

AGREEMENT OF STATES

COMPACT

HISTORY

&

REQUIREMENTS



HISTORICAL BACKGROUND

➤ 1985 - Great Lakes Charter

- Agreement between States and Provinces
- Manage waters of Great Lakes basin

➤ 1986 - Water Resource Development Act (WRDA)

- Federal law granting authority to Governors
- Requires unanimous approval out-of-basin diversions

➤ Great Lakes Charter Annex 2001

- Agreement to protect, preserve, restore and improve the water of Great Lakes basin

AGREEMENT - COMPACT

- **Dec. 2005: Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement**
 - Signed by Governors and Premiers
 - Requested legislative enactment of Compact
- **October 2008: Great Lakes – St. Lawrence River Basin Water Resources Compact**
 - Details how GL Basin is to be managed and protected
 - Established guidelines for State and Province enactment of laws

COMPONENTS OF COMPACT

- Promote economic development thru sustainable water use
- Ban on diversions from GL basin
- States and provinces provide consistent **standards for use**
- Regional goals for water conservation and efficiency
- Collect-share technical data
- Commitment to public involvement

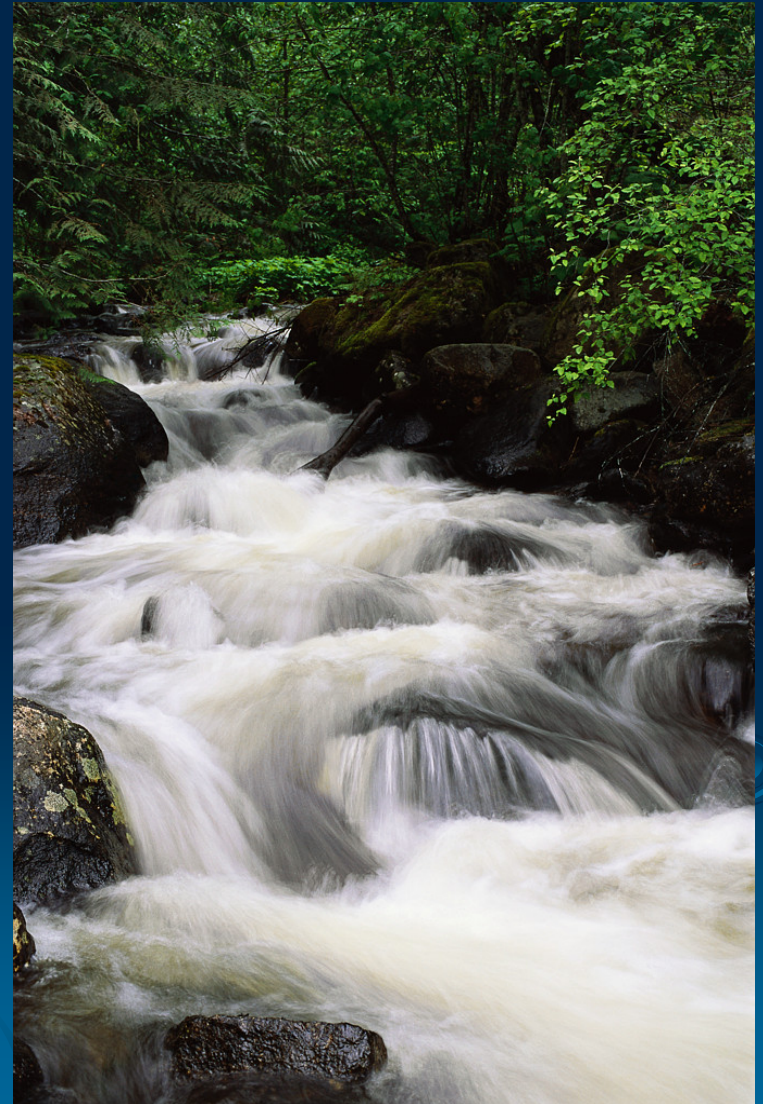
STANDARD FOR USE

**Adverse Resource Impact
(ARI)**



Adverse Resource Impact (In effect until February 1, 2009)

- Decrease in flow of stream such that ability to support “characteristic fish population” is functionally impaired
- Decrease in level of surface water body such that ability to support “characteristic fish population” is functionally impaired



Adverse Resource Impact (after February 1, 2009)

➤ Streams and Rivers

- Withdrawal resulting in % decrease
 - Thriving Fish Population (TFP), or
 - Characteristic Fish Population (CFP)
- **Decrease in TFP/CFP \approx Reduction in Index Flow**

➤ Lake or Pond

- Decrease in level of lake or pond
- 5 acres or more
- In a manner such that:
 - Impairs or destroys lake or pond
 - Impairs uses of same
 - Impairs TFP/CFP

Adverse Resource Impact – Zone D

PERCENT REDUCTION in INDEX FLOW

System	Category	Index Flow (Percent reduction)
Cold River System	Stream	≥ 20
	Small River	≥ 21
Cold Trans. River System	Stream	≥ 4
	Small River	≥ 2
	Large River	≥ 3
Cool River System	Stream	≥ 25
	Small River	≥ 25
	Large River	≥ 25
Warm River System	Stream	≥ 24
	Small River	≥ 17
	Large River	≥ 22

THE WATER WITHDRAWAL ASSESSMENT



Required Information

(Water Withdrawal Assessment Tool - WWAT)

Capacity

Location

Surface or Ground water

Glacial or Bedrock

Depth

Intermittent



WWAT Model Components

- **Web Interface**
- **Hydrology Model – Stream Flows**
- **Hydrogeology Model – Impact of ground water or surface water withdrawal on stream flow**
- **Fish Model – Characterization and response to change in flow**

