 3	Cecil	0213060903 80	39.5870 3	- 76.0289 7	39.5706 4	- 76.03058	4.33	4.00
200 3	Principio Creek UT 1	Cecil	0213060903 80	39.6154 4	- 76.0588 5	39.6070 9	- 76.03070	4.22	4.89
200 7	Hill Top Fork UT 1	Charles	0214011007 75	38.4892 4	- 77.1639 1	38.4611 3	- 77.15144	4.33	4.43

2008	Hoghole Run 1	Charles	021401090773	38.51805	-77.03583	38.50957	-77.02469	4.13	4.60
2009	Jennie Run 1	Charles	021401090774	38.56786	-76.98150	38.54646	-77.01716	4.33	4.29
2016	Marbury Run 1	Charles	021401110780	38.56780	-77.14674	38.57919	-77.15872	4.33	4.14
2007	Mattawoman Creek UT 1	Charles	021401110780	38.53477	-77.16806	38.54767	-77.17246	4.00	4.43
2003	Mattawoman Creek UT 2	Charles	021401110780	38.53761	-77.18100	38.55605	-77.19043	4.33	4.71
2008	Mattawoman Creek UT 3	Charles	021401110781	38.56562	-77.13269	38.58862	-77.12501	4.67	4.43
2009	Mill Dam Run 1	Charles	021401080767	38.56503	-76.83737	38.56415	-76.84207	4.67	4.71
2008	Mill Run 3 (Charles Co.)	Charles	021401100779	38.49943	-77.08434	38.47626	-77.08420	4.11	4.62
2011	Mill Run 5	Charles	021401100779	38.52755	-77.078741	38.52029	-77.090089	4.00	4.43
2007	Mill Run UT 1 (Charles Co.)	Charles	021401100779	38.51104	-77.10720	38.50039	-77.08561	4.50	4.29
2008	Nanjemoy Creek 1	Charles	021401100777	38.42378	-77.21466	38.41522	-77.20368	4.00	4.86

200 3	Old Womans Run 1	Charles	0214011107 84	38.5966 9	- 77.0296 0	38.5961 2	- 77.05501	4.33	4.71
200 7	Old Womans Run 2	Charles	0214011107 84	38.5970 8	- 77.0097 3	38.5966 9	- 77.02960	4.67	4.43
200 7	Piney Branch 1 (Charles Co.)	Charles	0214010807 64	38.5618 0	- 76.8770 1	38.5500 4	- 76.87041	4.33	4.43
200 8	Potomac River UT 1	Charles	0214010207 89	38.4681 4	- 77.2437 7	38.4708 6	- 77.26168	4.67	4.14
201 1	Potomac River UT 2	Charles	0214010207 89	38.4854 6	- 77.2368 2	38.4749 5	- 77.25927	4.00	4.43
200 7	Reeder Run 1	Charles	0214010207 89	38.5083 9	- 77.1850 2	38.5178 2	- 77.20231	4.84	4.29
200 3	Reeder Run 2	Charles	0214010207 89	38.5159 2	- 77.2134 3	38.5327 4	- 77.22703	4.33	4.71
201 6	Reeder Run 3	Charles	0214010207 89	38.5026 9	- 77.1897 7	38.5094 0	- 77.20911	4.78	4.52
201 2	Swanson Creek 4	Charles	0213110108 92	38.5652 2	- 76.7604 3	38.5632 3	- 76.75701	4.00	4.60
200 7	Swanson Creek UT 1	Charles	0213110108 92	38.5523 6	- 76.7738 4	38.5632 4	- 76.75700	4.67	4.43
200 3	Wards Run 1	Charles	0214011007 78	38.5180 8	- 77.1358 1	38.5101 2	- 77.14786	4.67	4.71
200 9	Wards Run 2	Charles	0214011007 78	38.5034 6	- 77.1507 1	38.4844 9	- 77.13184	4.00	4.71



