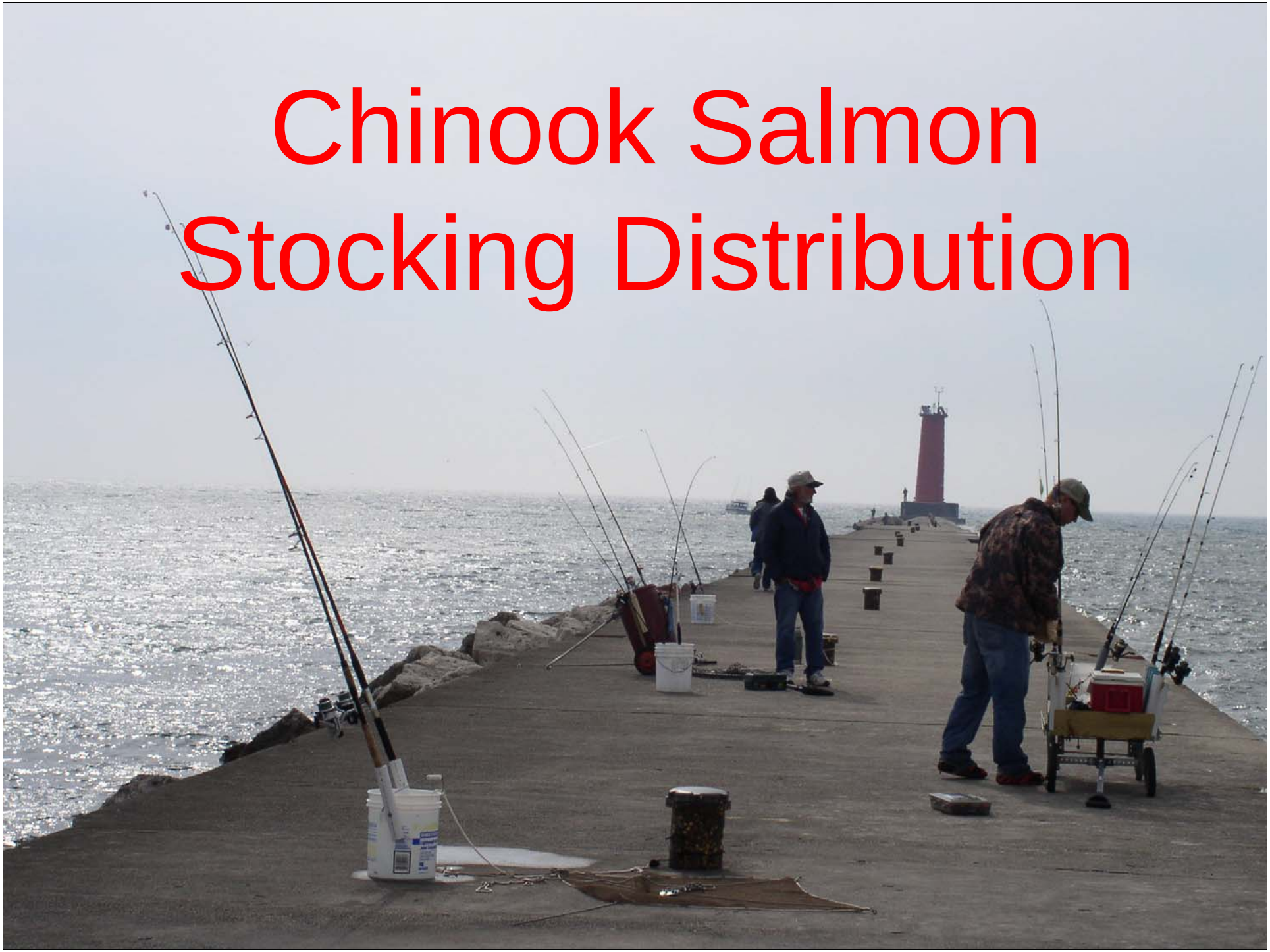
Chinook Salmon Stocking Distribution



Outline

- Salmonid Decision Analysis
- Stocking Allocation Model
- Strawberry Creek Analysis
- Fisheries Statistics
- Next Steps
- Questions and Comments

Lake Michigan Salmon Stocking Strategy Process Stakeholder Meetings

Lake Michigan Salmon Stocking Strategy Process
Summary of Stakeholder Meetings

Collaborative Process

- The stocking reductions in 1999 and 2006 were determined by agencies and brought to the public for comment.
- This process involved stakeholders from the beginning.

Workshop 1 - Stakeholder Meetings

- April 2011 in Michigan, June 2011 in Wisconsin

Workshop 2 Overview - Stakeholders

- November 5th Portage, Indiana

Workshop 3 Overview - Stakeholders

- January 23rd Chesterton, Indiana

Lake Michigan Salmon Stocking Strategy Process
Summary of Stakeholder Meetings

Workshop 4 – Stakeholders and public

• April 14, 2012, Benton Harbor, MI

Workshop 5

Milwaukee WI – May 1

Green Bay WI - May 8

• Reviewed information, presented stocking options, received Feedback, presented link to online survey for further comments

Workshop 6

Milwaukee WI – August 9

Green Bay WI - August 7

• Presented Lake Michigan Committee proposal to reduce Chinook salmon stocking, received feedback and comments

Lake Michigan Salmon Stocking Strategy Process - Approved

50% reduction in Chinook salmon lakewide

- Michigan will take larger percentage (66.8%)
- **Wisconsin's reduction will be 37.8%**

Wisconsin will reduce Chinook salmon stocking to **723,700** fish starting in 2013

Can reduce stocking of coho, rainbow, brown or lake trout in coming years to limit reductions in Chinook stocking

Will use the weight of female age 3+ Chinook salmon at Strawberry Creek Weir as the feedback to adjust stocking levels up or down in the future.

Salmon Stocking Allocation

Background

- Prior to 1985 stocking was done on an informal basis by local fisheries managers
- This practice led to
  - Too many fish requested from hatchery system
  - Imbalance between predator and prey
  - Provincialism in stocking numbers
- In 1986 a model was created to recommend stocking numbers for 1987

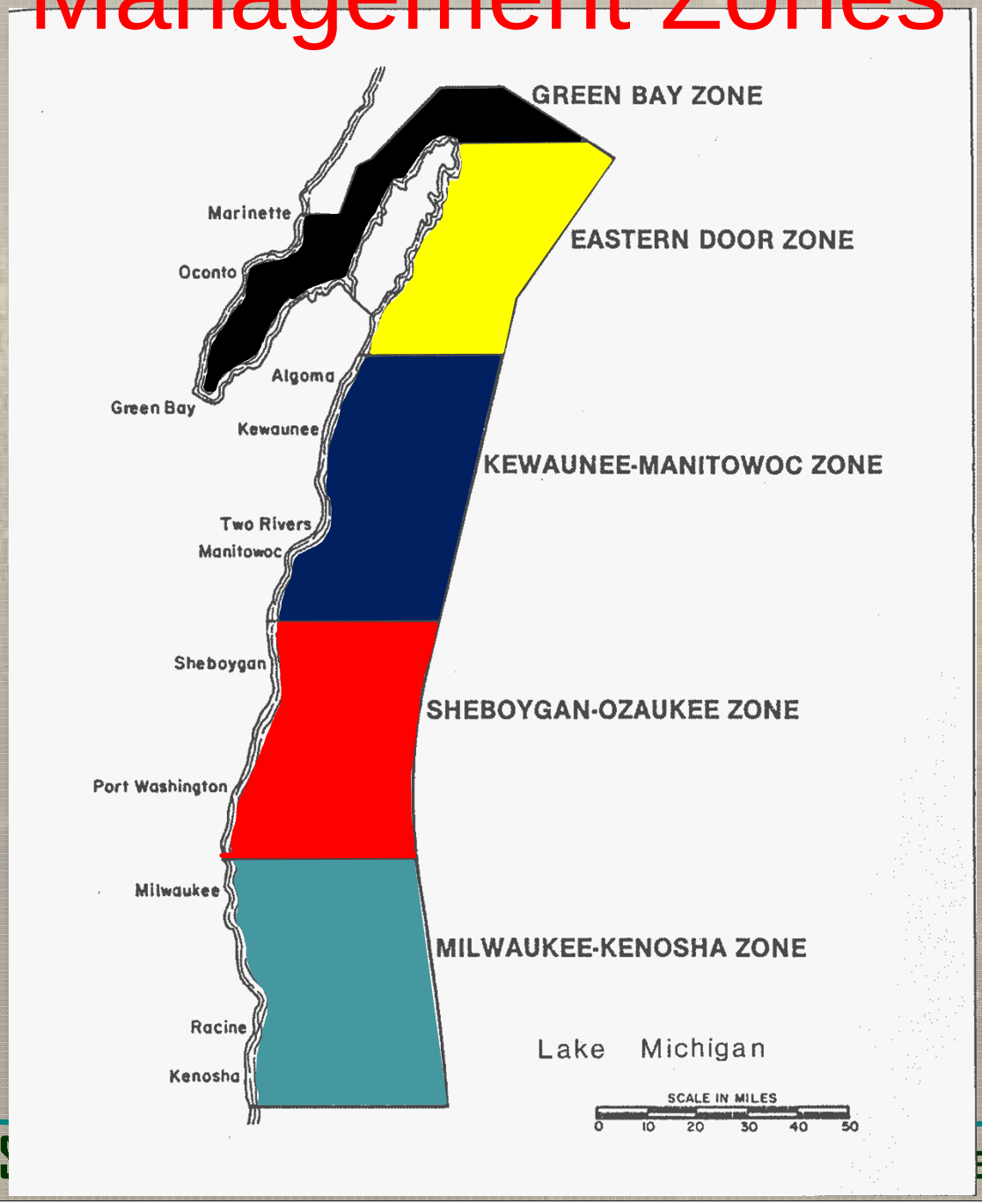
Model Inputs – Step 1

- Catch Objective – total number harvested from stocking numbers
- Species Preference
- Stocking required for catch objective
- Modify stocking based on forage availability
  - Weight of age 2+ salmon from the past 2 years
  - Total predation pressure

