

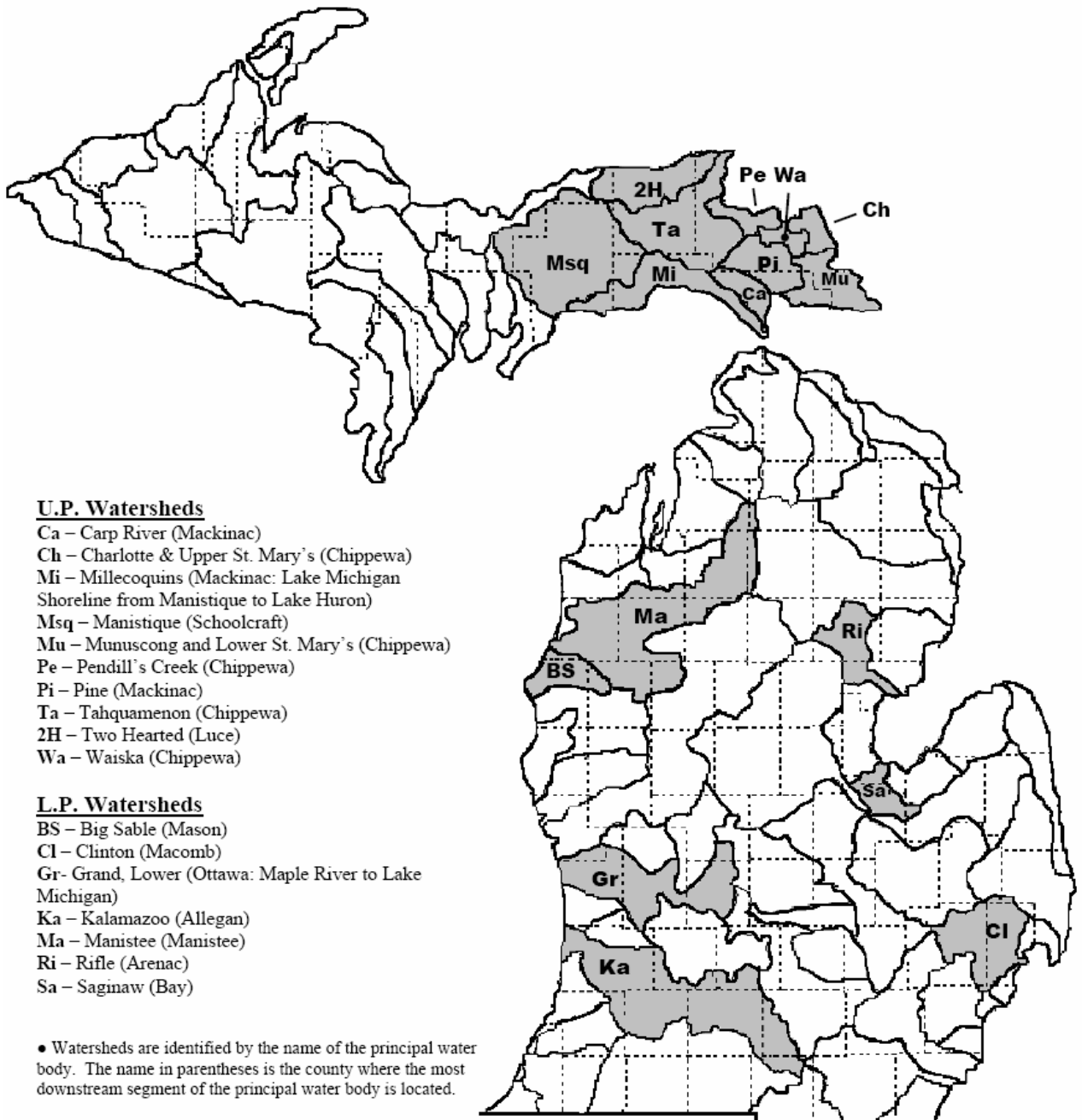
## **Appendix 1: Five Year Basin Cycle Monitoring**

Monitoring and assessment of surface waters in Michigan is primarily the responsibility of the MDEQ Water Bureau. In 1997, MDEQ developed the “Strategic Environmental Quality Monitoring Program for Michigan’s Surface Waters” (MDEQ, 1997). This strategy was updated in 2005 (Michigan Water Quality Monitoring Strategy Update, April 2005) to reflect current monitoring effort in the state, and to better incorporate U.S. EPA requirements for a comprehensive state monitoring program.

