

Lake Michigan Monitoring Coordination Council

LMMCC Lake Michigan Monitoring Inventory 2015

John Hummer, Contractor/Project Mgr.
Great Lakes Commission

LMMCC Fall Meeting
October 28, 2015



What is the LMMCC?

The Lake Michigan Monitoring Coordination Council (LMMCC) was formed in 1999 to support monitoring efforts in the Lake Michigan basin as they relate to the needs of the Lake Michigan Lakewide Management and Action Plan (LAMP). The Council responds to the need for enhanced coordination, communication and data management among the many agencies and organizations that conduct or benefit from monitoring efforts in the Lake Michigan basin.



LMMCC 2015 Inventory

- Purpose

- ✓ Updated collection of Lake Michigan Monitoring metadata, plus primer on USGS SiGL Mapper
- ✓ Provide a useful monitoring information resource for Lake Michigan LAMP, GLWQA annex groups, and managers.
- ✓ Pursue integrated, complementary monitoring activities and avoid duplication of effort.
- ✓ Identify gaps in monitoring.
- ✓ Improve the efficiency of Lake Michigan monitoring efforts.

Inventory

- Collected 72 records of monitoring projects – thank you!
- All information included in an Excel spreadsheet that will be online on the LMMCC website.

| G | H | J |
|----------------------------|--|-----------------------------------|
| Standard Project Objective | Project Objective - Textual Description | Data Hosting Entity |
| | Fish tissue contaminant monitoring, nearshore and harbors | |
| | Annual water quality monitoring at nearshore sites, Lake Michigan Harbors, and PWS Intakes, Includes sedi | |
| Trend analysis | Monitor the water quality of Northern Michigan streams and lakes | Tip of the Mitt Watershed Council |
| Trend analysis | Monitor the water quality of Northern Michigan streams and lakes | Tip of the Mitt Watershed Council |
| Trend analysis | Monitor shorelines for dead birds and fish resulting from botulism E poisoning to better understand ecological dynamics and effects on populations | Tip of the Mitt Watershed Council |