Flow, Fish, Impact

COOL RIVER SYSTEM

Index Flow = 39 cfs
Allowable = 25 % IF = 9.75 cfs
WWAT Flow Red. = 1.25 cfs

LQW₁ = 2 cfs

COLD RIVER SYSTEM

Index Flow = 21 cfs
Allowable = 20 % IF = 4.2 cfs
WWAT Flow Red. = 0.25 cfs

WARM RIVER SYSTEM

Index Flow = 157 cfs
Allowable = 17% IF = 26.7 cfs
WWAT Flow Red. = 3.75 cfs

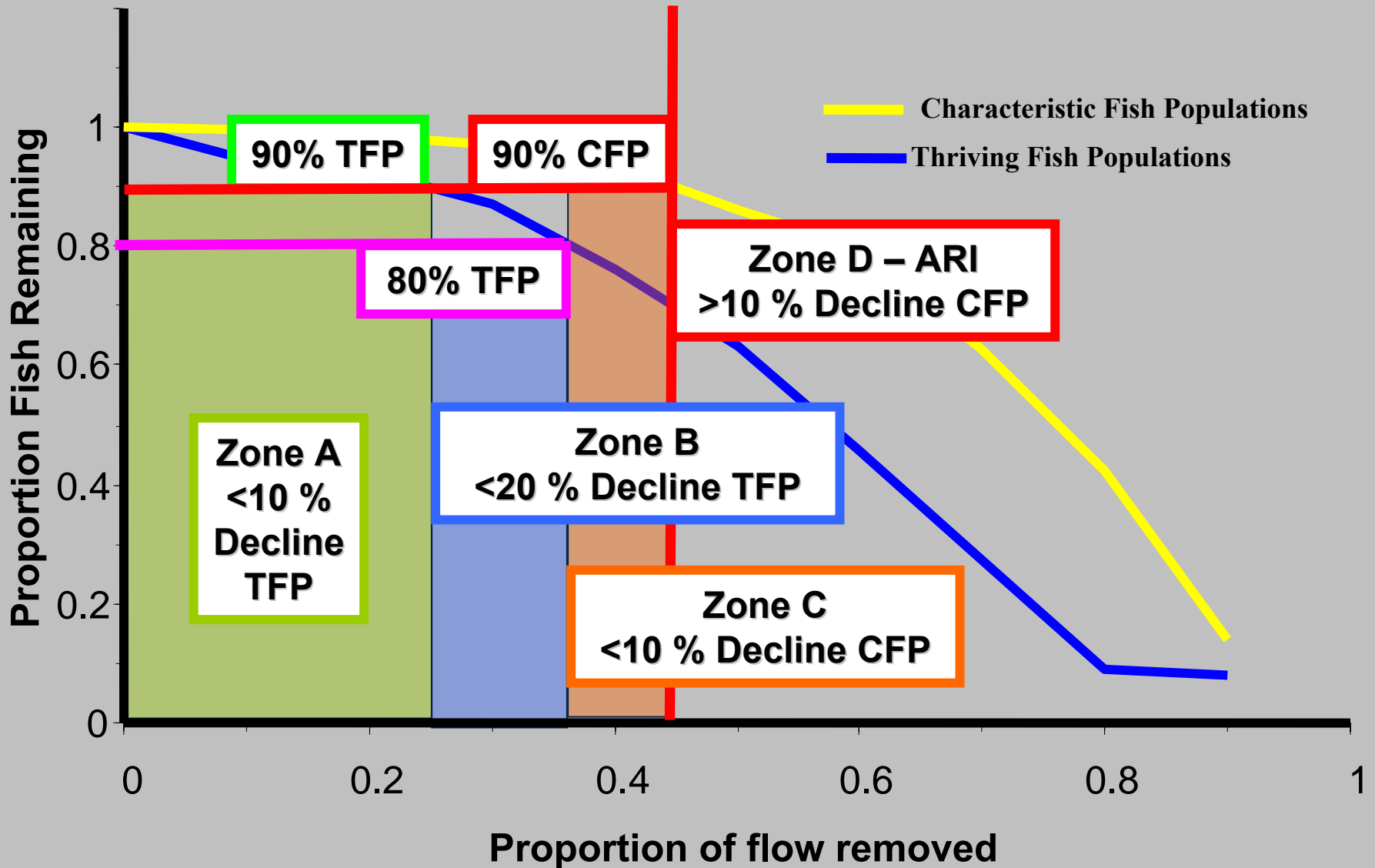
LQW₂ = 5 cfs

Allowable = 40.65 cfs
Total Flow Reduction = 5.25 cfs

DEPARTMENT ACTIONS REGULATORY ZONES



Description of Regulatory Zones



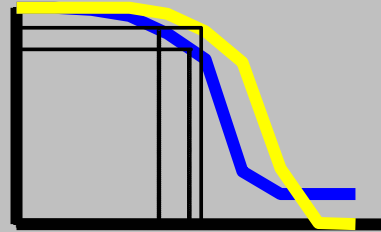
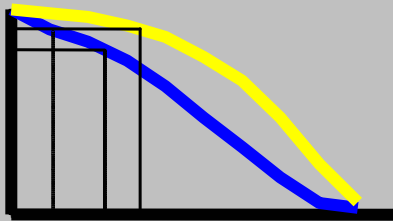
Fish Response Models

