

Salmon Stocking Allocation



FISHERIES MANAGEMENT..... we make fishing better



Outline

- Background on the need for the model
- Model inputs
- Model outputs
- Stocking allocations



FISHERIES MANAGEMENT..... we make fishing better



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

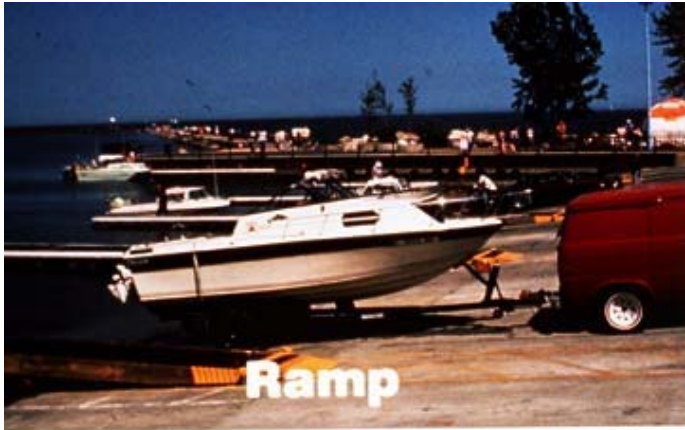
- Catch Objective – total number harvested from stocking numbers
- Species Preference
- Stocking required for catch objective
- Modify stocking based on forage availability
 - Weight of age 2+ salmon from the past 2 years
 - Total predation pressure