Lake Michigan Monitoring Coordination Council



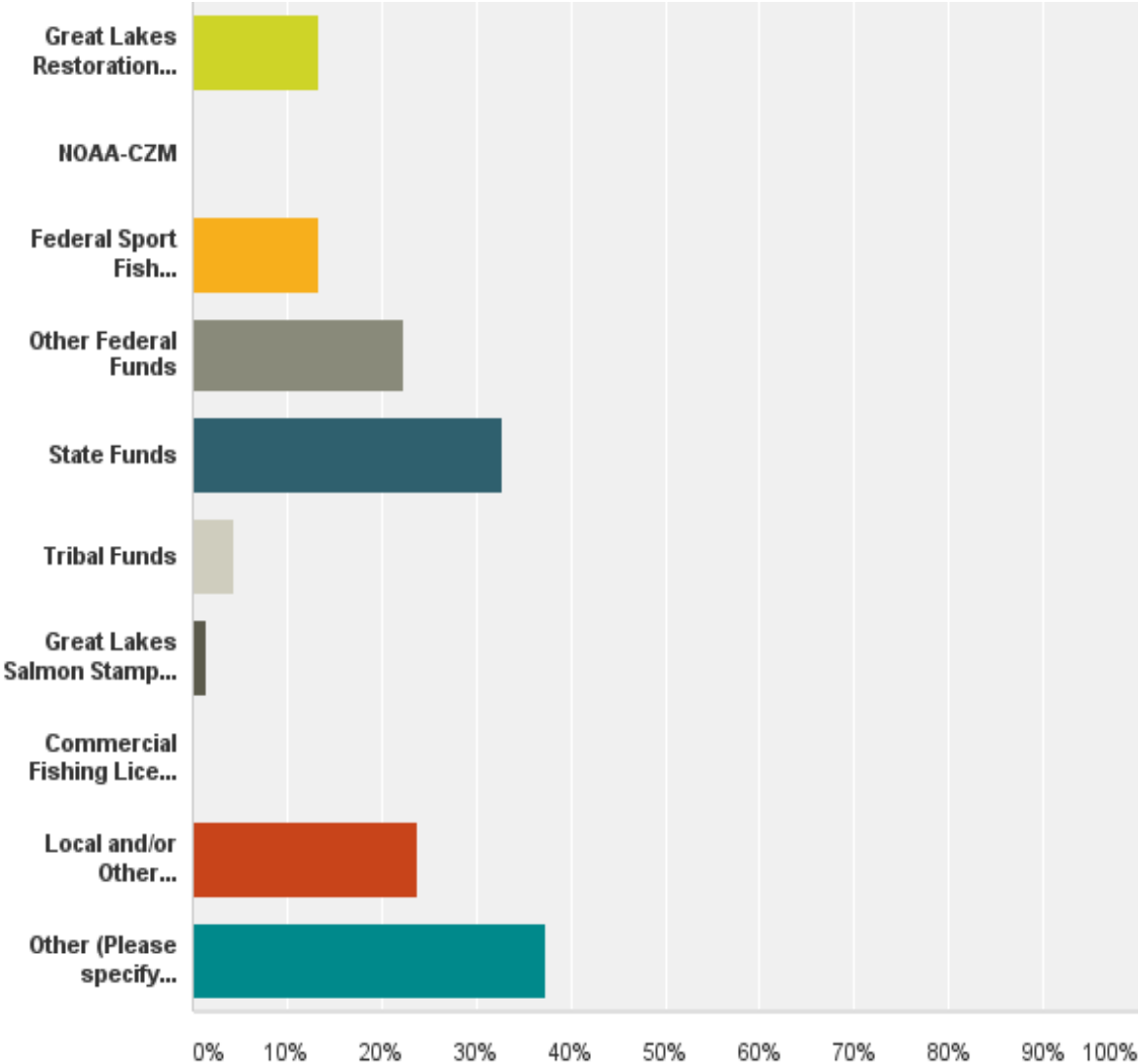
Inventory information collected

- Name
- Organization
- Address
- Phone/Email
- Project name
- Included in 2013 inventory?
- Cooperating orgs
- Funding category/source
- Funding amount
- Program/Project Duration
- Project activity status
- Project objectives – general
- Project objectives – specific
- Org that conducted monitoring
- Org that maintains dataset

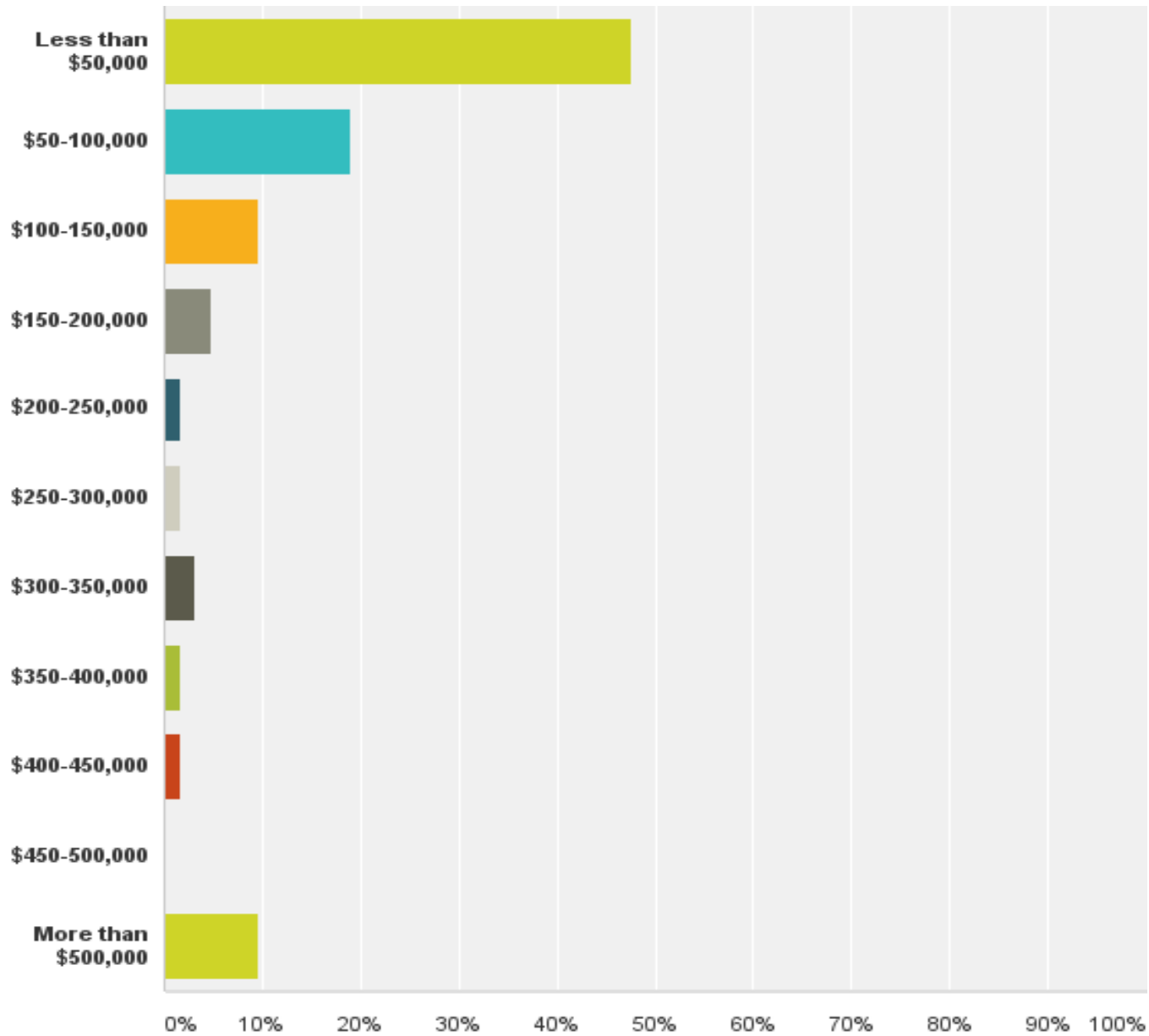
Inventory information collected (cont'd)