Streams

Small Rivers

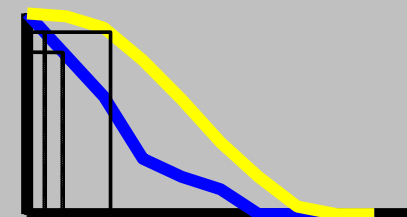
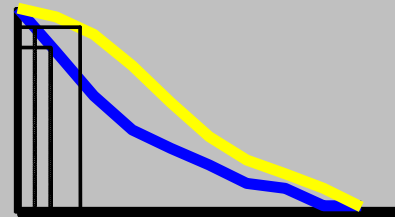
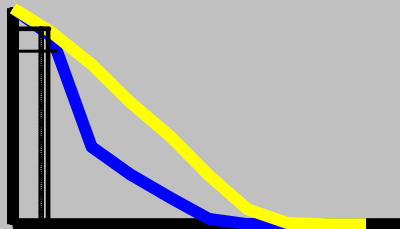
Large Rivers

Cold

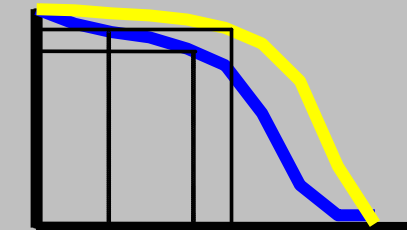
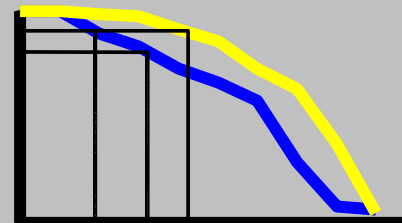
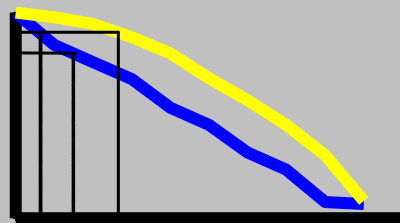


11 Types of Streams
Characterized in
Michigan

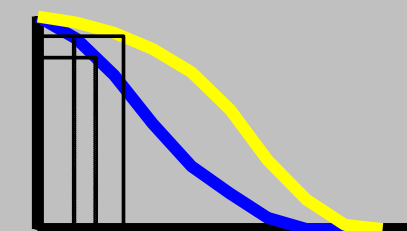
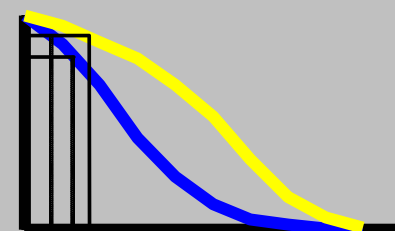
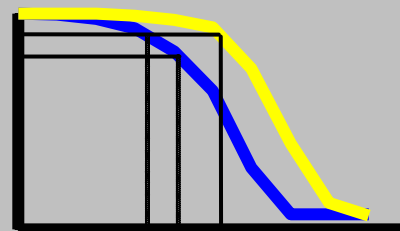
Cold
Trans.