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





Ramp



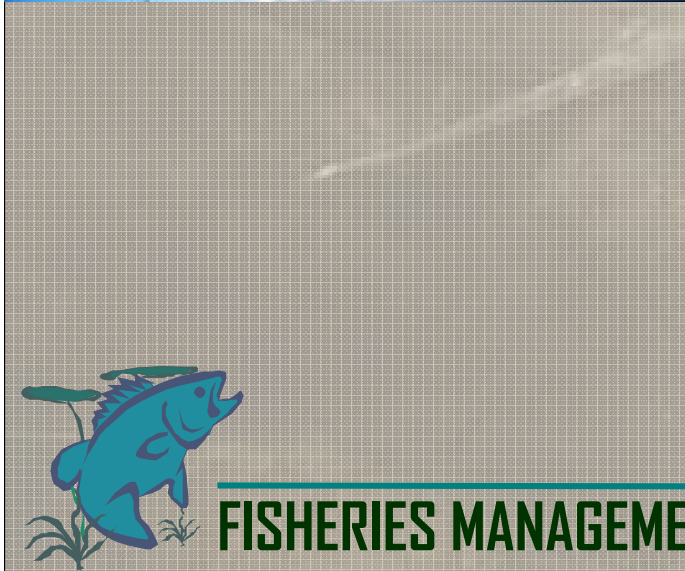
Pier



