Smallmouth Bass in Door County

Door Co. SMB Mgt. Mtg.
Sturgeon Bay, WI
15 October 2019
Bassmaster's 100 Best Bass Lakes of 2014 announced

By James Hall
APR 28, 2014
Bassmaster Magazine's annual ranking of America's top bass waters has been announced. Lake Maracaibo in Venezuela beat out the hotspots in California, Texas and California to take the No. 1 spot. Door County took the No. 4 spot.
The Smallmouth Fishery

• Diverse opportunities, diverse interests
  – Bass mecca (sport fishers/tournaments/guides)
  – Shore/family opportunities
  – Catch and release predominant

• Why does Door County have such a good smallmouth population?
  – Quality habitat for all life stages
  – Areas protected from high energy
  – Abundant forage
  – Moderate harvest
Smallmouth Bass Assessments

- **Spring population assmnt.**
  - Pre-spawn period (mostly adults)
  - Rotate among populations
  - Fish Creek area minim. sampled

- **Smallmouth YOY (recruits)**
  - Inconsistent results
  - Mini fyke nets/seining
  - Goby interaction
  - Year class strength
  - Stock-recruitment relationship?

- **Snorkeling assessments**
  - Nest success
    - Goby impacts
    - Angling pressure
Adult Assessment Data
Catch Per Unit Effort

- Index of relative abundance
  - Spring fyke netting
  - Need consistency in sampling time, conditions

![Graph showing catch per unit effort over time for different species.](image-url)
Sturgeon/Little Sturgeon Bay

Good recruitment......

Improved growth......
Sturgeon Bay Size Structure

Percentage of Fish in Increment vs. Length Increment (inches)

- 2009
- 2015
- 2017
- Cheq Bay 18-19
Good recruitment historically
  - Recently diminished
  - CPE decline 2012-2016 but increased in 2018 by nearly 2x
Growth

Chequamegon Bay

Predicted Length (mm)

Age (yrs)

Little Sturg/Sturgeon Bay

Washington Island 2014

Predicted Total Length (in.)
Relative Stock Density

<table>
<thead>
<tr>
<th>Location</th>
<th>YEAR</th>
<th>RSD-18*</th>
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</thead>
<tbody>
<tr>
<td>Sturgeon Bay/Little Sturgeon</td>
<td>2009</td>
<td>24</td>
</tr>
<tr>
<td>Sturgeon Bay/Little Sturgeon</td>
<td>2015</td>
<td>18</td>
</tr>
<tr>
<td>Rowley Bay</td>
<td>2012</td>
<td>17</td>
</tr>
<tr>
<td>Washington Island</td>
<td>2014</td>
<td>23</td>
</tr>
</tbody>
</table>

- Typically near or above statewide 95th percentile

*No. fish > 18” x100
No. fish > stock (7”)
Our mortality estimates (A) in last couple years range from ~ 35%-40% depending on where and when sampled.

- But these are annual, NOT pooled like CB
- Also using mostly scale samples so estimates may be inaccurate to a point
- But I also selected for ages with largest samples and more confident age ranges
- Further evaluation needed to refine our estimates
Recruitment

• Young-of-year (YOY) index
  – Typical for other species – challenging for smallmouth
  – Beach seine
  – Mini-fyke net

• Index of production
  – Late summer/early fall
  – Forecast year class strength?
  – Year class set?
# Beach Seining*