200 3	<i>Wolf Den Branch 1</i>	<i>Charles</i>	0214010807 69	38.6360 1	- 76.8210 9	38.6219 2	- 76.82043	4.33	4.71
200 3	<i>Zekiah Swamp Run 1</i>	<i>Charles</i>	0214010807 69	38.6346 4	- 76.7984 6	38.6219 6	- 76.82036	4.33	4.14
200 7	<i>Zekiah Swamp Run 2</i>	<i>Charles</i>	0214010807 68	38.6021 6	- 76.8338 8	38.5960 8	- 76.83771	4.67	4.71
200 3	<i>Zekiah Swamp Run 3</i>	<i>Charles</i>	0214010807 65	38.5895 3	- 76.8410 7	38.5635 5	- 76.85086	4.50	4.57
200 7	<i>Zekiah Swamp Run 4</i>	<i>Charles</i>	0214010807 60	38.5267 9	- 76.9038 9	38.5125 7	- 76.91427	4.67	4.43
200 7	<i>Zekiah Swamp Run 5</i>	<i>Charles</i>	0214010807 60	38.4939 6	- 76.9261 2	38.4863 9	- 76.92853	4.00	4.71
200 7	<i>Zekiah Swamp Run 6</i>	<i>Charles</i>	0214010807 68	38.6139 1	- 76.8326 3	38.6021 6	- 76.83388	4.00	4.43
201 2	<i>Zekiah Swamp Run 7</i>	<i>Charles</i>	0214010807 68	38.6191 0	- 76.8296 8	38.6139 3	- 76.83266	4.17	4.86
200 3	<i>Zekiah Swamp Run UT 1</i>	<i>Charles</i>	0214010807 62	38.5225 3	- 76.8759 8	38.5281 7	- 76.89208	5.00	4.43
200 7	<i>Zekiah Swamp Run UT 2</i>	<i>Charles</i>	0214010807 66	38.6124 9	- 76.8698 6	38.5895 2	- 76.84111	4.34	4.00
200 8	<i>Zekiah Swamp Run UT 3</i>	<i>Charles</i>	0214010807 63	38.5406 8	- 76.8333 8	38.5559 5	- 76.86021	4.33	4.14

2008	Mattawoman Creek 1	Charles, Prince George's	021401110786	38.65497	-76.93916	38.65767	-76.98456	5.00	4.43
2012	Mattawoman Creek 2	Charles, Prince George's	021401110786	38.65234	-76.90833	38.65252	-76.91689	4.00	4.14
2003	Swanson Creek 1	Charles, Prince George's	021311010893	38.60760	-76.74634	38.58927	-76.74244	4.67	5.00
2007	Swanson Creek 2	Charles, Prince George's	021311010890	38.55844	-76.74044	38.55404	-76.72821	4.67	4.14
2007	Swanson Creek 3	Charles, Prince George's	021311010893	38.58927	-76.74244	38.55844	-76.74044	4.67	4.43
2016	Wolf Den Branch 2	Charles, Prince George's	021401080769	38.67283	-76.80444	38.63902	-76.81987	4.00	4.43
2007	Smoots Pond Run 1	Charles, Saint Mary's	021401070751	38.47788	-76.79137	38.49444	-76.80455	5.00	4.43
2007	Blinkhorn Creek 1	Dorchester	021304030467	38.65297	-75.90070	38.65195	-75.93188	4.33	4.71
2003	Davis Millpond Branch 1	Dorchester	021303060607	38.66525	-75.75797	38.67465	-75.77339	4.67	5.00
2008	Skinnners Run 1	Dorchester	021303060608	38.67503	-75.82252	38.66851	-75.81497	4.00	4.29

200 3	Big Hunting Creek 1	Frederick	0214030302 51	39.6263 4	- 77.4596 5	39.6099 0	- 77.41044	4.33	4.25
200 8	High Run 1	Frederick	0214030302 51	39.6046 8	- 77.4621 5	39.6082 3	- 77.41093	4.00	4.50
200 7	Talbot Branch UT 1	Frederick	0214030202 38	39.4642 0	- 77.1354 8	39.4553 5	- 77.16043	4.33	4.25
200 7	Weldon Creek 1	Frederick	0214030202 38	39.4769 4	- 77.1501 8	39.4748 8	- 77.16046	4.00	4.00
200 7	Bear Creek 2	Garrett	0502020100 18	39.6548 4	- 79.3637 6	39.6531 6	- 79.38472	4.67	4.00
200 8	Bear Creek 3	Garrett	0502020100 18	39.6600 6	- 79.3201 1	39.6544 1	- 79.33055	4.67	4.25
200 8	Bear Creek 4	Garrett	0502020100 16	39.5647 6	- 79.3219 5	39.6501 8	- 79.28886	4.22	4.39
200 7	Bear Creek 5	Garrett	0502020100 18	39.6559 3	- 79.3388 4	39.6548 2	- 79.36370	4.67	4.00
200 3	Bear Creek UT 1	Garrett	0502020100 18	39.6482 1	- 79.3405 8	39.6555 9	- 79.33808	5.00	4.50
200 7	Bear Pen Run 1	Garrett	0214100600 77	39.5916 3	- 79.1435 5	39.5734 1	- 79.12028	4.75	4.25
201 6	Big Run 1	Garrett	0214100600 78	39.5834 8	- 79.1712 4	39.5562 9	- 79.15005	4.88	4.13
200 7	Big Run UT 1	Garrett	0214100600 78	39.5783 5	- 79.1934 9	39.5834 8	- 79.17124	4.00	4.75