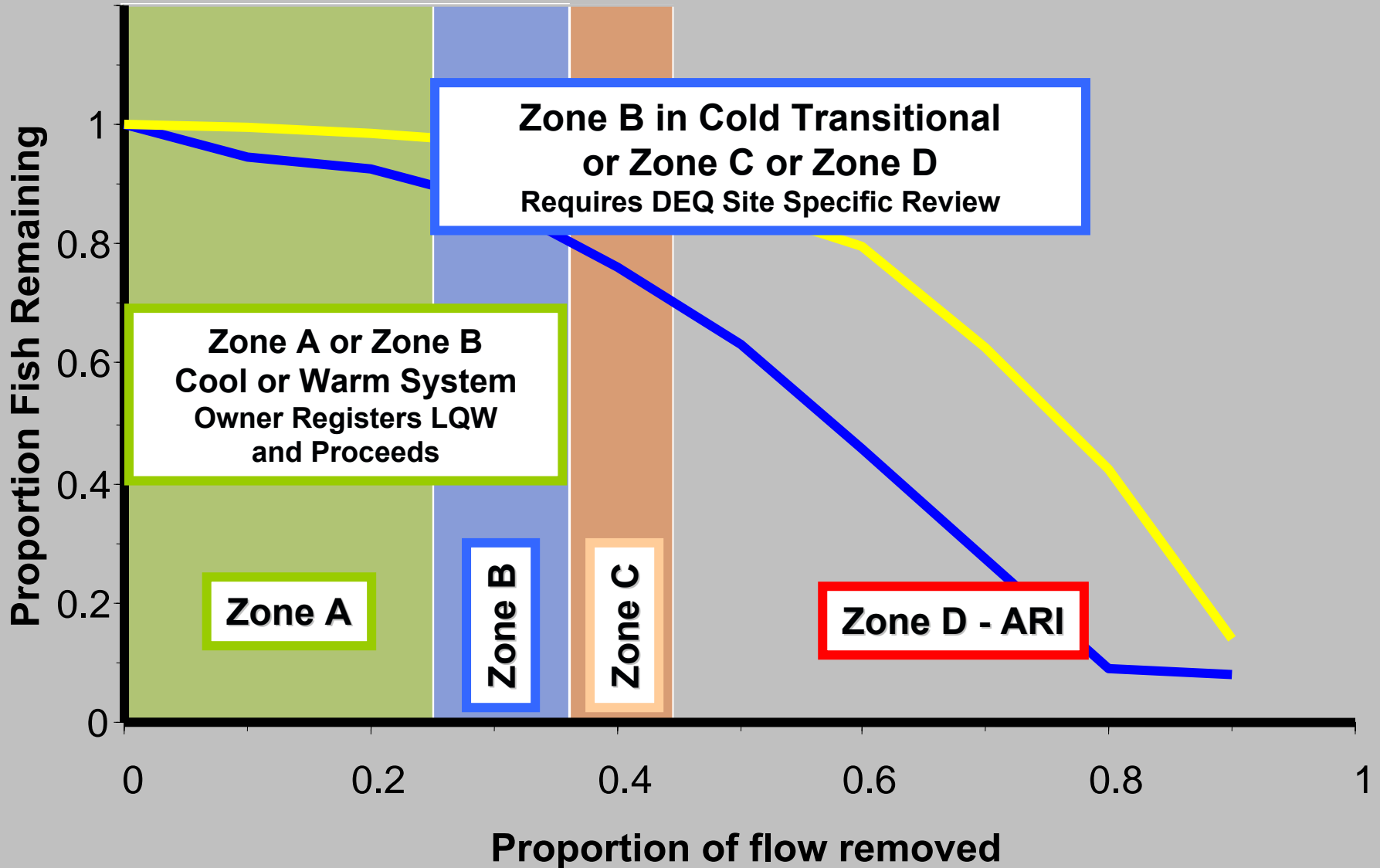
Cool



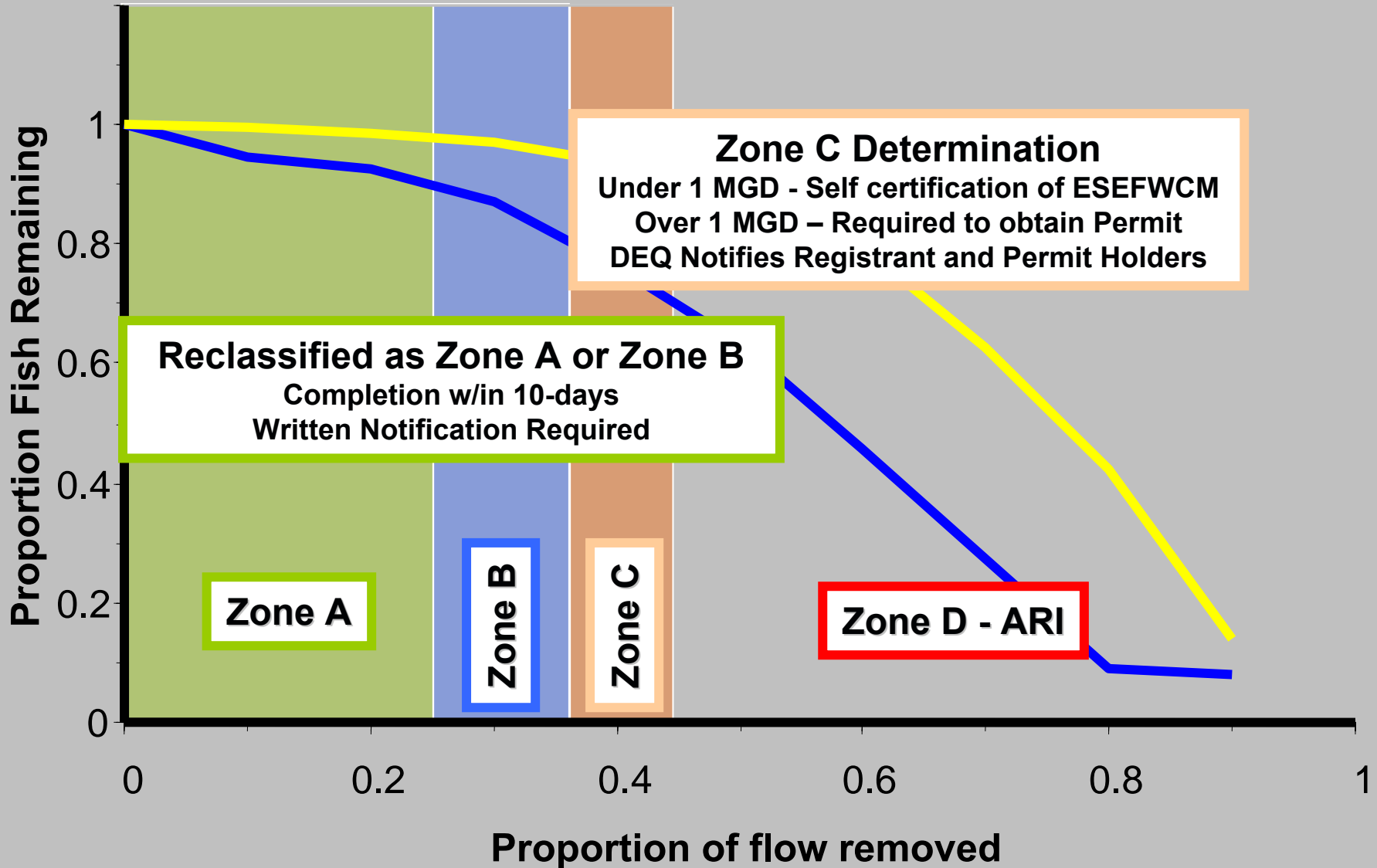
Warm



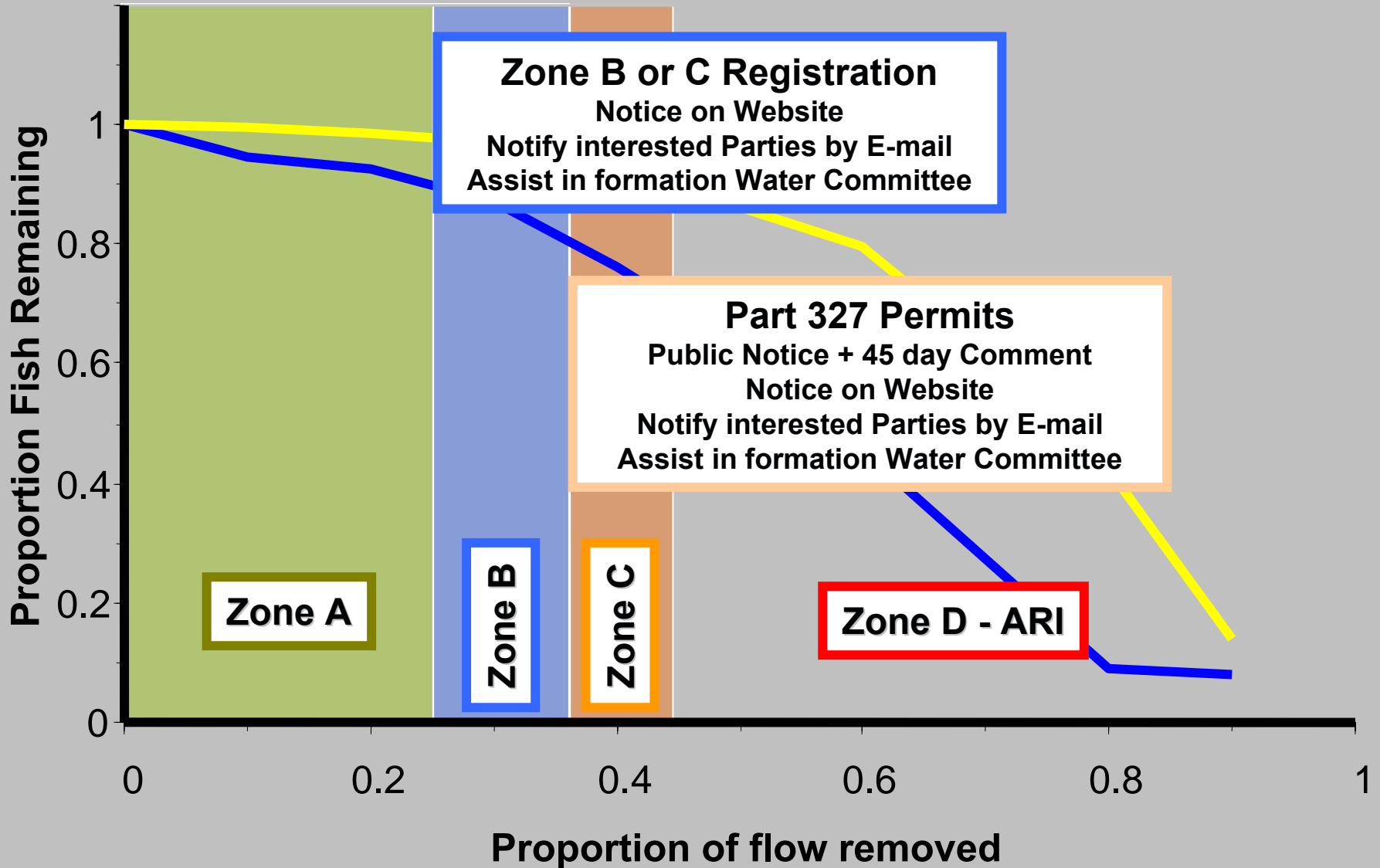
Required Actions – Assessment Tool



Required Actions – Site Specific Review



Notification Requirements



WWAT TIMELINE

➤ October 1, 2008

- Date for final calculation of flows
- Begin accounting for cumulative withdrawals
- WWAT available for public testing

➤ February 1, 2009

- ARI defined by CFP/TFP reductions
- Zones A, B, C, D apply
- Notification requirements in effect

➤ July 9 2009

- On-line registration process in place
- Use of WWAT required

PERMIT REQUIREMENTS



Permits

- **New or Increased Capacity**
 - 2 MGD from waters of the state
 - 1 MGD for a Zone C withdrawal
 - 100,000 gal/day intra-basin transfer average over 90 day period
- **Supplying common distribution system**
- **Application fee of \$2000**
- **Decision Time Line**
 - 30 Days – Completeness of application
 - 120 Days After – Permit decision

Criteria for Issuing Permit

- Withdrawn water, less consumptive use, returned to source watershed
- Implemented to insure no individual or cumulative ARI
- Withdrawal implemented in compliance with applicable laws
- Use is reasonable
- Applicant **“self certifies”** they are in compliance with ESEFWCM
- LQW does not violate public or private rights

Permit Exemptions

- **Permits issued under Part 31 sufficient to demo no ARI**
(i.e. – thermoelectric power)
- **Community Supply holding a permit under SDWA**
- **Seasonal withdrawals of ≤ 2 MGD as averaged in any 90 day period**
- **Bottled water approved under Section 17 of SDWA – 200,000 gal/day capacity**

Summary of Well Capacities

Year	Total Wells	≥70 gpm	≥1400 gpm	Total LQW
2001	33594	282	4	286
2002	32983	296	1	297
2003	33227	266	8	274
2004	31235	231	2	233
2005	28853	283	0	283
2006	22899	187	2	189
Avg.	30465	257.5	2.8	260.3