Under our “Strategic Environmental Quality Monitoring Program for Michigan’s Surface Waters” (MDEQ, 1997) and “Michigan Water Quality Strategy Update” (MDEQ, 2005), the MDEQ has divided the state into watershed basins to administer the NPDES and other water quality programs. Each year, a set of targeted watersheds are sampled at selected sites for conventional and toxic pollutants, and biological and physical habitat/morphology indicators. The set of watersheds sampled rotates each year, with each major watershed in the state revisited every 5 years. The following maps indicate which watersheds are sampled in each of the 5-year cycles.

Assessment of AOCs for attainment of restoration criteria will normally be integrated into the 5-year basin monitoring cycle. For Bird or Animal Deformities or Reproductive Problems, Degradation of Benthos, Eutrophication or Undesirable Algae, Degradation of Aesthetics, and Degradation of Phytoplankton or Zooplankton Populations BUIs, meeting the criteria in 2 successive monitoring cycles will indicate the BUI has been restored. Special considerations for one-time assessments may be made for an AOC on a case-by-case basis.

**Monitoring Cycle Year – 2004, 2009, etc.**



**U.P. Watersheds**

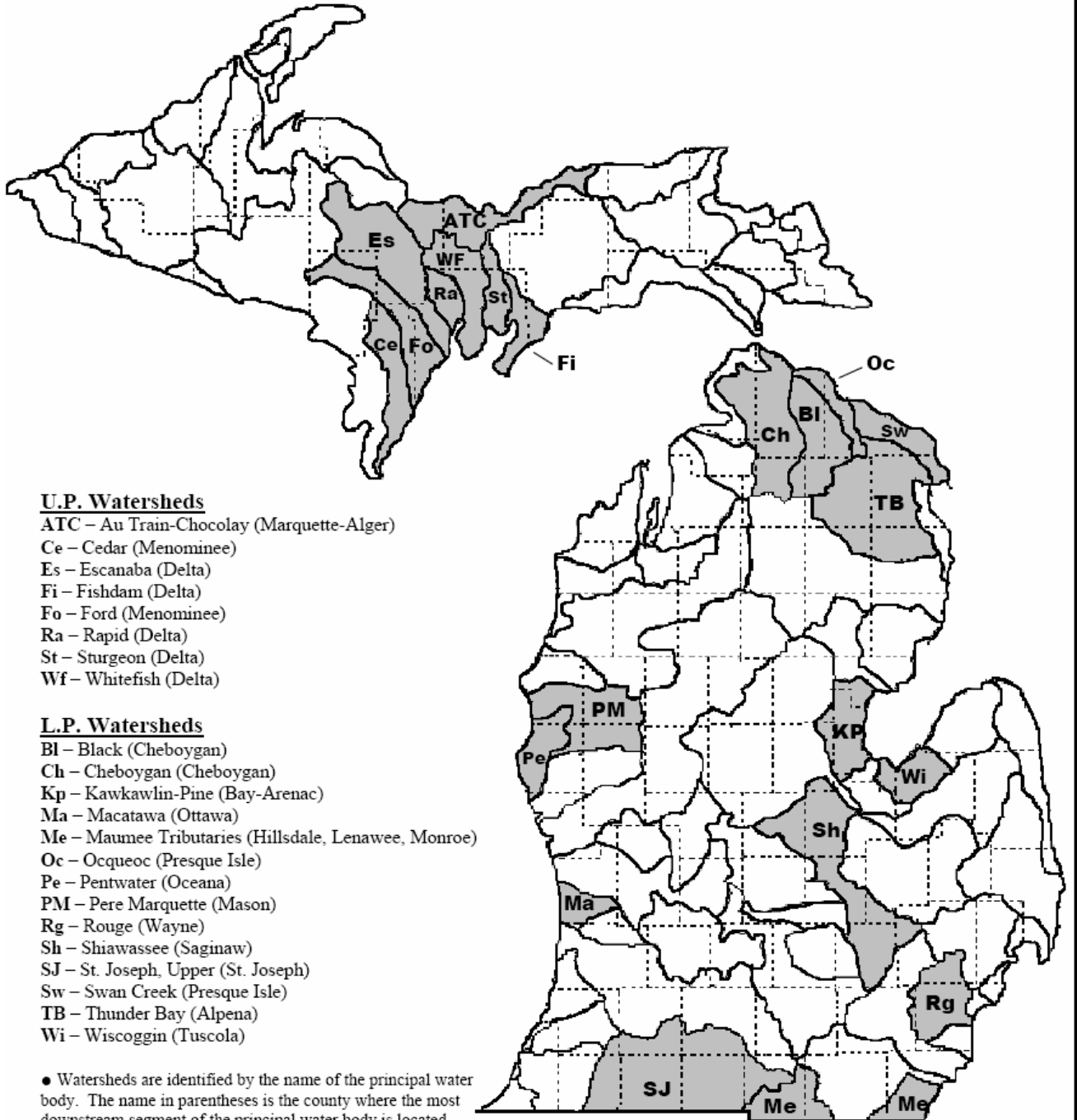
- Ca – Carp River (Mackinac)
- Ch – Charlotte & Upper St. Mary’s (Chippewa)
- Mi – Millecoquins (Mackinac: Lake Michigan Shoreline from Manistique to Lake Huron)
- Msq – Manistique (Schoolcraft)
- Mu – Munuscong and Lower St. Mary’s (Chippewa)
- Pe – Pendill’s Creek (Chippewa)
- Pi – Pine (Mackinac)
- Ta – Tahquamenon (Chippewa)
- 2H – Two Hearted (Luce)
- Wa – Waiska (Chippewa)