200 7	<i>Blacklick Run 1</i>	<i>Garrett</i>	0214100600 80	39.6391 0	- 79.0964 7	39.6172 7	- 79.08702	4.00	4.25
200 7	<i>Buffalo Run 1</i>	<i>Garrett</i>	0502020100 19	39.6868 5	- 79.4099 8	39.6905 3	- 79.40417	4.67	4.00
200 8	<i>Buffalo Run 2</i>	<i>Garrett</i>	0502020100 19	39.6926 4	- 79.4375 7	39.6891 5	- 79.42334	4.00	4.25
201 2	<i>Buffalo Run 3</i>	<i>Garrett</i>	0502020100 19	39.6878 1	- 79.4173 8	39.6868 5	- 79.41002	4.00	4.25
201 0	<i>Casselman River 1</i>	<i>Garrett</i>	0502020400 34	39.6685 1	- 79.1774 5	39.6751 3	- 79.17104	4.67	4.00
200 3	<i>Crabtree Creek 1</i>	<i>Garrett</i>	0214100600 74	39.4777 9	- 79.1921 0	39.5056 4	- 79.15474	4.47	4.30
200 3	<i>Double Lick Run 1</i>	<i>Garrett</i>	0214100600 76	39.5425 7	- 79.2192 1	39.5335 6	- 79.20082	4.92	4.38
200 7	<i>Dry Run 1</i>	<i>Garrett</i>	0214100600 77	39.5429 9	- 79.1701 3	39.5231 3	- 79.14385	4.00	4.50
200 7	<i>Hoyes Run 1</i>	<i>Garrett</i>	0502020100 12	39.5319 3	- 79.4038 4	39.5287 9	- 79.41254	5.00	4.25
202 1	<i>Laurel Run 1</i>	<i>Garrett</i>	0502020100 19	39.6883 71	- 79.4496 36	39.6877	- 79.43953 7	4.00	4.25
201 1	<i>Laurel Run UT 1</i>	<i>Garrett</i>	0214100500 50	39.4789 7	- 79.1512 0	39.4777 2	- 79.11977	4.00	4.25
200 3	<i>Little Bear Creek 1</i>	<i>Garrett</i>	0502020100 16	39.6577 5	- 79.2685 8	39.6501 9	- 79.28882	4.50	4.25

200 8	Little Savage River 1	Garrett	0214100600 81	39.6511 1	- 78.9909 7	39.5931 5	- 79.04834	4.00	4.00
200 3	Middle Fork Crabtree Creek 1	Garrett	0214100600 76	39.5119 3	- 79.1619 5	39.5126 1	- 79.15403	4.67	4.50
200 9	Middle Fork Crabtree Creek 2	Garrett	0214100600 76	39.5335 3	- 79.2008 7	39.5350 7	- 79.18800	5.00	4.25
201 1	Middle Fork Crabtree Creek 3	Garrett	0214100600 76	39.5350 7	- 79.1880 0	39.5156 5	- 79.16892	4.00	4.50
200 3	Mill Run 1 (Garrett Co.)	Garrett	0502020100 21	39.7155 3	- 79.3454 1	39.7090 9	- 79.34891	4.21	4.56
200 3	Mill Run 2 (Garrett Co.)	Garrett	0502020100 21	39.7090 7	- 79.3630 8	39.7147 2	- 79.38469	4.67	4.00
200 3	Mill Run 4 (Garrett Co.)	Garrett	0502020100 21	39.7188 3	- 79.3008 8	39.7155 3	- 79.34541	5.00	4.58
201 1	Mill Run UT 2 (Garrett Co.)	Garrett	0502020100 21	39.7159 4	- 79.2714 1	39.7184 9	- 79.30071	4.50	4.50
200 3	Monroe Run 1	Garrett	0214100600 78	39.5447 1	- 79.2283 0	39.5494 4	- 79.14434	4.00	4.25
200 3	Poplar Lick Run 1	Garrett	0214100600 79	39.5909 8	- 79.1031 9	39.5838 9	- 79.09140	4.50	4.38
200 3	Puzzley Run 1	Garrett	5020201002 2	39.6902 8	- 79.2287 0	39.7218 9	- 79.23219	4.00	4.75