Model Inputs – Step 2

- Determine recommended stocking levels by management zone
  - Average of the past 3 years of harvest
  - Number of ramp aisles
  - Number of moored fishing boats
  - Length of piers
  - Length of shoreline
  - Stream length

Management Zones



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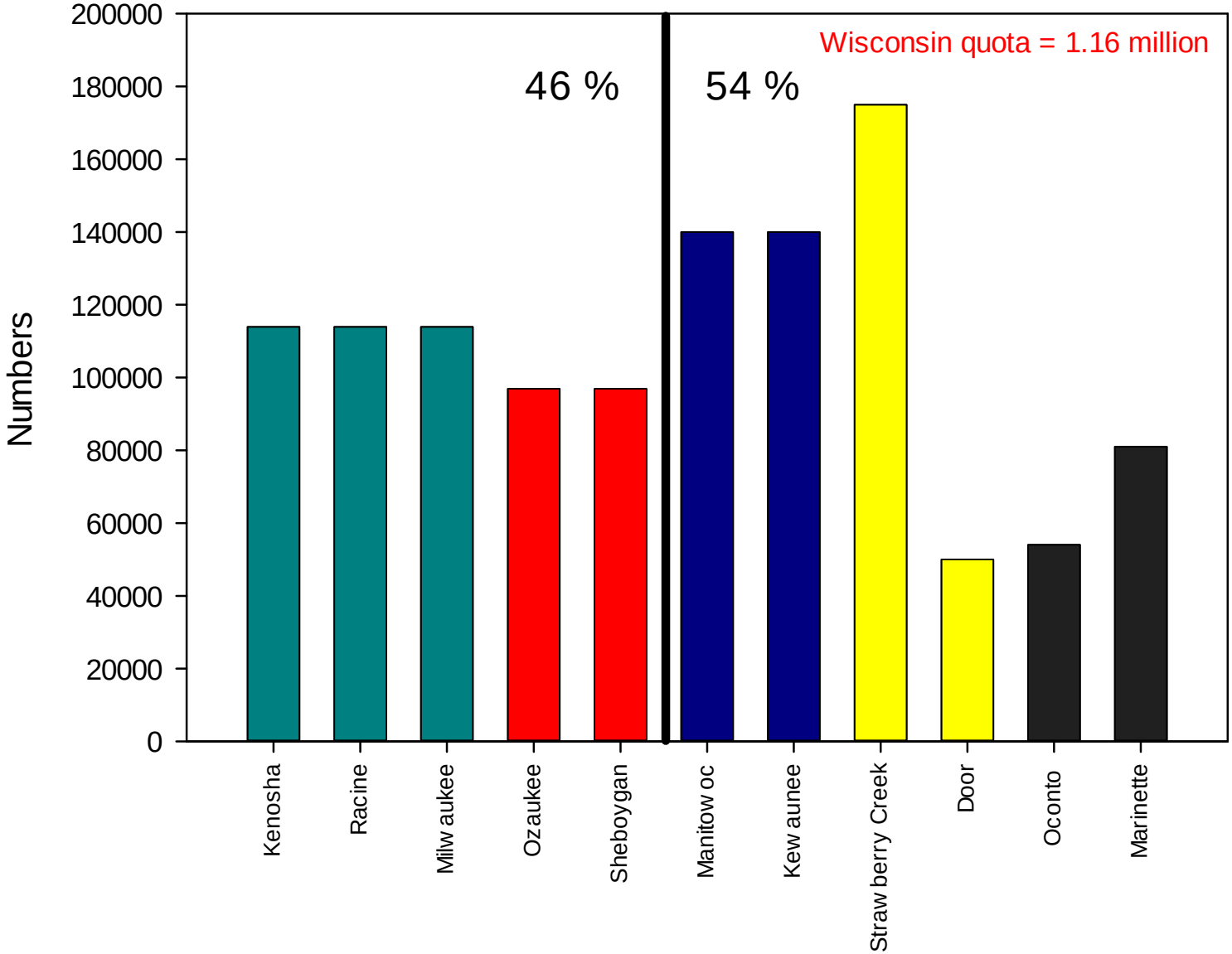
Current Quota Allocations by County Comparisons - 2012

Chinook Salmon



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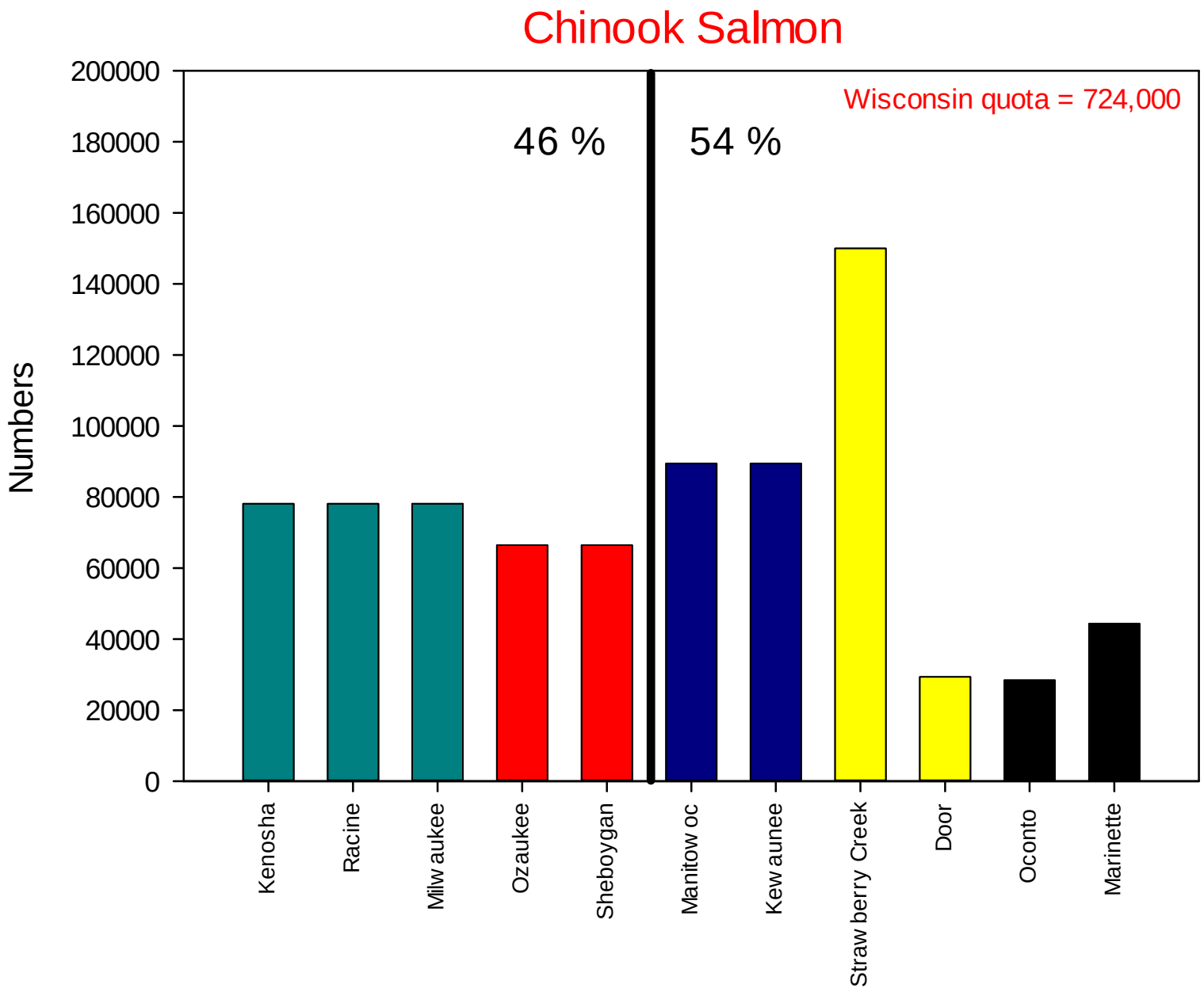
Current Quota Allocations by County Comparisons - 2013