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>WA Island (Detroit Harbor)</td>
<td>-</td>
<td>-</td>
<td>1.5 (9)</td>
<td>-</td>
<td>-</td>
<td>0.5 (8)</td>
</tr>
<tr>
<td>Newport State Park</td>
<td>15 (5)</td>
<td>9 (6)</td>
<td>0 (7)</td>
<td>3 (3)</td>
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<td>-</td>
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<tr>
<td>Rowley Bay/Mink R</td>
<td>1 (2)</td>
<td>0 (4)</td>
<td>0.5 (2)</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>North Bay</td>
<td>50 (7)</td>
<td>6 (6)</td>
<td>1.5 (3)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Moonlight Bay</td>
<td>4 (4)</td>
<td>3.5 (13)</td>
<td>0 (4)</td>
<td>2 (9)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Peninsula Park</td>
<td>?</td>
<td>3 (12)</td>
<td>3 (1)</td>
<td>?</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fish Creek</td>
<td>4 (6)</td>
<td>0 (1)</td>
<td>0 (1)</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>Egg Harbor</td>
<td>3 (3)</td>
<td>3 (5)</td>
<td>0 (2)</td>
<td>0.5 (3)</td>
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<tr>
<td>Murphy Park</td>
<td>1.5 (2)</td>
<td>1.5 (4)</td>
<td>1.5 (2)</td>
<td>0 (1)</td>
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<td>-</td>
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<tr>
<td>Stone Quarry</td>
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<td>66 (2)</td>
<td>4 (1)</td>
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<tr>
<td>Sunset Park</td>
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<td>39 (2)</td>
<td>1 (5)</td>
<td>1 (1)</td>
<td>-</td>
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<tr>
<td>Little Sturgeon</td>
<td>-</td>
<td>-</td>
<td>0 (1)</td>
<td>.5 (3)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sawyer Harbor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5 (3)</td>
</tr>
</tbody>
</table>

*Young of year per haul (No. hauls)
Recruitment

• Several apparent strong year classes entering Rowley Bay pop

• Seine (75’) haul of 335 mostly YOY and YRLNG smallmouth in 2018
  • Decent number of YOY in mini-fykes also

• But other hauls with considerably less which is typical
  • Still resulted in >100/haul
Sport Fishery Data
Catch rates

Prev. 15 yr avg.
Green Bay

Harvest
Concerns

• **Disease**
  – High prevalence of lesions in 2009 and 2015
  • VHS/secondary infection, *Columnaris* suspected in 2015
Concerns

• **Disease**
  
  – High prevalence of lesions in 2009 and 2015
    • VHS/secondary infection, *Columnaris* suspected in 2015

  – Diagnosis from 2016 **inconclusive**
    • Only able to rule out diseases - diagnosis pending
    • Prevalence appears to have been low since 2016 outbreak-few isolated reports

  – Larger fish appear pre-disposed to infections
    • Up to 15% infection in tournament-caught fish
      – Lower in overall population (7% and 12% Rowley Bay)
    • Have observed apparently healed fish
    • Apparently not happening elsewhere
Proportion of fish that are less than each observed length for each group of affected and unaffected fish in Rowley Bay 2016.

- Lesion1 = fish with most severe lesions
- Lesion2 = fish with minor or healed over lesions
- No-lesion = unaffected fish
Tournament Permits

![Bar Chart]

- **No. of Permitted Bass Tournaments/Sturgeon**
- **Bay Area**

- **Years**: 2007 to 2018

- **Legend**
  - 2007: 6
  - 2008: 4
  - 2009: 3
  - 2010: 5
  - 2011: 4
  - 2012: 7
  - 2013: 7
  - 2014: 7
  - 2015: 15
  - 2016: 12
  - 2017: 9
  - 2018: 7

- **Note**: The number of permitted bass tournaments and sturgeon varies annually.
Information Needs

• Better discrete population assessments (LMIFMP)
  – Recruitment surveys important

• Smallmouth movement characteristics – may help w/tournament management concerns
  – Acoustic telemetry
  – Receiver arrays (GLATOS)
Bass Movement

- Floy tagging during 2009 Sturgeon Bay area survey
- All but one of 53 survey recaps in same area tagged
- Of 79 angler recaps, 8 moved out of area of tagging
  - Most between SB and LS (9-10 mi)
  - Longest movement: Sturgeon Bay to Juddville (15.5 mi) and Sawyer Harbor to Murphy Park (11 mi)
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• Specific habitat requirements
  – Impacts from riparian and in water activities
  – Can we do better (e.g., Best Management Practices) to minimize fisheries impacts?
  – Estimating scale of dredging/solid structure impacts
Information Needs

• Aging error
  – Otolith sampling
Questions/Discussion