201 1	<i>Sand Spring Run 1</i>	<i>Garrett</i>	0502020100 01	39.2577 94	- 79.4732 81	39.2720 48	- 79.47465 8	4.00	4.25
200 7	<i>Savage River 1</i>	<i>Garrett</i>	0214100600 77	39.5797 4	- 79.0898 3	39.5621 8	- 79.11099	4.34	4.25
200 3	<i>Savage River 2</i>	<i>Garrett</i>	0214100600 77	39.5621 9	- 79.1110 2	39.5430 6	- 79.13744	4.72	4.29
200 9	<i>Savage River 4</i>	<i>Garrett</i>	0214100600 81	39.5981 1	- 79.0555 4	39.6022 7	- 79.07229	5.00	4.50
200 7	<i>South Branch Bear Creek 1</i>	<i>Garrett</i>	0502020100 15	39.6236 7	- 79.3759 4	39.6531 6	- 79.38472	4.33	4.50
200 7	<i>South Branch Casselman River 1</i>	<i>Garrett</i>	0502020400 33	39.6261 6	- 79.1915 1	39.6465 3	- 79.18124	4.67	4.00
200 7	<i>South Branch Casselman River 2</i>	<i>Garrett</i>	0502020400 33	39.6481 4	- 79.1815 2	39.6685 1	- 79.17745	4.00	4.25
201 1	<i>Spring Lick Run 1</i>	<i>Garrett</i>	0214100600 74	39.5036 5	- 79.2000 5	39.4907 3	- 79.17532	4.00	4.25
201 1	<i>Toms Spring Run 1</i>	<i>Garrett</i>	0214100600 76	39.5170 4	- 79.2011 5	39.5156 5	- 79.16893	4.50	4.75
201 6	<i>Wolf Den Run 1</i>	<i>Garrett</i>	0214100500 47	39.3965 5	- 79.2119 3	39.3890 5	- 79.19443	4.00	4.00
201 6	<i>Wolf Den Run UT 1</i>	<i>Garrett</i>	0212100500 47	39.4125 9	- 79.2206 3	39.3965 5	- 79.21193	4.00	4.00

2007	Youghiogheny River UT 1	Garrett	050202010020	39.67943	-79.35317	39.68632	-79.38164	4.00	4.00
2007	Broad Creek 1	Harford	021202050339	39.67899	-76.35243	39.66468	-76.32487	4.00	4.17
2008	Bynum Run UT 1	Harford	021307041131	39.50923	-76.27523	39.50505	-76.28355	4.33	4.00
2012	Cattail Branch UT 1	Harford	021202020328	39.62017	-76.49403	39.63521	-76.49927	5.00	4.33
2007	Deer Creek 2	Harford	021202020329	39.67564	-76.45429	39.67445	-76.44291	4.00	4.67
2003	Deer Creek 3	Harford	021202020324	39.63225	-76.41051	39.61776	-76.39938	4.33	5.00
2003	Deer Creek 4	Harford	021202020322	39.59924	-76.26823	39.60333	-76.24910	4.33	4.33
2008	Deer Creek 5	Harford	021202020330	39.68097	-76.51724	39.67993	-76.50004	4.00	4.00
2008	Deer Creek 6	Harford	021202020327	39.65641	-76.43661	39.65238	-76.43784	4.00	5.00
2008	Deer Creek 7	Harford	021202020322	39.61660	-76.23174	39.62119	-76.21763	4.33	4.00
2009	Deer Creek 8	Harford	021202020327	39.64722	-76.43147	39.63217	-76.41041	4.00	4.33
2007	Deer Creek UT 1	Harford	021202020330	39.64980	-76.55578	39.67578	-76.54223	4.33	4.00

200 7	Deer Creek UT 2	Harford	0212020203 21	39.5886 6	- 76.2016 8	39.6174 0	- 76.19373	4.33	5.00
200 7	Deer Creek UT 3	Harford	0212020203 24	39.6593 5	- 76.3944 6	39.6401 0	- 76.35041	4.67	4.00
200 7	Falling Branch 1	Harford	0212020203 29	39.7291 3	- 76.4672 3	39.6745 3	- 76.44299	4.00	4.33
200 7	Hollands Branch 1	Harford	0212020203 22	39.6411 5	- 76.2440 0	39.6212 6	- 76.21756	4.00	4.67
200 7	Little Deer Creek 1	Harford	0212020203 28	39.6464 0	- 76.5064 5	39.6545 3	- 76.49075	4.67	4.33
200 8	Little Deer Creek 2	Harford	0212020203 28	39.6545 5	- 76.4907 5	39.6600 9	- 76.48109	4.00	4.00
201 1	Little Deer Creek UT 1	Harford	0212020203 28	39.6287 8	- 76.4847 5	39.6600 9	- 76.48109	4.67	4.33
200 8	Otter Point Creek 1	Harford	0213070211 30	39.4329 6	- 76.2998 2	39.4328 1	- 76.28558	4.33	4.14
200 3	Wet Stone Branch 1	Harford	0212020203 27	39.6302 1	- 76.4568 8	39.6472 1	- 76.43147	4.67	4.33
200 7	Carrolls Branch 1	Howard	0213310609 60	39.1981 8	- 76.9553 1	39.1947 4	- 76.93510	4.00	4.67
200 7	Dorsey Branch 1	Howard	0213110809 68	39.2840 2	- 77.0092 1	39.2610 5	- 77.04475	4.00	5.00
200 7	Patuxent River UT 2	Howard	0213110709 42	39.1884 2	- 76.9772 5	39.1634 0	- 76.97520	4.06	4.44