Overview of Michigan Water Use

**Source: Water
Use Reporting
Program**

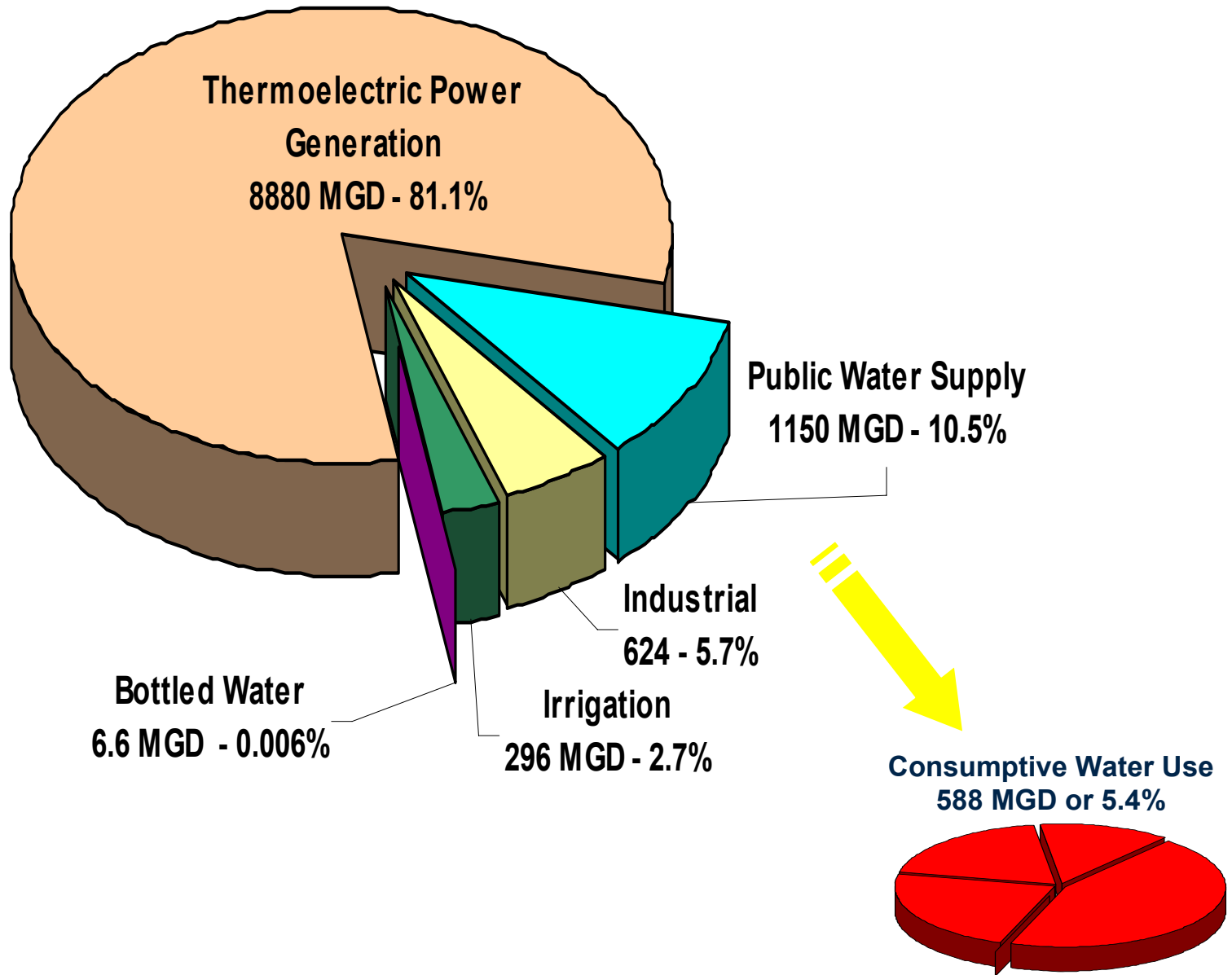
The background of the slide is a solid blue color. In the lower right quadrant, there are several concentric, light blue circles that resemble ripples on water, creating a decorative effect.

WATER USE – ALL SOURCES

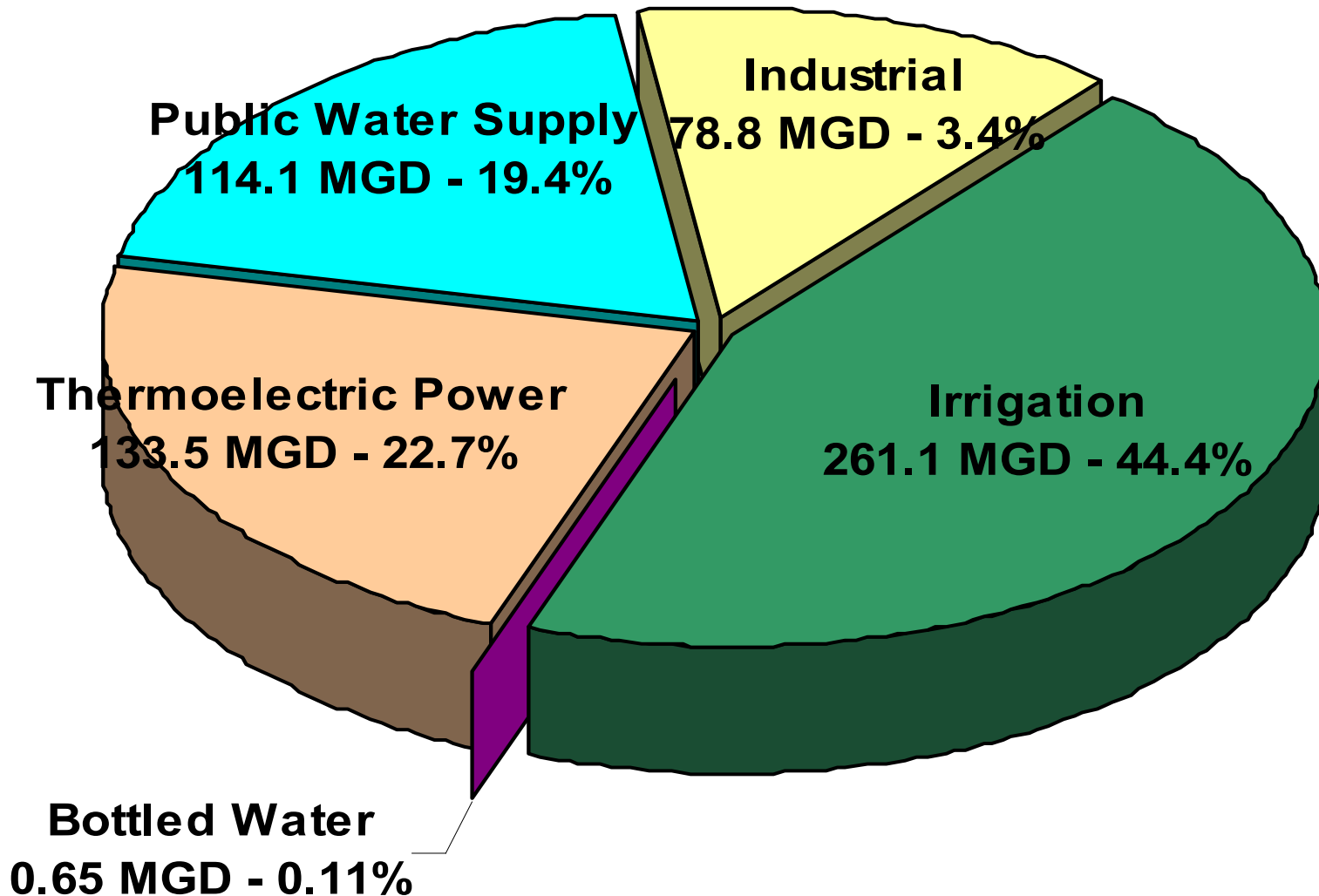
Sector	Number of Facilities	Facility Average Use (MGY)	Facility Average Use (MGD)
Thermoelectric Power Generation	44	73,705.1	201.9
Public Water Supply	1,437	290.6	0.80
Self-Supplied Industrial	380	603.9	1.65
Ag Irrigation	2,187	48.4	0.54*
Bottled Water	4	57.5	0.16