- System or location where project resides
(e.g. NWIS, STORET, Access database, etc.)
- Data portal URL
- Waterbodies where monitoring took place
- Resource components of monitoring
- Media monitored
- Sampling period
- Sampling frequency
- Sampling start & end dates
- Sampling platform/equipment
- Sampling parameters
(i.e., biological, physical, chemical, Microbiological, toxicological)
- Publication titles & websites
- Include in USGS SiGL Mapper

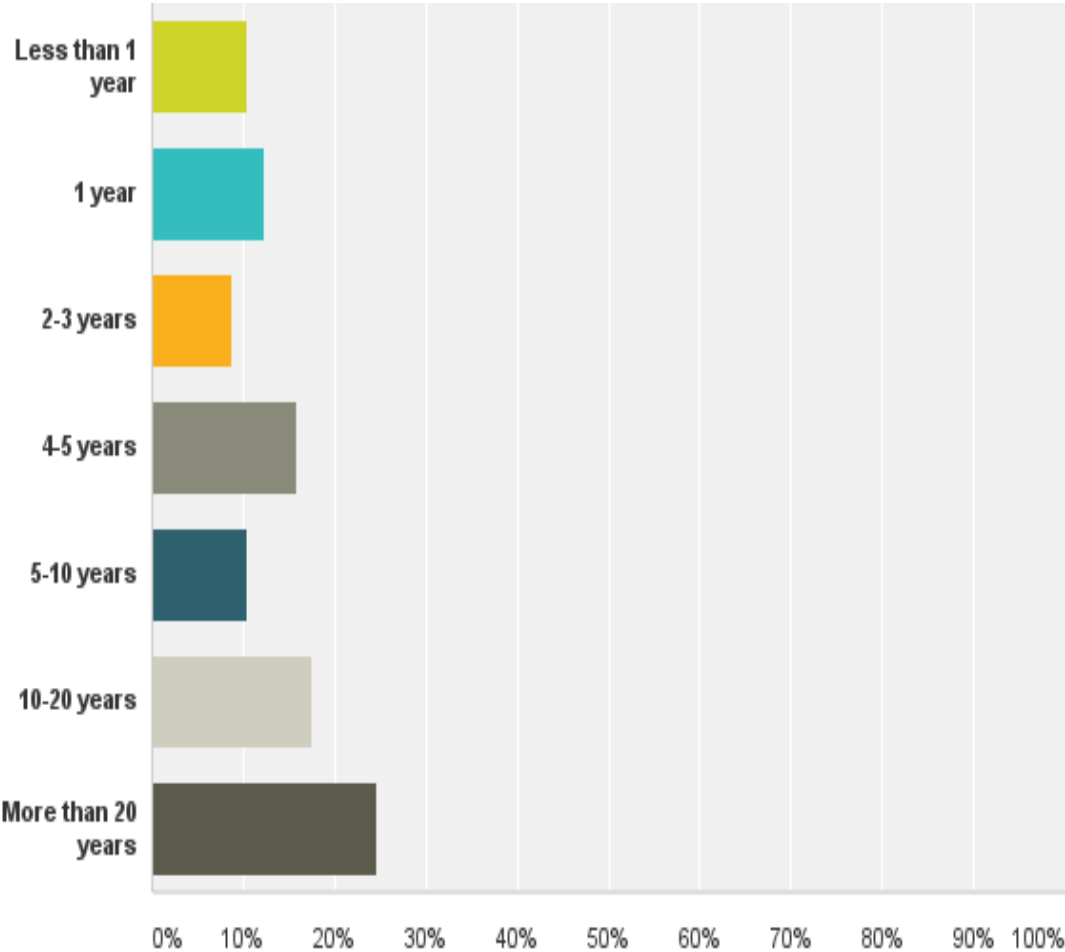
Funding category/source for your monitoring program or project