2007	Rocky Gorge Reservoir UT 1	Howard	021311070941	39.17385	-76.96164	39.15066	-76.96862	4.67	4.00
2007	South Branch Patapsco River UT 1	Howard	021309081022	39.34471	-76.96235	39.34836	-76.95941	4.33	5.00
2007	Cypress Branch 1	Kent	021305100427	39.30475	-75.74799	39.28812	-75.78414	4.00	4.14
2009	Cypress Branch 2	Kent	021305100427	39.28429	-75.79552	39.27214	-75.81757	4.67	4.14
2003	East Fork Langford Creek UT 1	Kent	021305060408	39.21050	-76.13505	39.19893	-76.11633	4.67	4.14
2021	Fannels Branch 1	Kent	021305060409	39.189562	-76.107898	39.187236	-76.113317	4.17	4.00
2021	Morgan Creek UT 1	Kent	021305090415	39.306198	-76.016172	39.289815	-76.020911	4.27	4.00
2010	Goshen Run UT 1	Montgomery	021402080864	39.21470	-77.17439	39.21709	-77.14649	4.00	4.75
2003	Patuxent River UT 1	Montgomery	021311080969	39.28851	-77.19257	39.28496	-77.13996	4.17	5.00
2007	Bald Hill Branch 1	Prince George's	021311030925	38.99228	-76.84371	38.92241	-76.82020	4.00	4.14
2007	Beaverdam Creek 1	Prince George's	021402050823	39.02370	-76.85045	39.02190	-76.85974	4.33	4.43

200 7	Beaverdam Creek 2	Prince George's	0214020508 23	39.0228 7	- 76.8621 8	39.0158 5	- 76.89775	4.33	4.71
202 1	District Branch 1	Prince George's	0213110209 17	38.8667 72	- 76.7193 93	38.8548 04	- 76.69168 3	4.34	4.00
200 7	Mataponi Creek UT 1	Prince George's	0213110209 05	38.7297 9	- 76.8251 1	38.7198 9	- 76.79437	4.00	4.43
200 3	Piscataway Creek 1	Prince George's	0214020308 03	38.7342 8	- 76.8681 1	38.7325 8	- 76.87590	4.67	4.43
200 7	Piscataway Creek 2	Prince George's	0214020307 99	38.7063 8	- 76.9720 8	38.6990 6	- 76.98589	4.33	4.14
200 7	Rock Creek 1	Prince George's	0213110109 04	38.6944 3	- 76.7515 5	38.6909 3	- 76.72613	4.67	4.71
202 1	Timothy Branch 1	Prince George's	0214011107 87	38.7106 67	- 76.8543 71	38.6646 67	- 76.87895 9	4.50	4.14
200 9	Turkey Branch 1	Prince George's	0213110309 21	38.8498 0	- 76.8400 0	38.8576 3	- 76.78847	4.67	4.14
200 8	Alder Branch 1	Queen Anne's	0213050703 95	39.0787 9	- 76.0634 4	39.0719 7	- 76.07868	4.67	4.71
200 3	Andover Branch 1	Queen Anne's	0213051004 25	39.2235 5	- 75.7697 7	39.2304 3	- 75.78289	4.17	4.57
200 9	Andover Branch 2	Queen Anne's	0213051004 25	39.2304 4	- 75.7828 5	39.2417 4	- 75.79593	4.33	5.00
200 7	Andover Branch UT 1	Queen Anne's	0213051004 25	39.2140 7	- 75.8076 7	39.2469 9	- 75.82277	4.67	4.71

200 7	Blockston Branch UT 1	Queen Anne's	0213040505 29	38.9897 1	- 75.9987 0	38.9808 6	- 75.97180	4.00	4.14
200 3	Browns Branch 3	Queen Anne's	0213050804 03	39.1596 8	- 75.9207 6	39.1636 0	- 75.95177	4.33	5.00
200 7	Granny Finley Branch 1	Queen Anne's	0213050803 99	39.0878 6	- 75.9568 8	39.1176 6	- 76.04025	4.00	4.00
201 1	Gravel Run 1	Queen Anne's	0213050703 97	39.0353 5	- 76.0371 0	39.0502 7	- 76.06391	4.00	4.02
201 1	Island Creek 1	Queen Anne's	0213050803 98	39.0889 6	- 76.0535 5	39.1173 2	- 76.06863	4.33	4.14
200 8	Mill Stream Branch 1	Queen Anne's	0213050703 96	39.0199 8	- 76.0393 8	39.0228 8	- 76.06394	4.67	4.43
200 7	Norwich Creek 1	Queen Anne's	0213040505 22	38.9757 4	- 76.0114 6	38.9516 4	- 75.99614	4.67	4.71
201 1	Norwich Creek 3	Queen Anne's	0213040505 22	38.9420 3	- 75.9974 1	38.9254 7	- 75.97541	4.00	4.14
200 3	Red Lion Branch 1	Queen Anne's	0213051004 19	39.2275 6	- 75.9016 0	39.2341 8	- 75.90438	4.22	4.43
200 3	Red Lion Branch 2	Queen Anne's	0213051004 19	39.1844 2	- 75.8938 7	39.2030 5	- 75.89646	4.27	4.43
200 7	Red Lion Branch 3	Queen Anne's	0213051004 19	39.2065 7	- 75.8934 4	39.2275 6	- 75.90160	4.50	4.57
200 7	Red Lion Branch UT 1	Queen Anne's	0213051004 20	39.1741 1	- 75.8690 3	39.1844 2	- 75.89387	4.33	4.14