* Based on 90 days operation per year

Total Water Use – 10,949 MGD



Consumptive Water Use 588 MGD

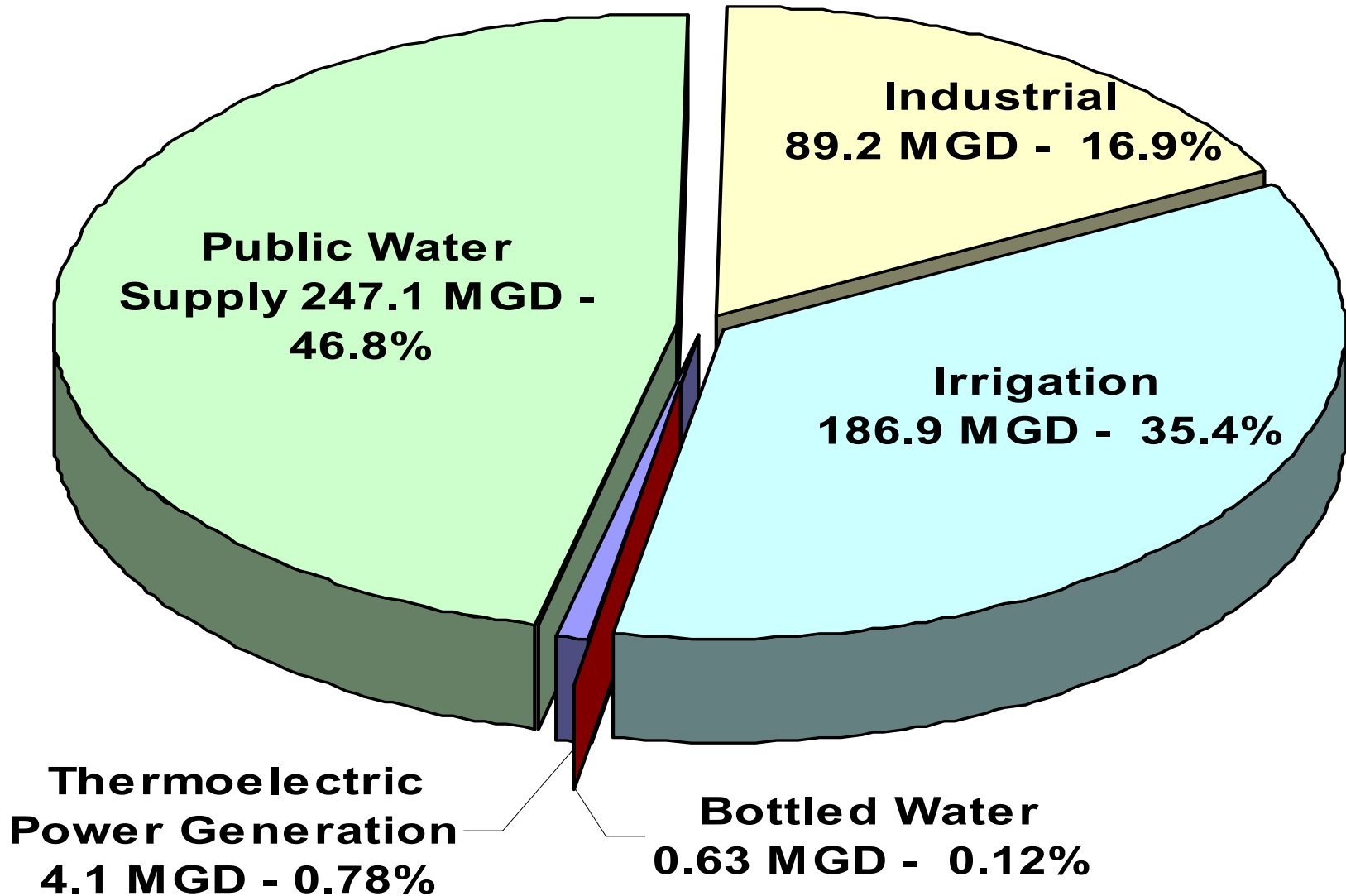


GROUNDWATER USE

Sector	Number of Facilities	Avg. Use Per Facility (MGY)	Avg. Use Per Facility (MGD)
Thermoelectric Power Generation	12	124.7	0.342
Public Water Supply	1,138	79.3	0.217
Self-Supplied Industrial	286	113.7	0.311
Ag Irrigation	2,149	31.7	0.352*
Bottled Water	4	57.5	0.157