**L.P. Watersheds**

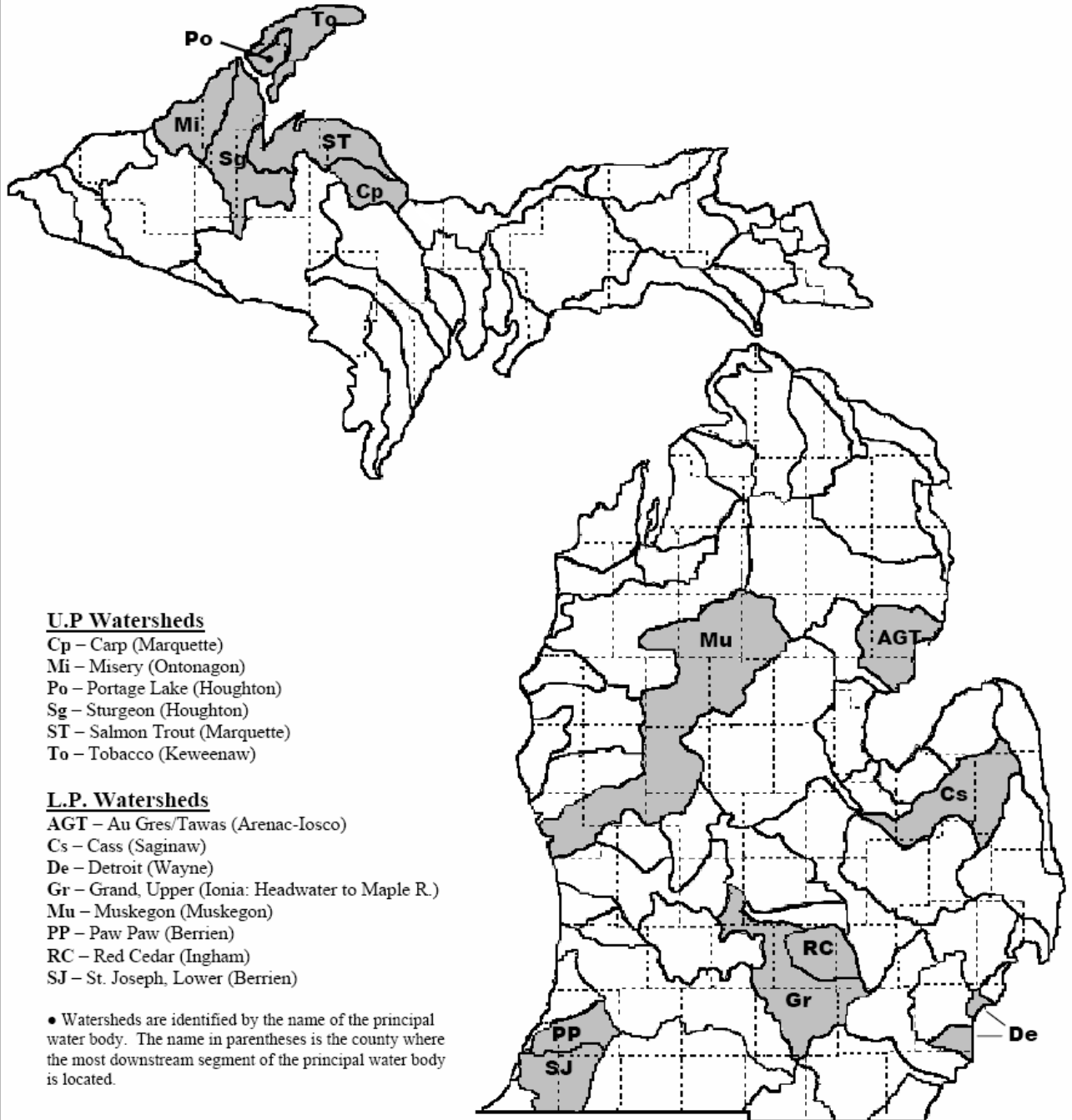
- BS – Big Sable (Mason)
- CI – Clinton (Macomb)
- Gr – Grand, Lower (Ottawa: Maple River to Lake Michigan)
- Ka – Kalamazoo (Allegan)
- Ma – Manistee (Manistee)
- Ri – Rifle (Arenac)
- Sa – Saginaw (Bay)

• Watersheds are identified by the name of the principal water body. The name in parentheses is the county where the most downstream segment of the principal water body is located.