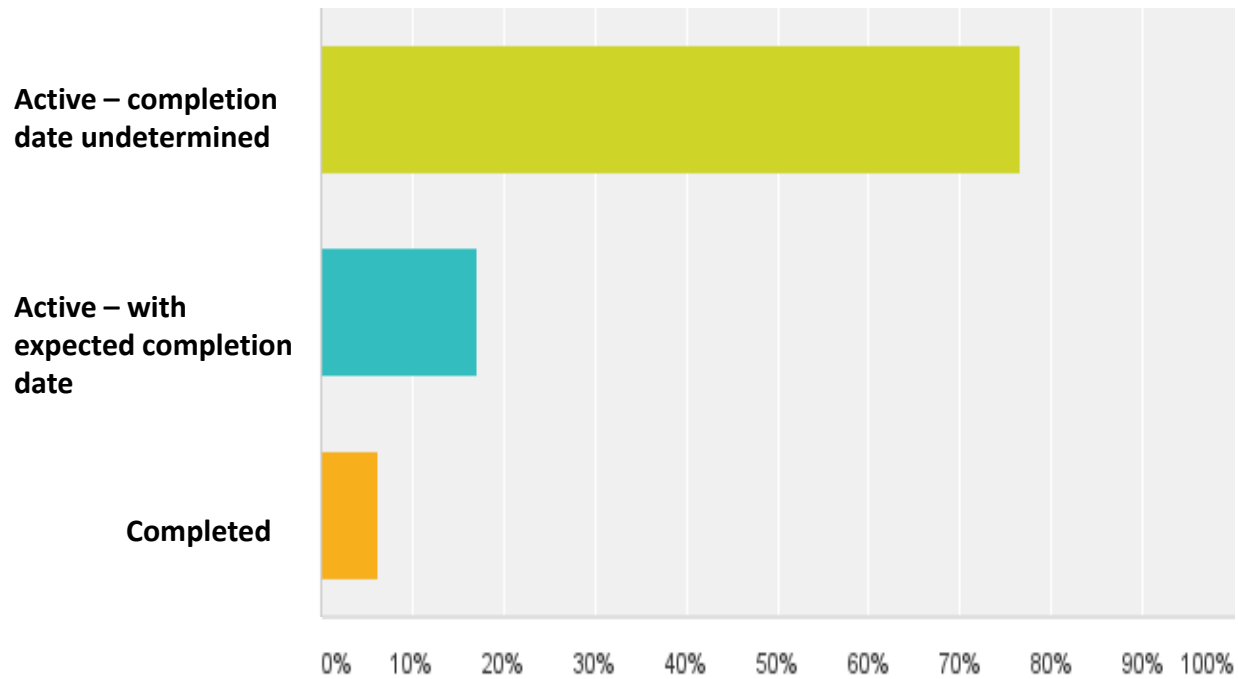
Amount of funding per year project receives.



Program or project duration in number of years.