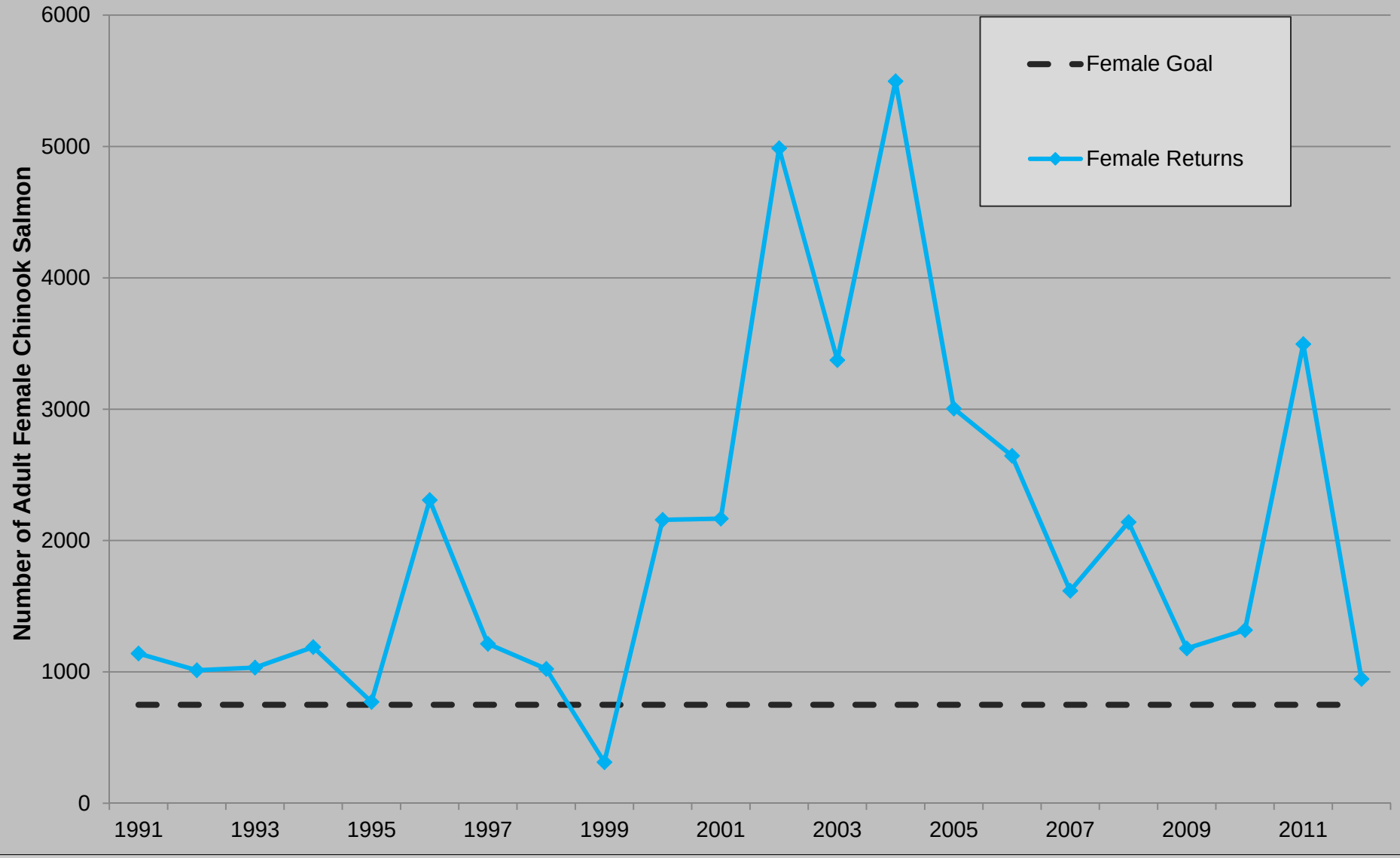


Strawberry Creek Analysis

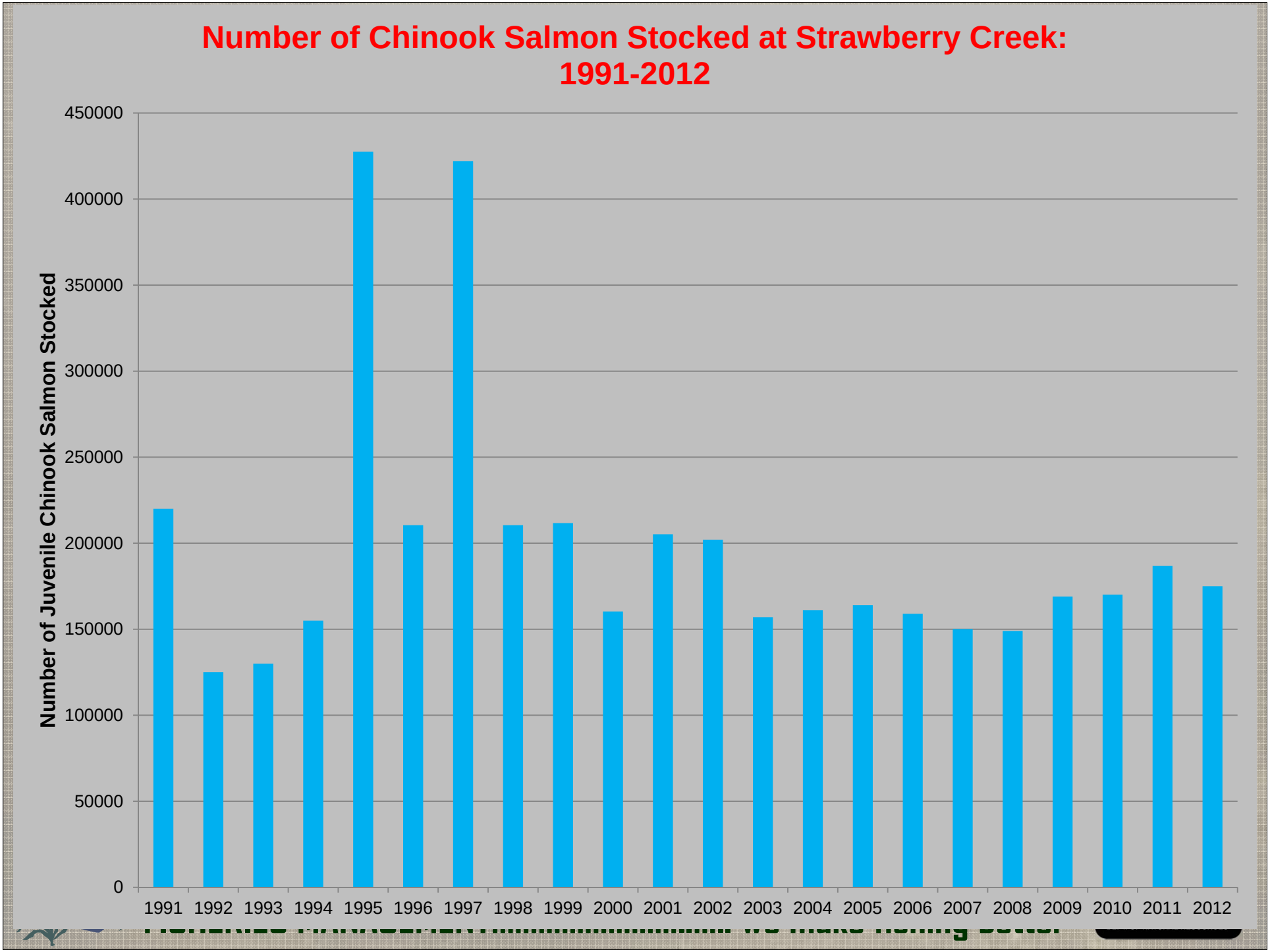
Egg Take Goal

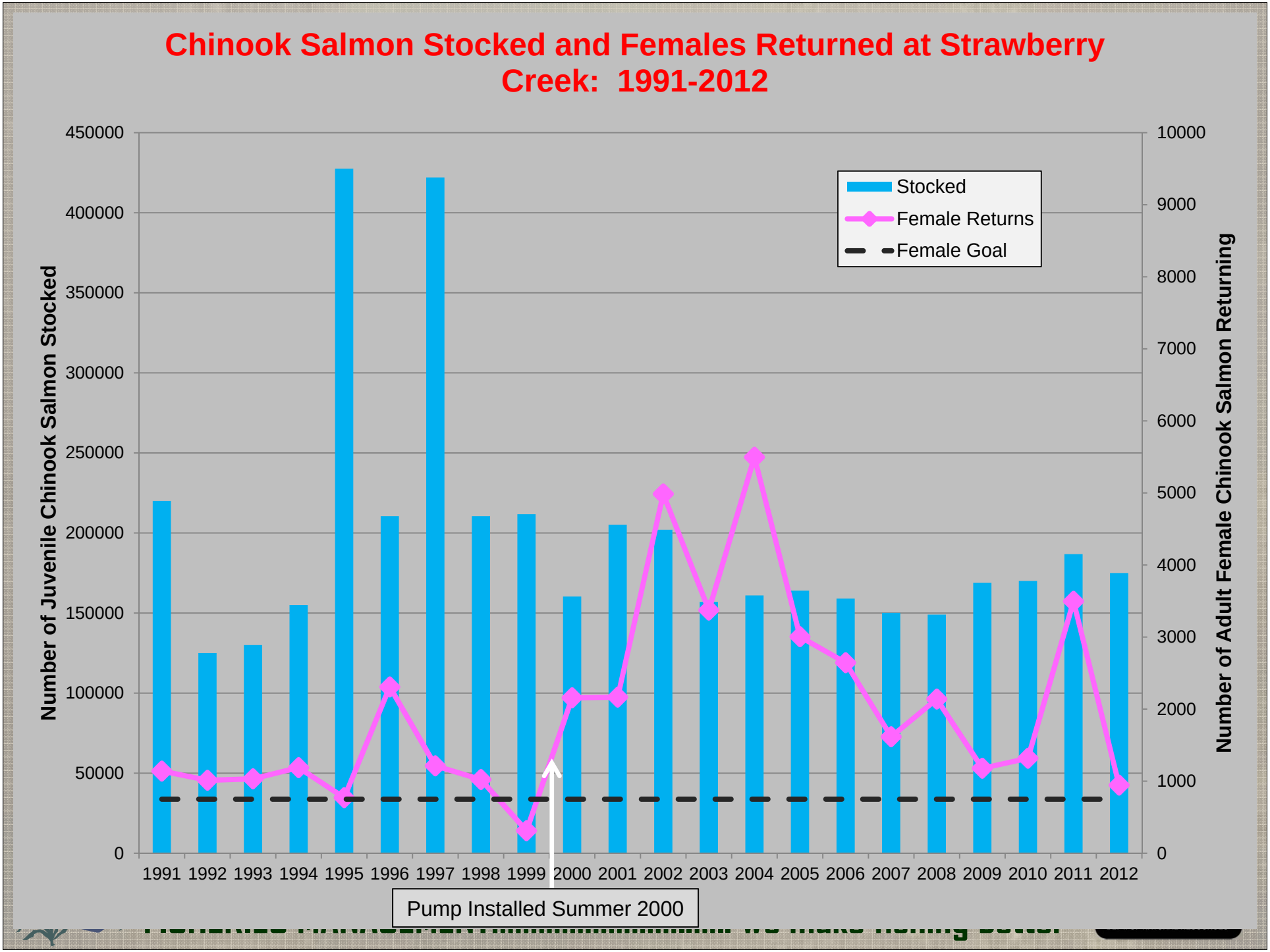
- Spawners Needed = 750 females; 750 males
  - Egg collection goal = 1.5 Million (more to account for mortality/hatching loss)
  - 1.5 million goal / 4,000 eggs per female = 375 females (Safety Factor -- multiply by 2 to account for green fish & disease = **750**)

Female Chinook Salmon Returns to Strawberry Creek Weir: 1991 to 2011



Note: Due to operation timing, pump operations, and other factors returns are not absolute and other factors besides abundance have influenced the numbers counted at the weir.