Shore



Stream



Flow Chart for Model

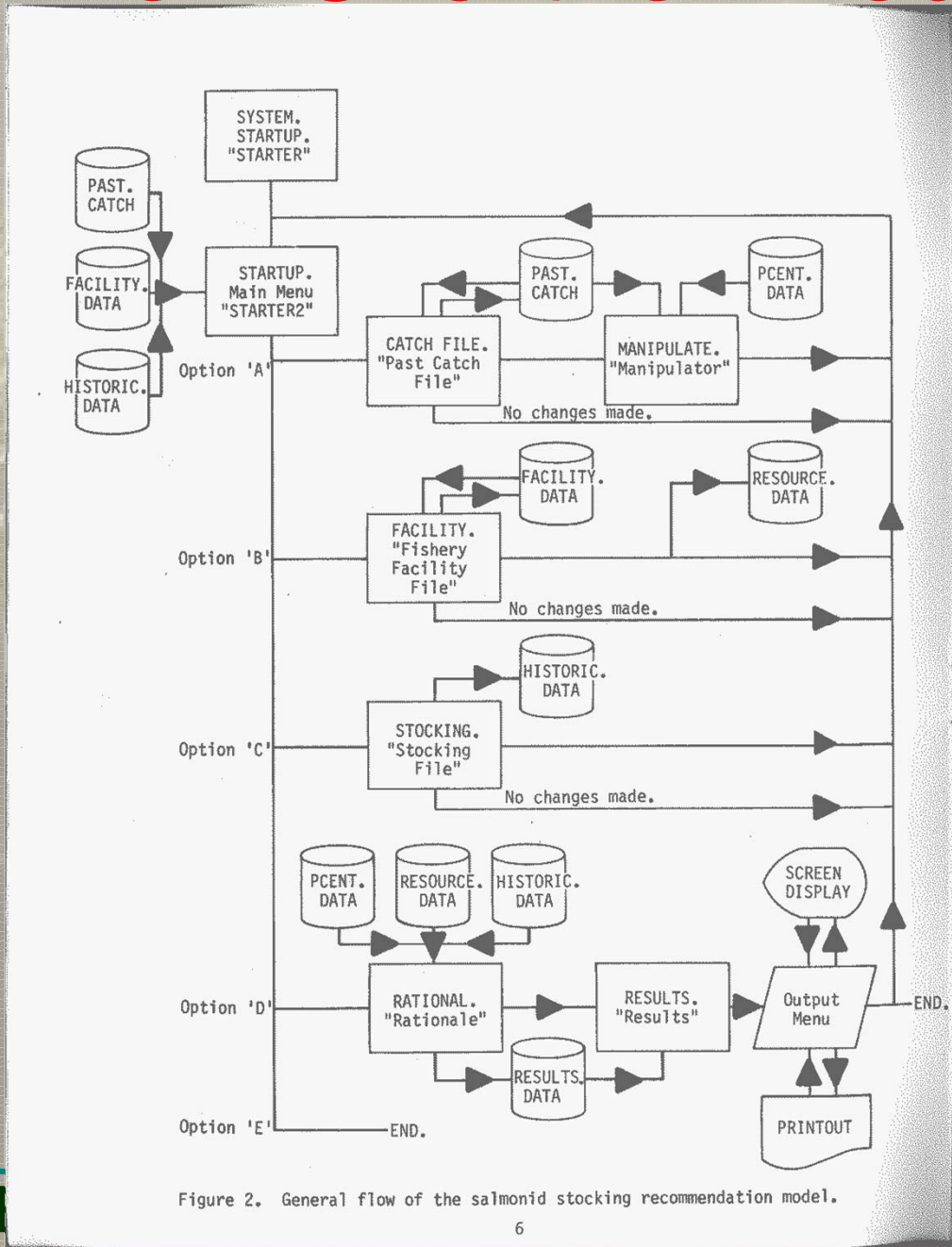
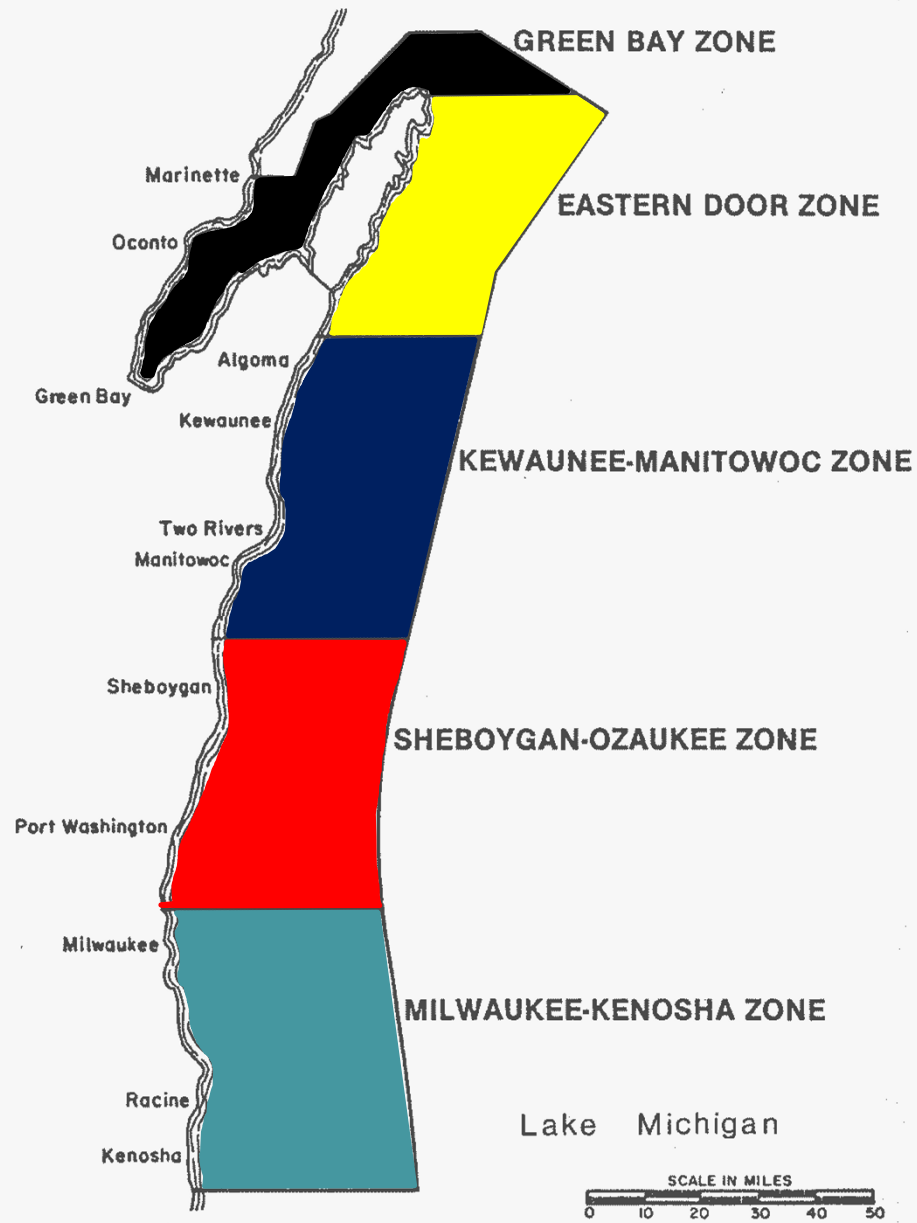