Project activity status



Project objective and category

| Project type | | | | | | | | | | | |
|---------------------------------------|------------------|-----------------|-------------------|----------------------------------|----------------------|------------------|----------------|-----------------------|------------------|-----------------|---------------------|
| | Assessment | Gap analysis | Permit compliance | Reconnaissance/occurrence survey | Regulatory benchmark | Research | Trend analysis | Other | Total | | |
| Standard program or project objective | 59.02% 36 | 0.00% 0 | 1.64% 1 | 4.92% 3 | 1.64% 1 | 16.39% 10 | 13.11% 8 | 3.28% 2 | 61 | | |
| Category of program/project objective | | | | | | | | | | | |
| | Areas of Concern | Bioaccumulation | Climate change | Contaminants of emerging concern | Deposition | Ecosystem health | Human health | Impaired waters/TMDLs | Invasive species | Pollution event | Priority watersheds |
| Standard program or project objective | 4.92% 3 | 0.00% 0 | 0.00% 0 | 3.28% 2 | 0.00% 0 | 34.43% 21 | 3.28% 2 | 11.48% 7 | 9.84% 6 | 0.00% 0 | 4.92% 3 |

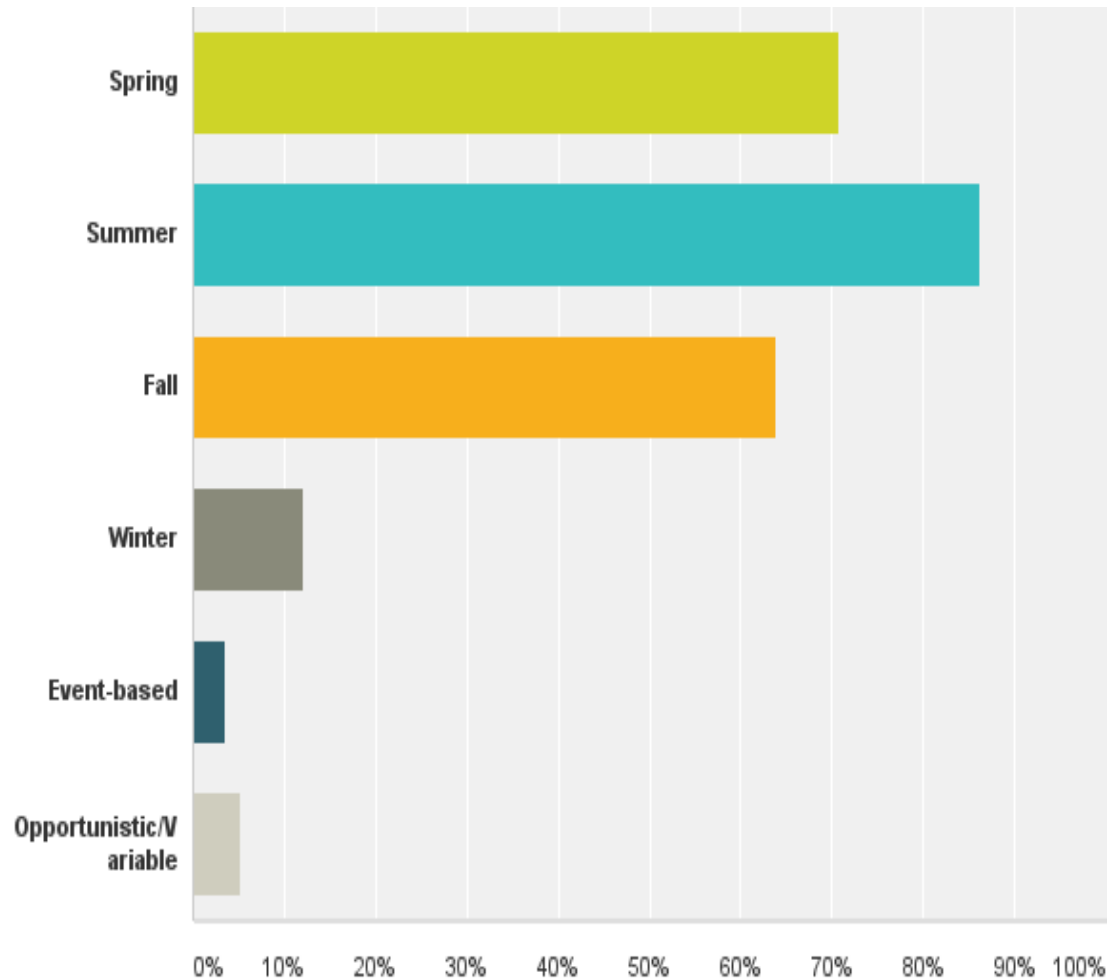
Resource component(s) where monitoring took place