* Based on 90 days operation per year

Groundwater Use – 528 MGD



Groundwater Consumed – 204.8 MGD

38.8% of Water Use

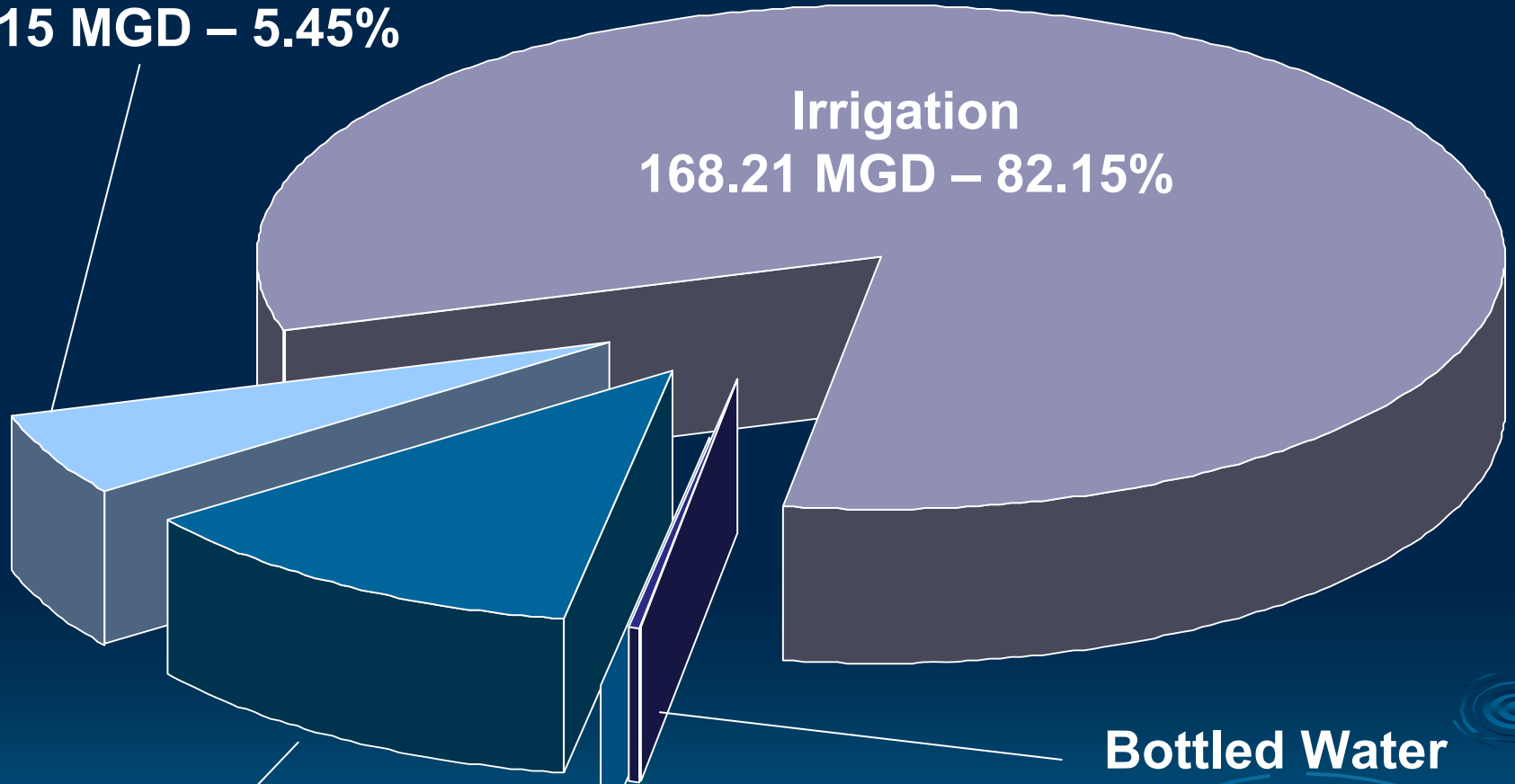
Industrial
11.15 MGD – 5.45%

Irrigation
168.21 MGD – 82.15%

Bottled Water
0.63 MGD – 0.31%

Thermoelectric Power
0.06 MGD – 0.03%

Public Water Supply
24.71 MGD – 12.07%



Great Lake Basin Diversions

Diversion	Year	ft³/sec	Gal/Day
Forrestport, NY	1825	-50	-32.3x10 ⁶
Ohio-Erie Canal, Ohio	1847	12	7.8x10 ⁶
Portage Canal, Indiana	1860	40	25.9x10 ⁶
Chicago, Illinois	1900	-3,200	-2.07x10 ⁹
Long Lake – Ont.	1939	1,590	1.02x10 ⁹
Ogoki – Ont.	1943	3,990	2.58x10 ⁹
Pleasant Prairie, Wis.	1990	-5	-3.2x10 ⁶
Akron, Ohio	1998	-7.5	-4.8x10 ⁶
Net Total		2369.5	1.52x10⁹