Figure 2. General flow of the salmonid stocking recommendation model.



Management Zones



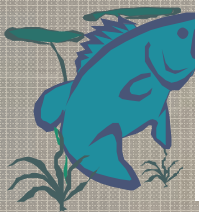
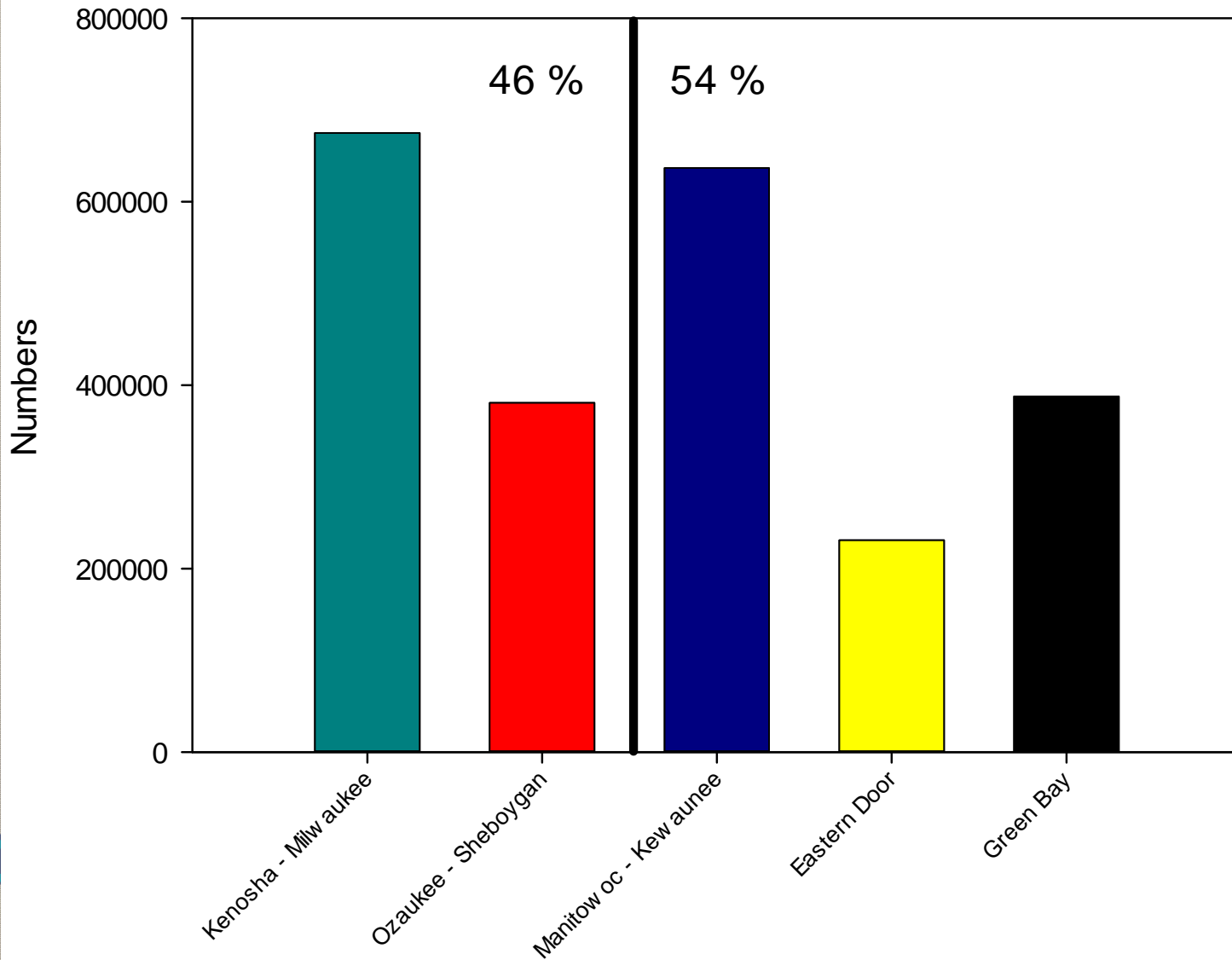
FISHERIES