| Answer Choices | Responses | |
|---|-----------|----|
| Atmosphere | 1.67% | 1 |
| Beach | 6.67% | 4 |
| Coastal wetland | 6.67% | 4 |
| Drowned river mouth / embayment | 20.00% | 12 |
| Estuary | 1.67% | 1 |
| Ground water | 0.00% | 0 |
| Harbor | 15.00% | 9 |
| Inland lake | 33.33% | 20 |
| Lake | 25.00% | 15 |
| Lake bottom (benthic province) | 13.33% | 8 |
| Lake Michigan - Medium nearshore (between 30-80m depth for Lake Michigan) | 20.00% | 12 |
| Lake Michigan - Shallow nearshore (less than 30m depth for Lake Michigan) | 36.67% | 22 |
| Lake Michigan - Offshore (greater than 80m depth for Lake Michigan) | 15.00% | 9 |
| River mouth | 15.00% | 9 |
| River/Stream mainstem | 26.67% | 16 |
| River substrate | 3.33% | 2 |
| Shoreline | 8.33% | 5 |
| Tributary | 23.33% | 14 |
| Stormwater conveyance system | 1.67% | 1 |
| Water column (variable depths; pelagic province) | 25.00% | 15 |
| Water treatment facility intake | 0.00% | 0 |
| Total Respondents: 60 | | |

Media monitored

| Answer Choices | Responses | |
|------------------------------|-----------|----|
| Air | 0.00% | 0 |
| Algae | 14.04% | 8 |
| Amphibians | 3.51% | 2 |
| Birds | 1.75% | 1 |
| Carcasses - birds | 0.00% | 0 |
| Carcasses - fish | 0.00% | 0 |
| Dunes | 0.00% | 0 |
| Fish | 43.86% | 25 |
| Invertebrates | 33.33% | 19 |
| Phytoplankton | 24.56% | 14 |
| Sediment - lake | 14.04% | 8 |
| Sediment - river | 3.51% | 2 |
| Sediment - suspended | 5.26% | 3 |
| Tissue | 7.02% | 4 |
| Vegetation | 14.04% | 8 |
| Water | 61.40% | 35 |
| Waterfowl | 0.00% | 0 |
| Zooplankton | 17.54% | 10 |
| Total Respondents: 57 | | |