200 7	<i>Southeast Creek 1</i>	<i>Queen Anne's</i>	0213050604 01	39.1319 2	- 75.9788 9	39.1397 5	- 75.98786	4.67	4.43
200 8	<i>Southeast Creek 2</i>	<i>Queen Anne's</i>	0213050804 01	39.1398 9	- 75.9879 4	39.1459 2	- 75.98986	4.17	4.29
200 8	<i>Southeast Creek UT 2</i>	<i>Queen Anne's</i>	0213050804 01	39.1175 9	- 75.9564 6	39.1165 0	- 75.96562	4.33	4.71
200 8	<i>Southeast Creek UT 3</i>	<i>Queen Anne's</i>	0123050804 01	39.1165 1	- 75.9656 3	39.1303 5	- 75.97788	4.44	4.71
200 7	<i>Three Bridges Branch 1</i>	<i>Queen Anne's</i>	0213050703 97	39.0532 3	- 76.0329 3	39.0502 7	- 76.06391	4.17	4.43
200 7	<i>Wye East River UT 1</i>	<i>Queen Anne's</i>	0213050304 36	38.9830 5	- 76.0886 0	38.9496 6	- 76.10908	4.67	4.71
200 8	<i>Wye East River UT2</i>	<i>Queen Anne's</i>	0213050304 36	38.9915 5	- 76.0351 1	38.9923 1	- 76.07751	4.00	4.14
201 1	<i>Norwich Creek 2</i>	<i>Queen Anne's/Talb ot</i>	0213040505 22	38.9254 7	- 75.9754 1	38.9199 8	- 75.96930	4.33	4.71
200 7	<i>Burnt Mill Creek 1</i>	<i>Saint Mary's</i>	0214010407 24	38.3637 5	- 76.6599 2	38.3463 9	- 76.64235	4.00	4.43
200 7	<i>Burnt Mill Creek UT 1</i>	<i>Saint Mary's</i>	0214010407 24	38.3812 9	- 76.6694 5	38.3703 1	- 76.65860	4.00	4.71
200 7	<i>Chaptico Run 1</i>	<i>Saint Mary's</i>	0214010607 36	38.3710 0	- 76.7561 0	38.3648 9	- 76.78197	4.67	4.43
201 2	<i>Fisherman Creek 1</i>	<i>Saint Mary's</i>	0214010307 12	38.2106 5	- 76.4030 7	38.1976 2	- 76.41925	4.67	4.00

200 8	<i>Forrest Hall Branch 1</i>	<i>Saint Mary's</i>	0214010607 42	38.4229 8	- 76.7201 0	38.3846 0	- 76.74243	5.00	4.14
200 7	<i>Hayden Run 1</i>	<i>Saint Mary's</i>	0214010607 42	38.4391 6	- 76.7377 0	38.4188 4	- 76.74437	4.33	4.43
200 9	<i>Hillton Run 1</i>	<i>Saint Mary's</i>	0214010307 15	38.2459 6	- 76.4694 4	38.2238 3	- 76.46161	4.00	4.43
200 7	<i>Johns Creek 1</i>	<i>Saint Mary's</i>	0214010307 14	38.2314 4	- 76.5235 3	38.2358 7	- 76.49717	4.34	4.43
200 8	<i>McIntosh Run 1</i>	<i>Saint Mary's</i>	0214010407 21	38.3295 9	- 76.6355 2	38.3255 5	- 76.64338	4.00	4.86
200 8	<i>McIntosh Run 2</i>	<i>Saint Mary's</i>	0214010407 21	38.3255 5	- 76.6433 7	38.3135 4	- 76.65517	4.00	4.43
200 7	<i>Saint Clements Bay UT 1</i>	<i>Saint Mary's</i>	0214010507 26	38.3248 1	- 76.6967 3	38.2995 3	- 76.71233	4.33	4.71
200 7	<i>Saint Clements Creek 1</i>	<i>Saint Mary's</i>	0214010507 28	38.3485 6	- 76.7305 8	38.3325 7	- 76.72384	4.17	4.43
201 1	<i>Saint Clements Creek 2</i>	<i>Saint Mary's</i>	0214010507 30	38.3586 56	- 76.7270 69	38.3485 88	- 76.73060 7	4.33	4.71
200 7	<i>Saint Mary's River 1</i>	<i>Saint Mary's</i>	0214010307 17	38.2748 5	- 76.5143 8	38.2526 5	- 76.50721	4.00	4.71
201 0	<i>Saint Mary's River UT 3</i>	<i>Saint Mary's</i>	0214010307 19	38.2777 1	- 76.5154 3	38.3059 5	- 76.52726	4.00	4.43