Number of Chinook Salmon Stocked at Strawberry Creek:
1991-2012
Number of Juvenile Chinook Salmon Stocked
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012


Chinook Salmon Stocked and Females Returned at Strawberry Creek: 1991-2012
Number of Juvenile Chinook Salmon Stocked
Number of Adult Female Chinook Salmon Returning
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Stocked
Female Returns
Female Goal
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
Pump Installed Summer 2000

Fisheries Statistics

- CWT Project
- Chinook salmon seasonal harvest
- Fall directed effort and harvest rate information
- License sale information

Coded Wire Tag

What hatchery,
where & when stocked?

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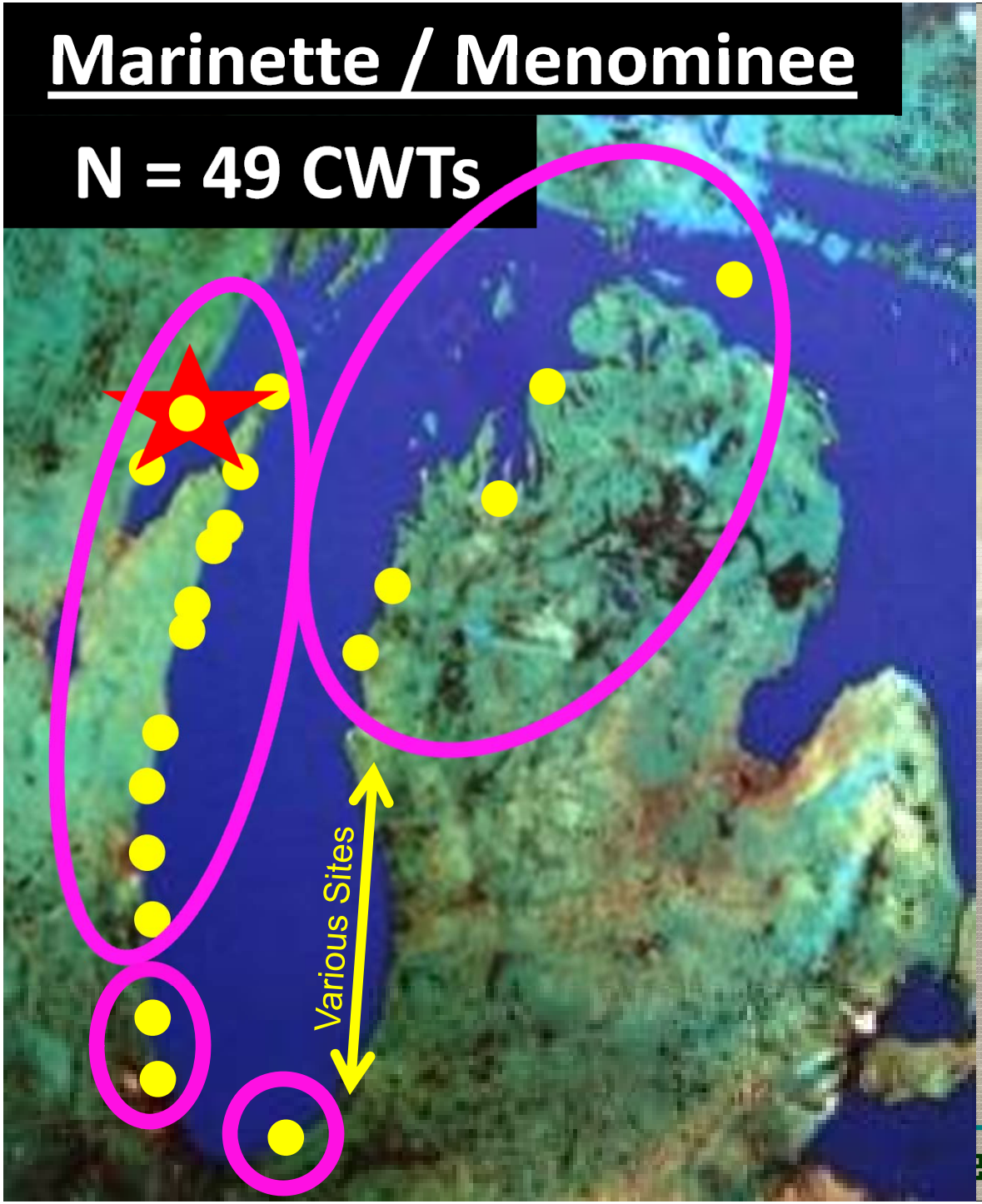
Automated Tagging Trailers

Automated Tagging Trailers

Automated Tagging Trailers

Marinette / Menominee

N = 49 CWTs



Preliminary Results 2012:

4 States

★ = Sampling Location

● = Stocking Sites

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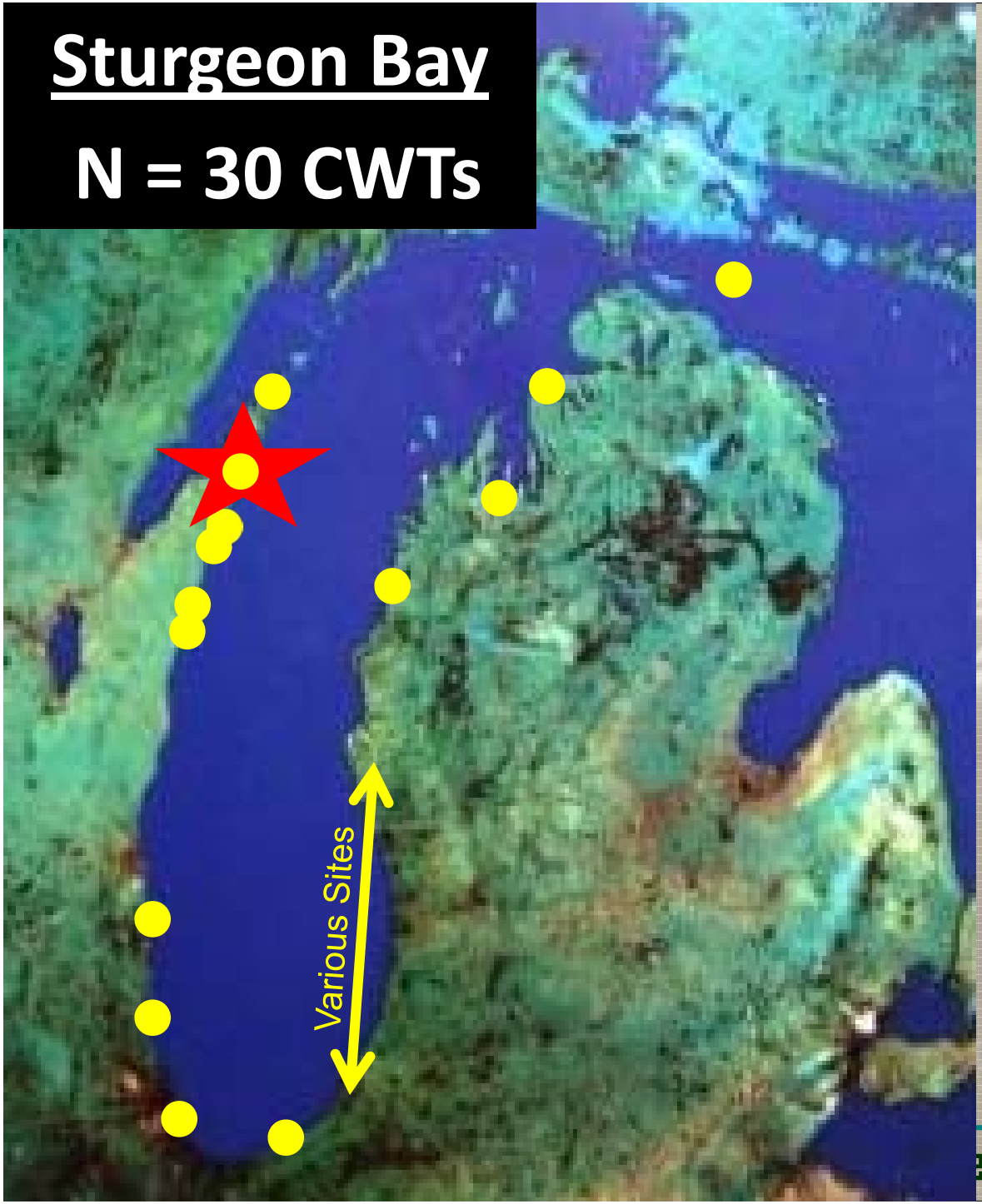

Preliminary Results 2012:

★ = Sampling Location

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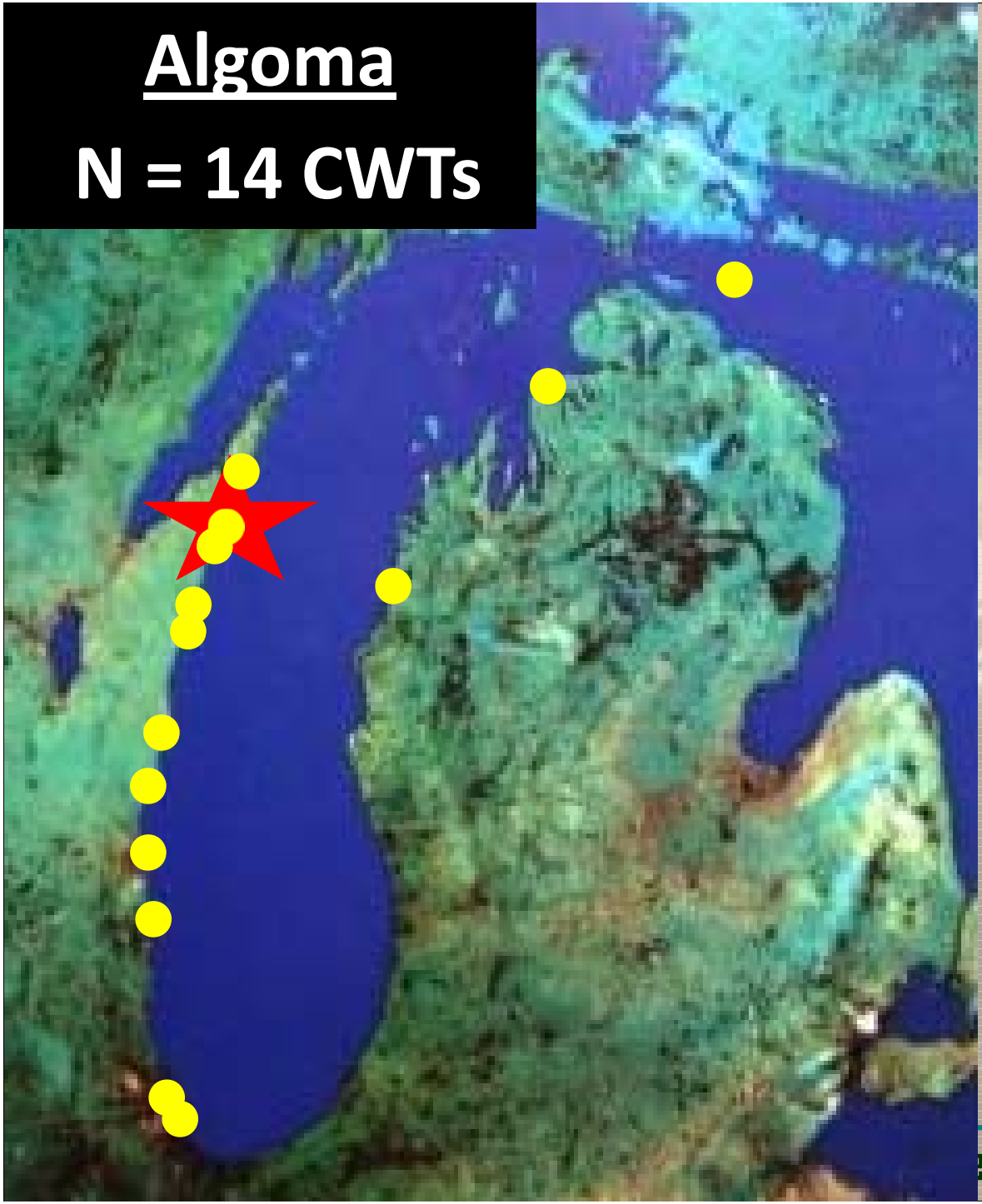
Algoma

N = 14 CWTs



Preliminary Results 2012:

★ = Sampling Location

● = Stocking Sites

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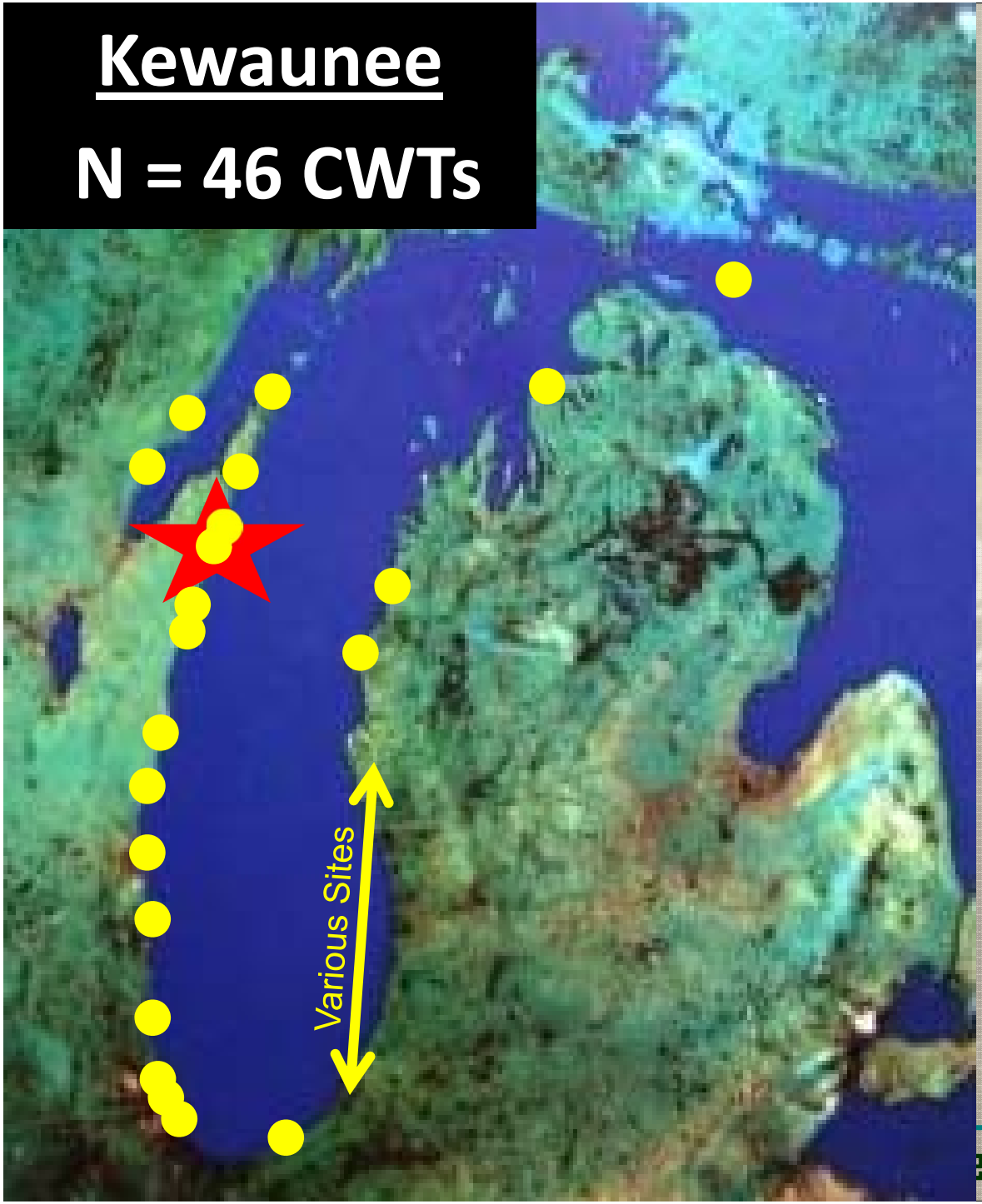
Kewaunee

N = 46 CWTs



Preliminary Results 2012:

★ = Sampling Location

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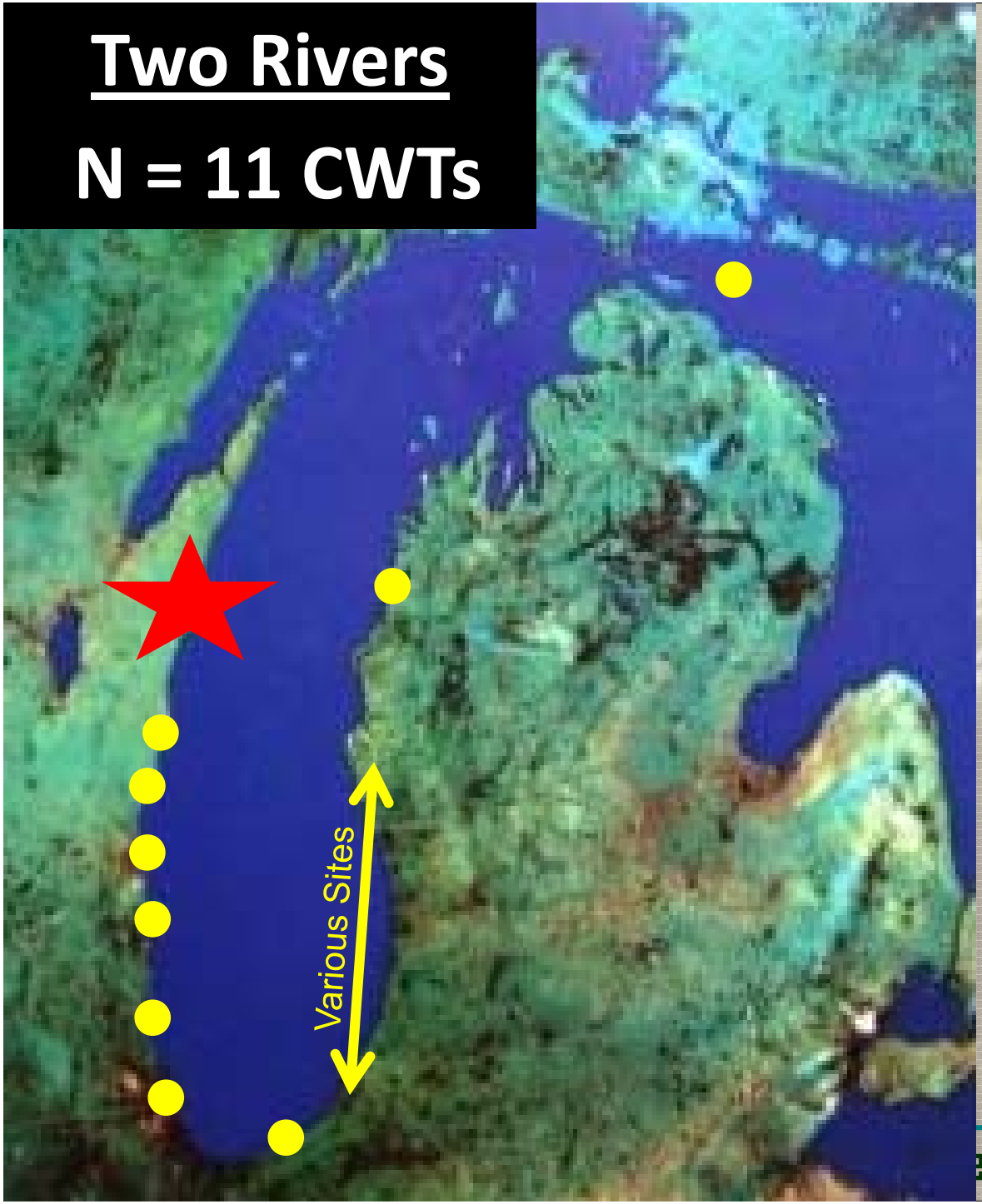
Two Rivers