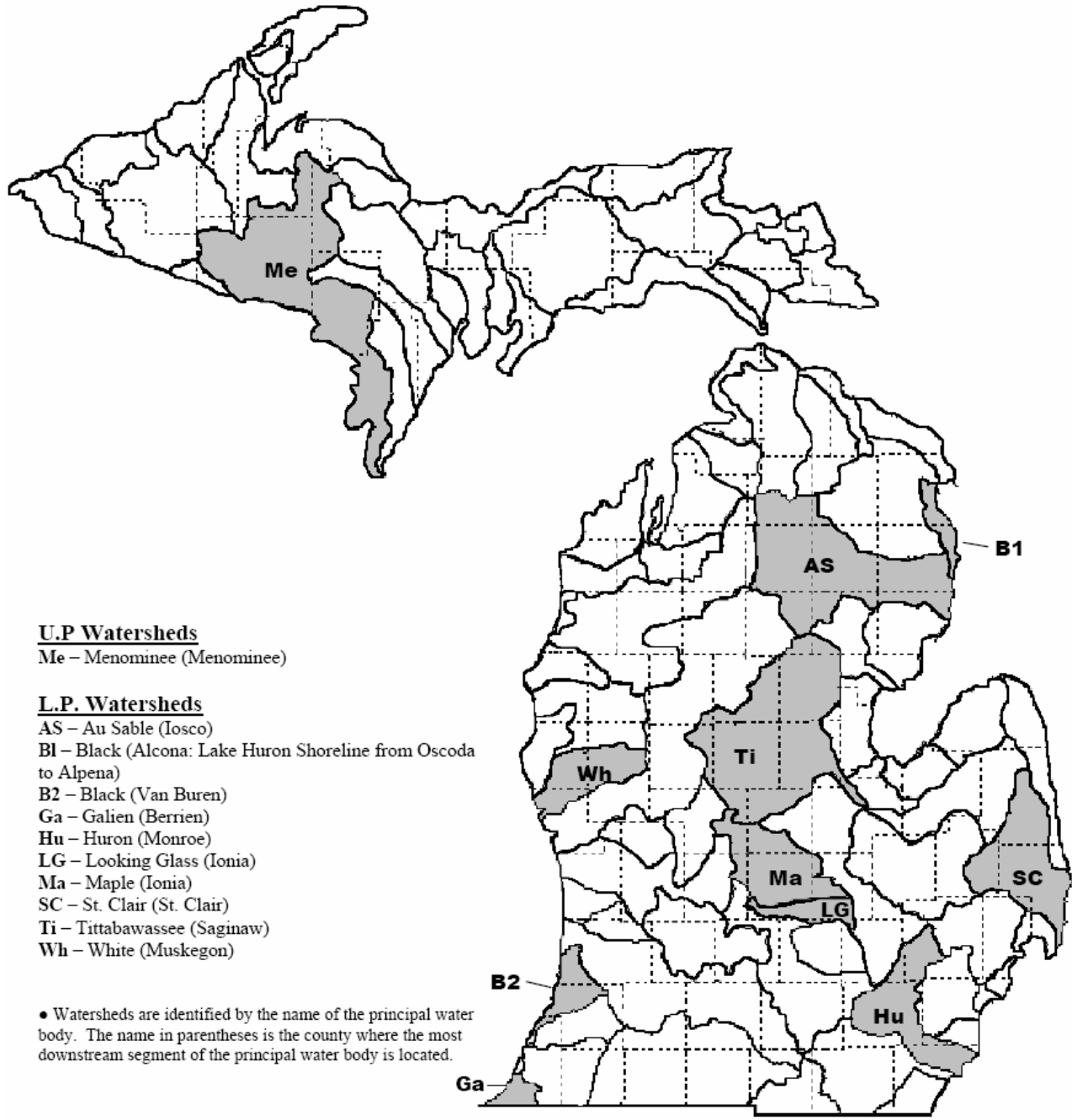
**Monitoring Cycle Year – 2005, 2010, etc.**



**Monitoring Cycle Year – 2006, 2011, etc.**



Monitoring Cycle Year – 2007, 2012, etc.