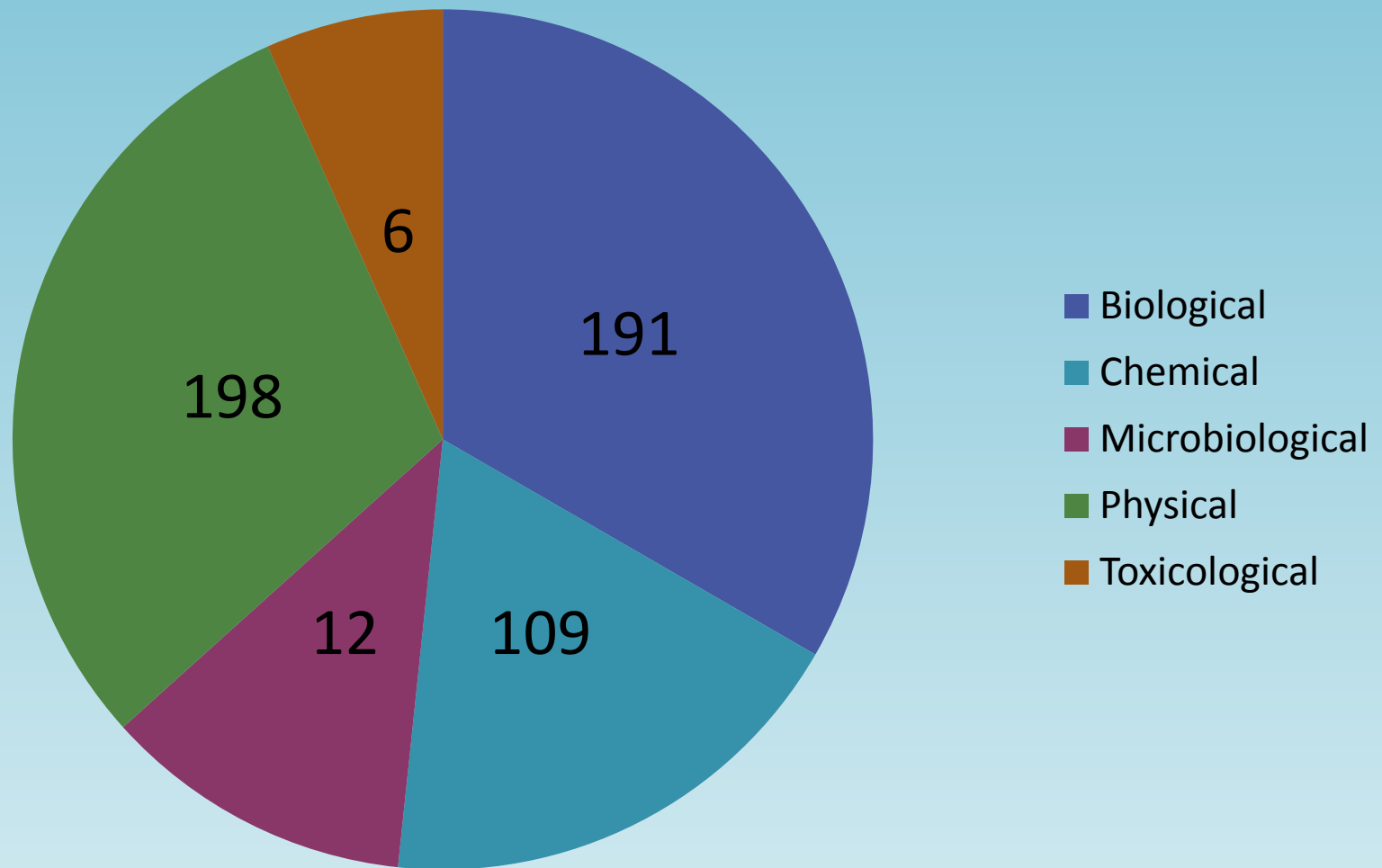
Sampling period when monitoring was conducted



Sampling frequency of the monitoring

| Answer Choices | Responses | |
|------------------------------|-----------|----|
| Every five years | 7.14% | 4 |
| Biennially (every two years) | 3.57% | 2 |
| Annually | 33.93% | 19 |
| Semiannually (twice yearly) | 19.64% | 11 |
| Triannually (3 times/year) | 5.36% | 3 |
| Quarterly | 1.79% | 1 |
| Monthly | 23.21% | 13 |
| Semimonthly (twice monthly) | 10.71% | 6 |
| Weekly | 25.00% | 14 |
| Semiweekly (twice weekly) | 3.57% | 2 |
| Daily | 3.57% | 2 |
| Continuous | 8.93% | 5 |
| Single event | 7.14% | 4 |
| Not applicable | 1.79% | 1 |
| Total Respondents: 56 | | |

Parameters Sampled by Category – Number of Projects



Sampling Platform

- Hundreds identified in the inventory.
- Many share common types of equipment.
 - ✓ Project personnel could use inventory to identify partners to share equipment or collaborate.
 - ✓ LMMCC could maintain an inventory to facilitate this.

(Any interest in this?)

Include project/data in USGS SiGL Mapper?

| Answer Choices | Responses |
|--|-----------|
| Yes | 40.38% 21 |
| No | 28.85% 15 |
| I would like to be contacted with more information on the SiGL mapper before I decide. | 30.77% 16 |
| Total | 52 |



Lake Michigan Monitoring Coordination Council



Project Outcomes

- Increased stakeholder participation in the LaMP
 - ✓ Collaborative monitoring
 - ✓ Data sharing and coordination
- Strengthened dissemination of information on monitoring of various resource components and locations
- Identifies projects that provide monitoring backbone for implementation of priority restoration and protection efforts – *determined by monitoring data*
- More informed and improved management of monitoring programs and resources

Lake Michigan Monitoring Coordination Council

Thank you for your participation!

John Hummer

jhummer@glc.org

<http://glc.org/projects/water-quality/lmmcc/>



Lake Michigan Monitoring Coordination Council