N = 11 CWTs



Preliminary Results 2012:

★ = Sampling Location

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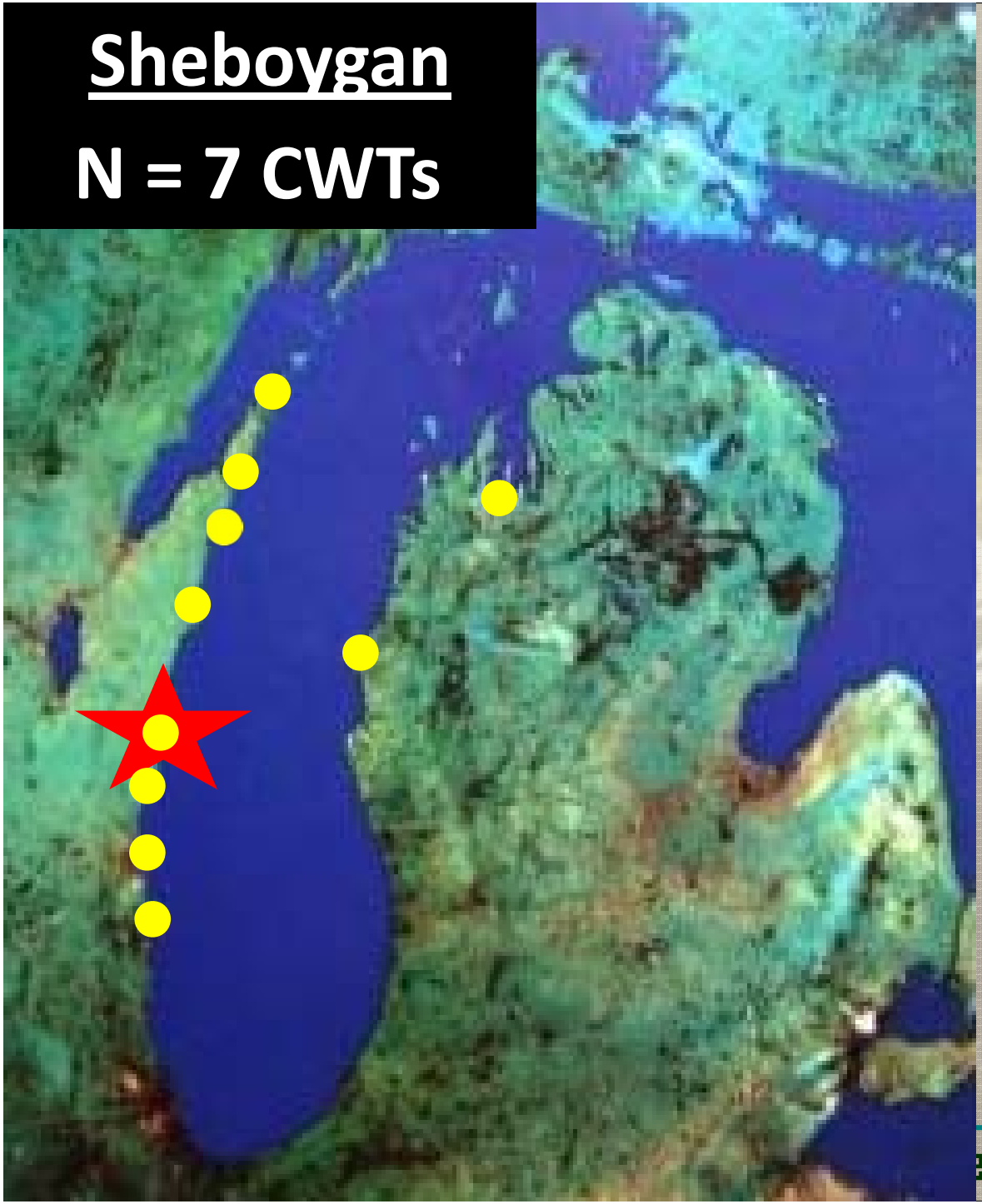
Sheboygan

N = 7 CWTs



Preliminary Results 2012:

★ = Sampling Location

● = Stocking Sites

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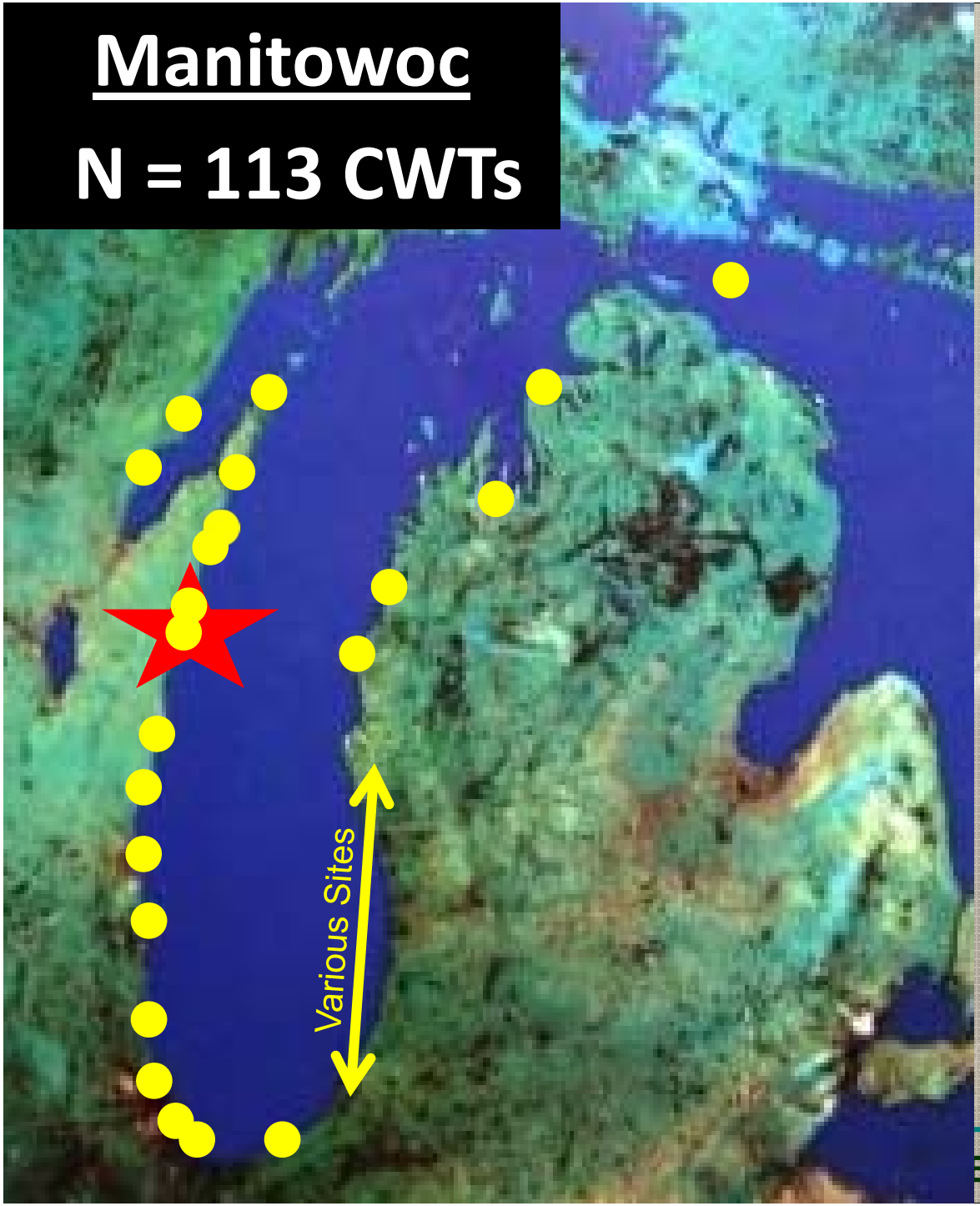
Manitowoc

N = 113 CWTs



Preliminary Results 2012:

★ = Sampling Location

● = Stocking Sites

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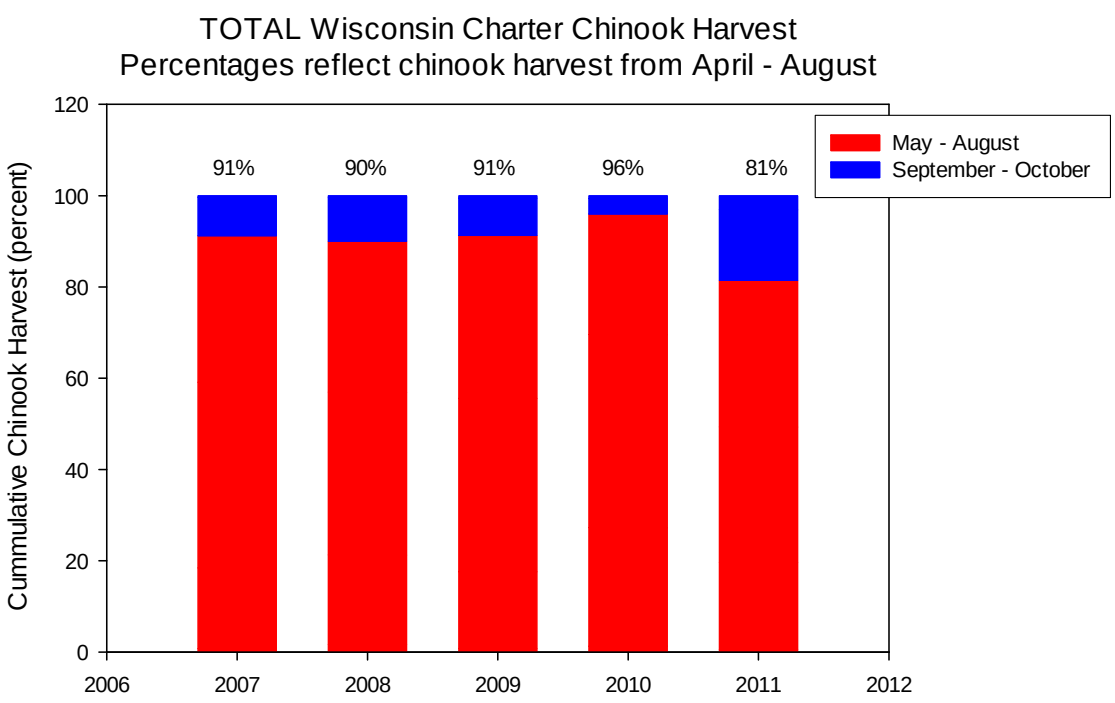
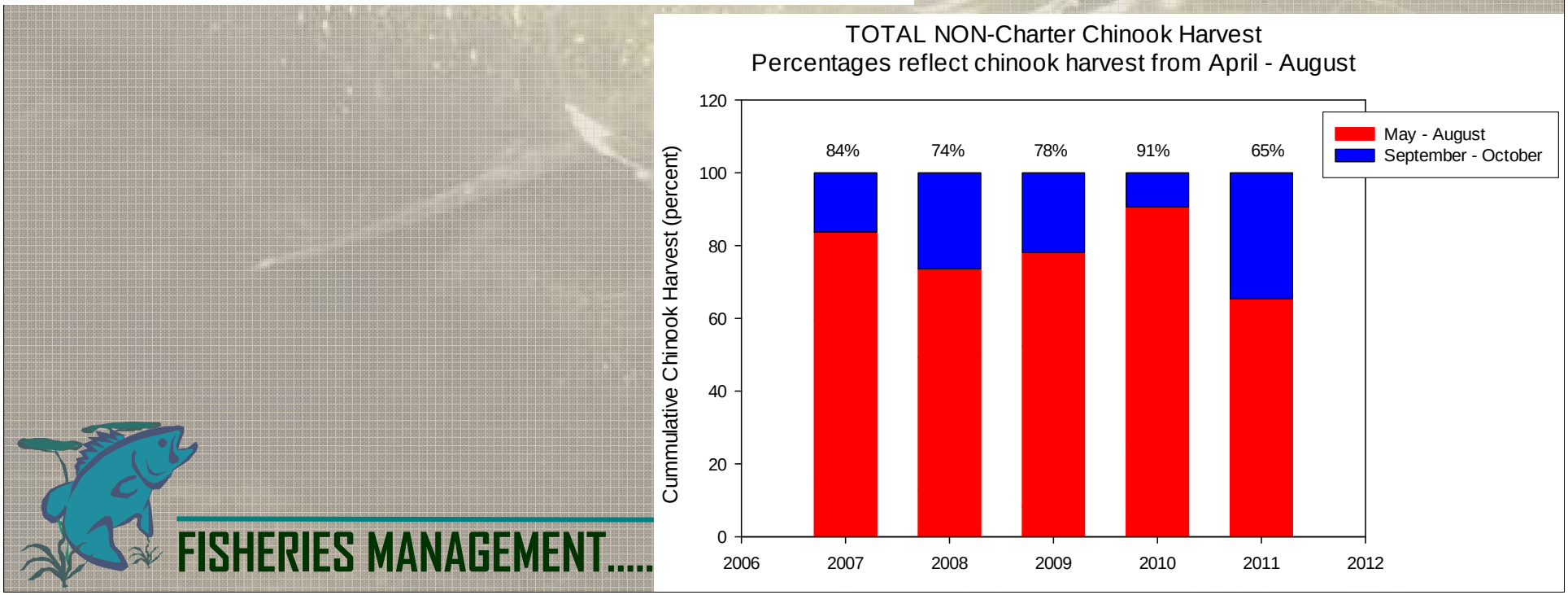
- CWT Project only preliminary – more information coming in 2 to 5 years

- Summer fishery – stocking location does not determine harvest location





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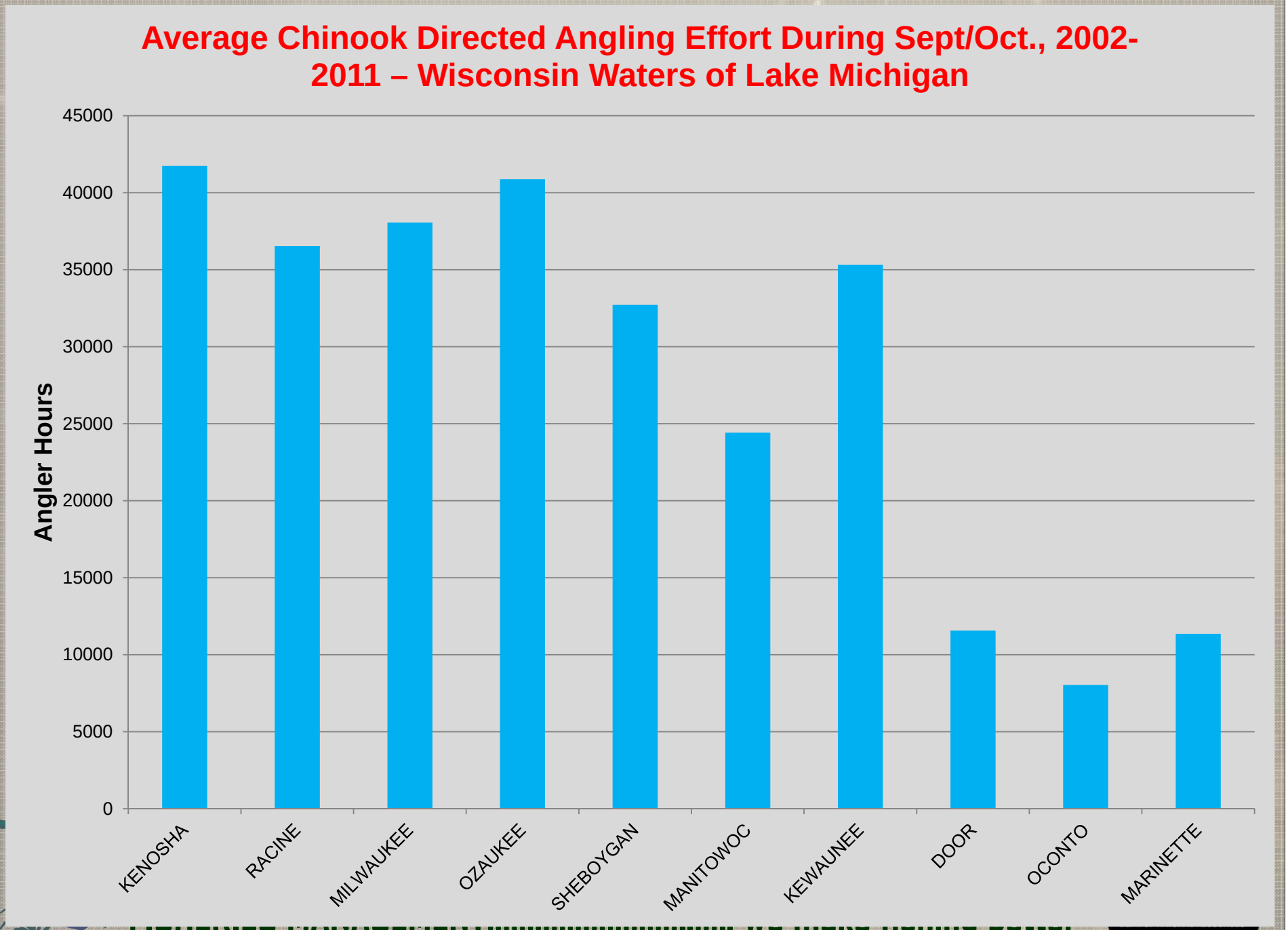
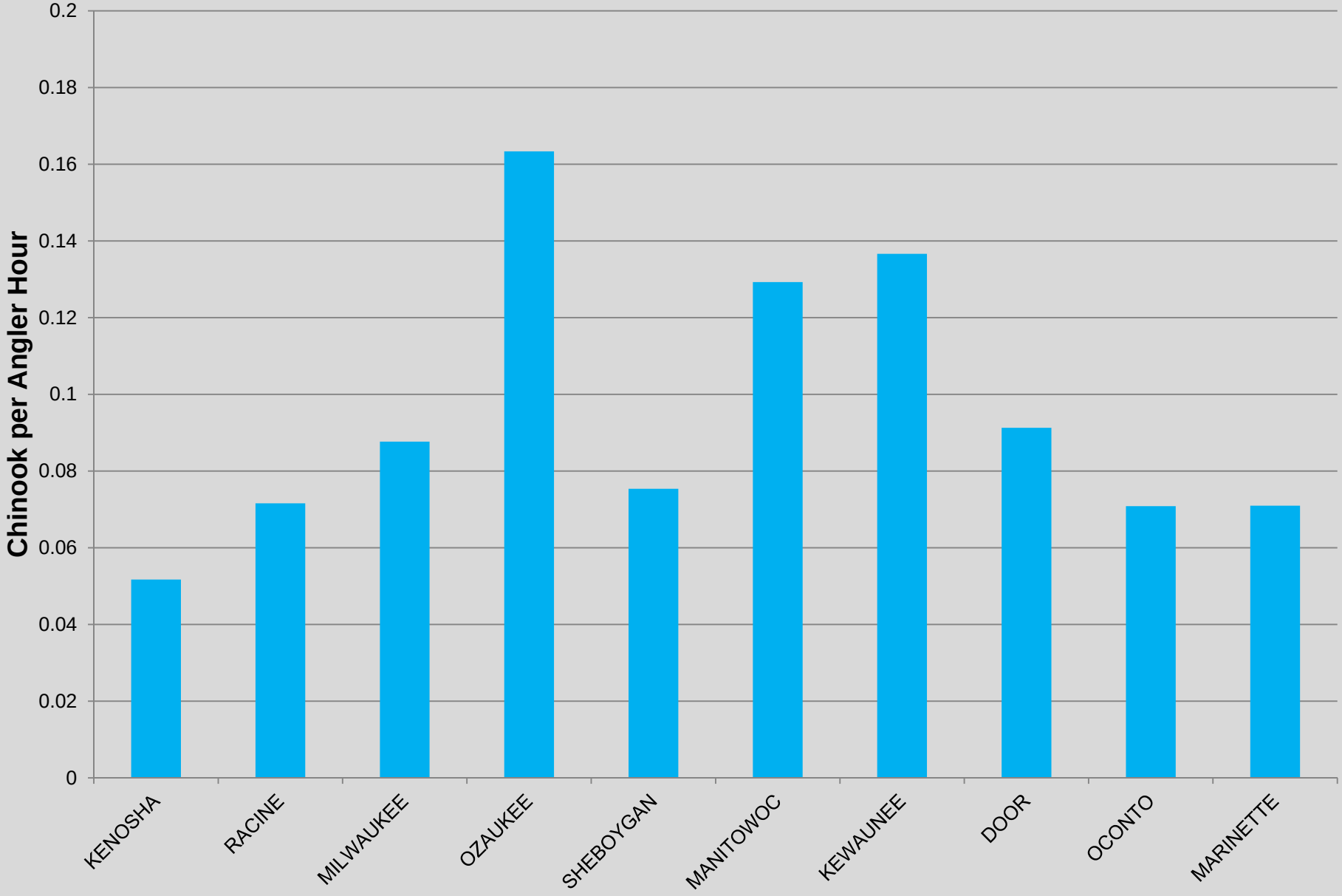
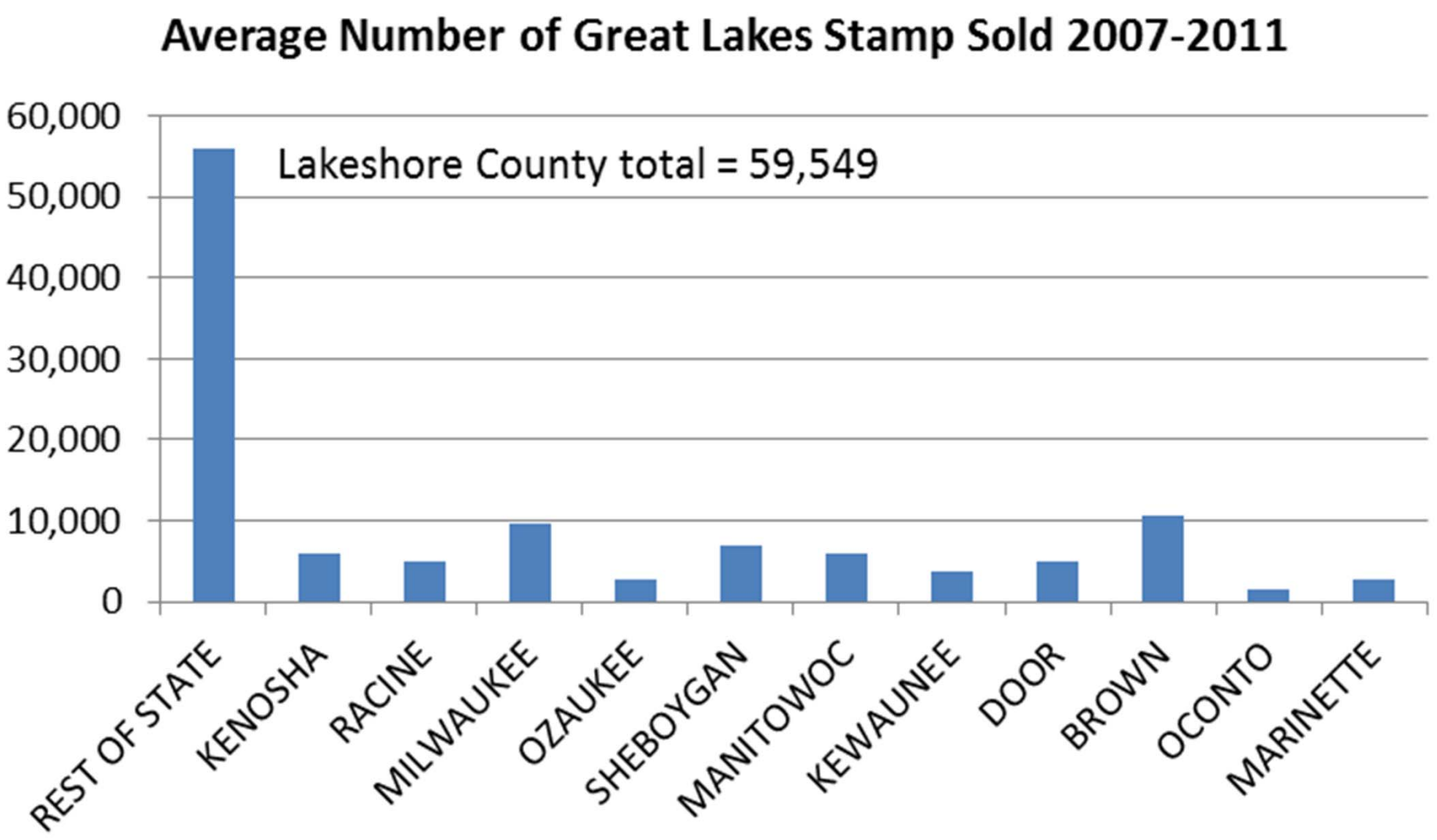