200 3	<i>Warehouse Run 1</i>	<i>Saint Mary's</i>	0214010307 14	38.2052 2	- 76.4984 3	38.2215 0	- 76.48619	4.67	4.43
200 7	<i>Dividing Creek 1</i>	<i>Somerset, Worcester</i>	0213020400 64	38.2114 9	- 75.5759 3	38.1818 3	- 75.54768	4.33	5.00
200 7	<i>Highfield Creek 1</i>	<i>Talbot</i>	0213040505 17	38.8932 1	- 75.9711 0	38.8905 0	- 75.96166	4.17	4.72
200 7	<i>Jadwins Creek 1</i>	<i>Talbot</i>	0213040505 16	38.8485 9	- 75.9732 8	38.8343 6	- 75.93300	4.00	4.43
200 7	<i>Kings Creek 1</i>	<i>Talbot</i>	0213040404 73	38.7914 1	- 76.0219 3	38.7936 7	- 75.99319	4.67	4.71
200 7	<i>Skipton Creek UT 1</i>	<i>Talbot</i>	0213050304 34	38.8822 6	- 76.0461 6	38.8795 5	- 76.05344	4.00	4.43
200 3	<i>Adkins Race 1</i>	<i>Wicomico</i>	0213020306 48	38.3342 7	- 75.3766 8	38.3196 5	- 75.35493	4.67	4.15
200 8	<i>Little Burnt Branch 1</i>	<i>Wicomico</i>	0213030405 67	38.4393 4	- 75.6270 1	38.4110 3	- 75.59458	4.00	5.00
200 7	<i>Nassawang o Creek 1</i>	<i>Wicomico</i>	0213020506 68	38.3129 9	- 75.4691 4	38.3031 2	- 75.46400	4.17	4.57
200 7	<i>Plum Creek 1</i>	<i>Wicomico</i>	0213030505 84	38.5124 3	- 75.7075 9	38.5354 1	- 75.74588	4.00	4.43
201 0	<i>Little Mill Creek 1</i>	<i>Worcester</i>	0213010606 72	38.0267 7	- 75.4630 6	38.0462 1	- 75.42736	4.00	4.71
200 7	<i>Nassawang o Creek 2</i>	<i>Worcester</i>	0213020506 68	38.2836 1	- 75.4538 6	38.2599 8	- 75.46283	4.67	4.21

2008	Nassawang o Creek 3	Worcester	0213020506 67	38.2600 0	- 75.4628 6	38.2350 5	- 75.47196	4.56	4.62
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26.08.02.04-3

**.04-3 Antidegradation Policy Implementation Procedures: Tier III Level of Protection - Outstanding National Resource Waters.**

*A. Scope. There are many tools available to protect special resources including the Smart Growth Initiative, Rural Legacy Program, local comprehensive plans, Program Open Space, and others that work through the private sector and nongovernment organizations. This regulation applies the Tier III ONRW designation only where the most stringent protection is necessary and appropriate to protect and maintain existing exceptional resources. Where high quality waters constitute an outstanding national resource, such as waters of national and State parks and wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.*

*B. Exceptional Biological Resources.*

*(1) Exceptional Biological Resources.*

*(a) "Exceptional biological resources" means ecologically significant aquatic or wetland habitat that is:*

*(i) Distinctive because of its unique or very rare combination of natural species and communities; and*

*(ii) Dependent on maintaining high or pristine water quality or special conditions of existing water quality, such as a bog, which can best be assured protection by no new or increased discharge.*

*(b) "Exceptional biological resources" includes, if appropriate:*

*(i) Wholly aquatic threatened or endangered species as defined in Natural Resources Article, §10-2A-01, Annotated Code of Maryland;*

*(ii) Wholly aquatic species in need of conservation identified in COMAR 08.03.08.09; or*

*(iii) Wetlands of special concern as defined in COMAR 26.23.06.*

*(2) "Protected Area" means a permanently protected area such as:*

*(a) Wildlife refuges or similar habitat protection areas which include but are not limited to wildlife management areas, national parks, State parks, and management areas;*

*(b) Areas under permanent conservation easement or rural legacy status as determined in consultation with the Rural Legacy Board, Natural Resources Article, Subtitle 9A, §5-9A-03, Annotated Code of Maryland, or easement holder to assure that the location meets the intent and needs of the ONRW designation as determined by the Department of the Environment; or*