**U.P. Watersheds**

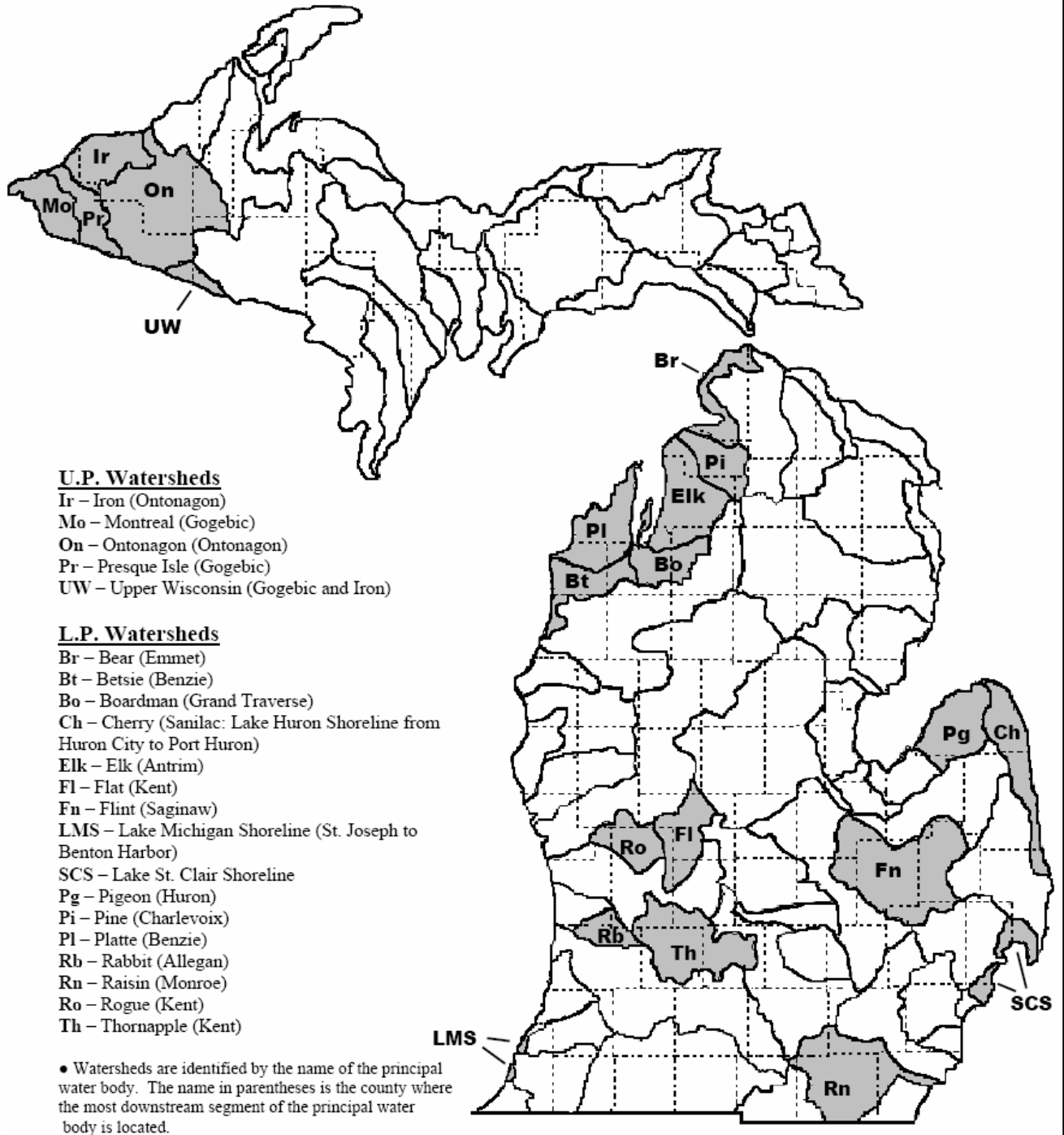
Me – Menominee (Menominee)

**L.P. Watersheds**

- AS – Au Sable (Iosco)
- B1 – Black (Alcona: Lake Huron Shoreline from Oscoda to Alpena)
- B2 – Black (Van Buren)
- Ga – Galien (Berrien)
- Hu – Huron (Monroe)
- LG – Looking Glass (Ionia)
- Ma – Maple (Ionia)
- SC – St. Clair (St. Clair)
- Ti – Tittabawassee (Saginaw)
- Wh – White (Muskegon)

• Watersheds are identified by the name of the principal water body. The name in parentheses is the county where the most downstream segment of the principal water body is located.

**Monitoring Cycle Year – 2008, 2013, etc.**



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## ***Glossary/Acronyms***

303(d) List: The list of water bodies in the state not meeting designated uses under Section 303 of the Clean Water Act

AOC: Great Lakes Area of Concern under Annex 2 of the Great Lakes Water Quality Agreement (as amended by protocol in 1987)

Assessment: Single event data collection to answer a specific question

BUI: Beneficial Use Impairment

Beneficial Use Impairment: One of 14 beneficial uses for water that can be designated as impaired in and Area of Concern under Annex 2 of the Great Lakes Water Quality Agreement (as amended by protocol in 1987)

CERCLA: federal Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)