Average Chinook Directed Angling Effort During Sept/Oct., 2002-2011 – Wisconsin Waters of Lake Michigan
Angler Hours
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
KENOSHA
RACINE
MILWAUKEE
OZAUKEE
SHEBOYGAN
MANITOWOC
KEWAUNEE
DOOR
OCONTO
MARINETTE

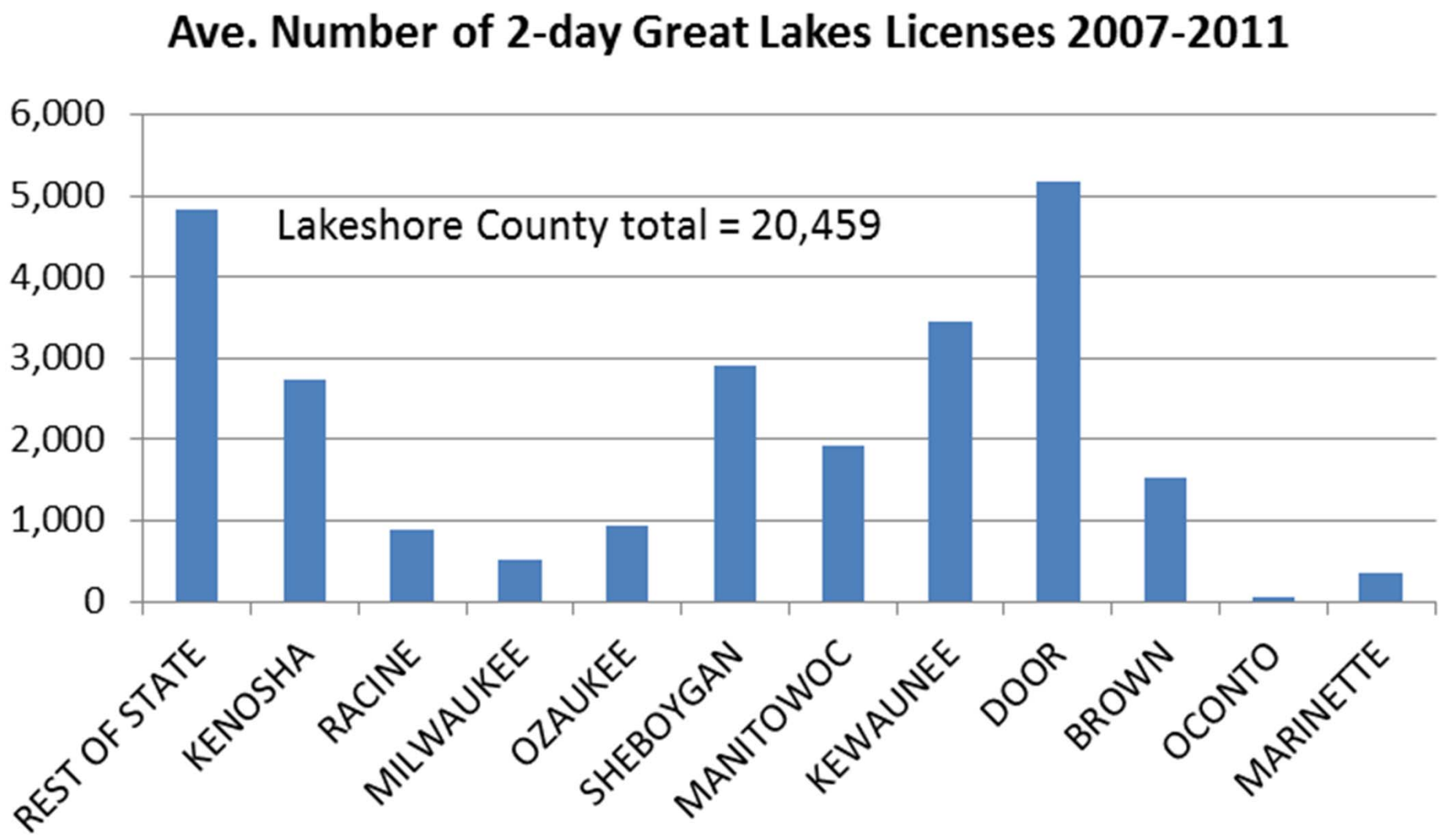
Average Chinook Harvest Rate Sept.-Oct., 2002-2011 – Wisconsin Waters of Lake Michigan



WDNR License Sales by County: Great Lakes Stamps



WDNR License Sales by County: 2-day Great Lakes Licenses



Next Steps

- Post presentations and other material to website – dnr.wi.gov/topic/fishing/lakemichigan
- Receive your input until December 17, 2012 via e-mail, phone or letter
  - Bradley.Eggold@wisconsin.gov
  - 414-382-7921
  - 600 E. Greenfield Ave, Milwaukee, WI 53204
- Must make final decision and plan for 2013 CWT project by Jan 3, 2013

Questions?

- Stock fewer numbers of other species in favor of more Chinook salmon?
- Strawberry Creek stocking levels?
- Change stocking numbers by port / locations?

Questions? Comments Discussion

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