*(c) Areas under some other demonstrated protection, by which the Department may be assured that there will be no changes in land use which could result in nonpoint source runoff posing a direct or indirect threat to the biological values proposed in the nomination.*

*C. Eligible Nominations.*

*(1) Required Components. The nominating group or individual shall provide:*

*(a) Evidence of the presence of exceptional biological resources or exceptional recreational resources dependent on such biological resources;*

*(b) Scientific information and analysis concerning existing water quality in the body of water including a demonstration that the water quality is typical of the nominated body of water;*

*(c) Specific boundaries of the nominated waters and upstream watershed, and a statement whether the nominated body of water and upstream watershed are fully within a protected area except as provided in §F of this regulation; and*

*(d) Demonstration that an attempt has been made to notify all impacted riparian landowners of the nomination by delivering or mailing notice of proposed nomination to the riparian landowner.*

*(2) A mailed notice shall request "Restricted Delivery" and show to whom it was delivered and the date and address of delivery.*

*(3) Additional Information That May Be Required. The Department may require the nominee to submit an economic analysis to address community economic and social concerns.*

*(4) Assessment. Before proposing the ONRW designation for a body of water, the Department will analyze the information in the nomination package for completeness and confirmation that the body of water achieves and meets the conditions of the ONRW designation.*

*D. Requirements for an ONRW.*

*(1) The area nominated for ONRW designation shall be an exceptional biological resource or exceptional recreational resource dependent on exceptional biological resources.*

*(2) The exceptional biological resource shall be dependent on maintaining high or pristine water quality or special conditions of existing water quality, such as a bog, which can best be assured protection by no new or increased discharge.*

*(3) To be designated an Outstanding National Resource Water, the area shall be wholly within a permanently protected area.*

*(4) If the area nominated for ONRW designation has high water quality but does not have exceptional biological resources, it will be protected against degradation under Regulation .04 of this chapter.*

*E. Protection for Upstream Areas that Feed the ONRW Water Body. In determining whether to designate a body of water as ONRW, the Department may consider whether the watershed upstream of the proposed ONRW area has protections in place that are consistent with the maintenance and protection of biological resources in the ONRW segment. These protections can include, but are not limited to:*



(1) *A county comprehensive plan or other plan that designates the upstream watershed as a "no growth area"; or*

(2) *An easement or other legal instrument that protects and maintains the existing land use.*

*F. Endangered Species. If a nomination is based on a federally threatened or endangered wholly aquatic species, the Department may, but is not required to, designate a water body as an ONRW without requiring protected status. Although the presence of an endangered species may be an indication of a special biological resource, the primary protection for endangered species is provided by the Maryland Nongame and Endangered Species Conservation Act, Natural Resources Article, Subtitle 2A, Annotated Code of Maryland, and the Federal Endangered Species Act. If an ONRW is approved for a body of water that is not in a protected status, any regulated activities in the watershed which would adversely impact the aquatic threatened or endangered species population, or impair the habitat required by the species, will require the maximum practical application of best management practices and implementation of antidegradation policies by the Department. The implementation requirements set forth in §I of this regulation also apply.*

*G. Designation of an Area as an ONRW.*

(1) *The Department may designate an area as an ONRW if:*

(a) *All provisions of the Administrative Procedure Act, Title 10, Subtitle 1, Annotated Code of Maryland, have been met;*

(b) *The application is complete and all requirements have been met; and*

(c) *Written permission for the designation has been received from the landowner or landowners within the proposed area for ONRW.*

(2) *Notice to property owners shall be based on property and tax records in the affected jurisdictions.*

*H. Public Involvement. The Department shall provide public notice and opportunity for a public informational hearing on the proposed designation of an ONRW before that designation is made. Local jurisdictions shall have 60 days after notification of the nomination to comment on the consistency of the nomination with the locality's comprehensive plan.*

*I. Implementation.*

(1) *A wastewater or industrial discharge NPDES permit that would allow a new discharge or an increase in an individual discharge may be issued within an ONRW only if there is mitigation or offsets elsewhere in the ONRW segment that result in no net increase in any substance which might impact or impair the ONRW values for which the body of water was nominated.*

(2) *A water quality certification may permit an impact only if:*

(a) *The water quality necessary to maintain and protect the exceptional biological resource is maintained; and*

(b) *There is mitigation or restoration elsewhere in the ONRW water segment.*

*(3) Sources of pollution may be allowed by the Department for temporary degradation, if, after a minimal period of time (weeks to months), the waters are returned or restored to conditions equal to or better than those existing just before the temporary source of pollution.*

*(4) After a public informational hearing, the Secretary may make exceptions to §I(1), (2), and (3) of this regulation to protect critical public health and safety concerns.*