COE: U.S. Army Corps of Engineers

DDT/DDE/DDD: dichlorodiphenyltrichloroethane and derivatives, a banned pesticide

Delisting: The process of restoration and subsequent removal of an AOC from the list of those in the Great Lakes

Designated Use: Specific uses for water named in the federal Clean Water Act

Dioxin/Furan: Chlorinated hydrocarbons that are by-products of certain activities

Ecoregion: Land units that differ significantly from one another in non-biological characteristics as well as in their related biological components. Two which will be used in considering control sites for BUI assessment are Forest Service and U.S. EPA Level III (see references)

FCMP: Fish Contaminant Monitoring Program of the MDEQ

4 Agency Letter of Commitment: Signed April 17, 1998 by Environment Canada, Ontario Ministry of the Environment, Michigan Department of Environmental Quality, and U.S. EPA. The letter committed the agencies to cooperate in the restoration of shared upper connecting channel AOCs and Lake St. Clair under the terms of the Great Lakes Water Quality Agreement. A 4 Agency Management Committee oversees implementation of the commitment.

GAP: Grant Application Package

GLNPO: Great Lakes National Program Office of U.S. EPA

GLWQA: The Great Lakes Water Quality Agreement of 1987 between the United States and Canada, as amended by protocol in 1987.

Guidance: Informal, non-regulatory narrative to guide the process of restoration

Guidelines: Formal, regulatory numbers for water quality based on standards

IJC: International Joint Commission established by the Boundary Waters Treaty between the United States and Canada in 1909

LaMP: Lakewide Management Plan for a Great Lake

LOEL: Lowest Observable Effect Level for a contaminant on an organism

MDCH: Michigan Department of Community Health

MDEQ: Michigan Department of Environmental Quality

MDNR: Michigan Department of Natural Resources

Monitoring: Long-term sampling for trend analysis of specific parameters

NPDES: National Pollution Discharge Elimination System under the federal Clean Water Act with permits administered by the state

NREPA: Michigan's Natural Resources and Environmental Protection Act of 1994

PCB: Polychlorinated Biphenyls, oils formerly used in electrical equipment and carbonless paper, among other applications

Procedure #51: MDEQ biological monitoring/assessment protocol for wadeable streams

PAC: Public Advisory Council. Public advisory councils were established in the Areas of Concern to facilitate public involvement in cleanup efforts, provide advice to state and federal agencies on issues of concern to local communities, and review and help write the Remedial Action Plans. They are intended to be a broad representation of stakeholders in each Area of Concern.

RAP: Remedial Action Plan for an Area of Concern

RCRA: federal Resource Conservation and Recovery Act

Restoration: Completion of actions such that the criteria for removal of a BUI have been met

Standards: Formal, regulatory numbers for water quality that are based on state statute

Superfund: Comprehensive Environmental Response, Compensation, and Liability Act

SWAS: Surface Water Assessment Section, Water Bureau, MDEQ

Targets: Informal, non-regulatory guidance for restoration

TMDL: Total Maximum Daily Load; allocation among various sources of a pollutant to a waterbody such that a specified total is not exceeded

TSCA: Federal Toxic Substances Control Act

USPC: U.S. Policy Committee, a forum of senior-level representatives from the Federal, State, and Tribal agencies responsible for environmental and natural resources management of the Great Lakes

U.S. EPA: federal U.S. Environmental Protection Agency

USPC: U.S. Policy Committee

WQS: Water Quality Standards under state and federal law

## ***The Future***

The MDEQ is committed to protecting Michigan's environment and ensuring that all locations in the state of Michigan are protected and restored, whether or not they are or were AOCs, Delisting AOCs is just one step of a continuum in the process of restoring and protecting these areas in the Great Lakes. Reaching this point simply means that all BUIs have been addressed and that an area is no longer considered an AOC under the GLWQA. Public involvement in the AOC program is a critical component of this restoration and delisting process. A key component of future water quality protection efforts will be continued strong, local public involvement and partnerships with state and federal agencies.

## ***MDEQ AOC Program Contact***

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