etter

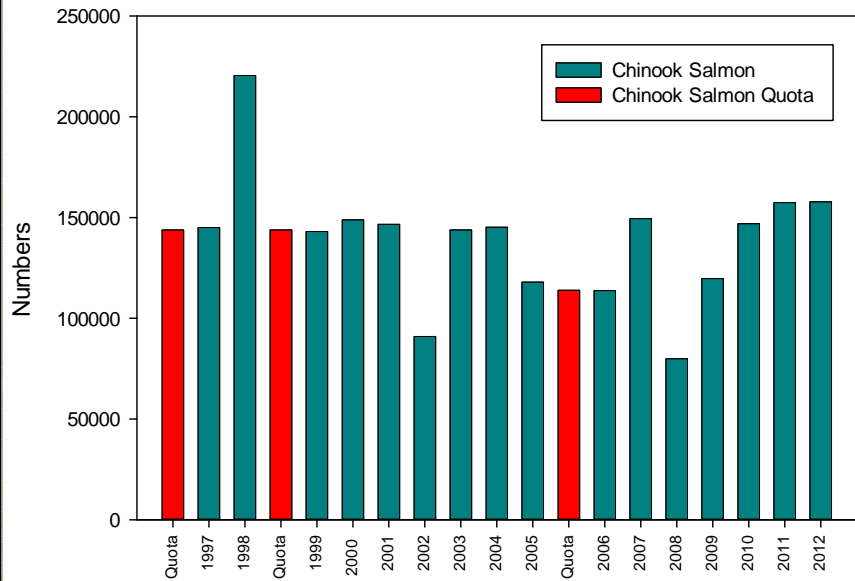


Model Output

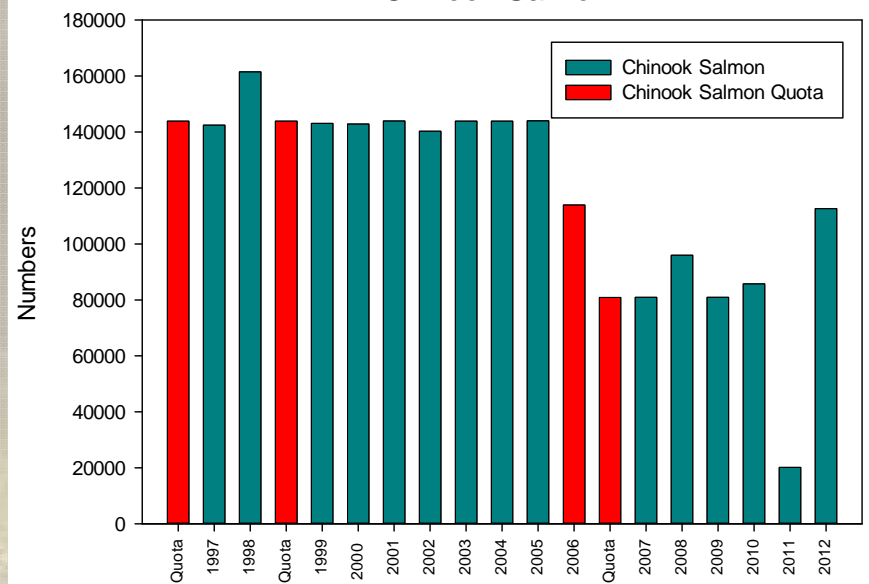
Figure 1. Quota Allocations by Management Zone - 1990
Chinook Salmon



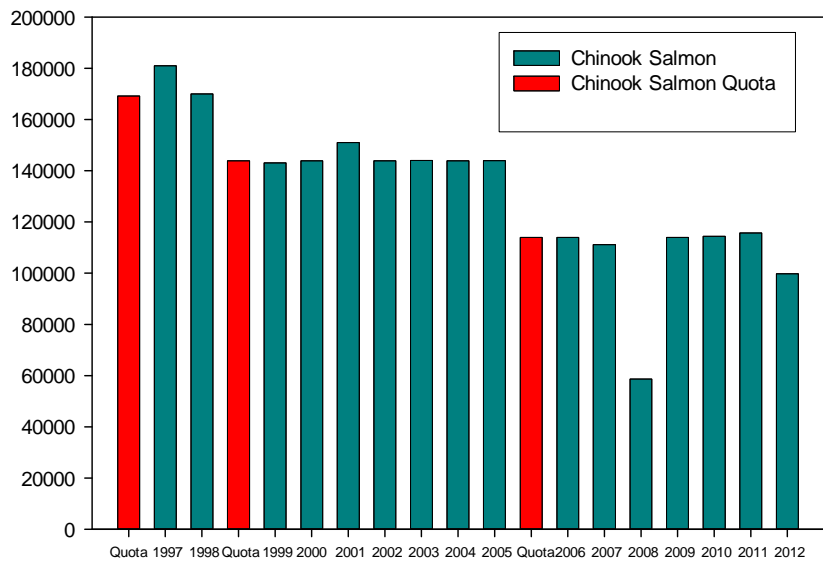
Kenosha County Salmon and Trout Stocking Comparisons
Chinook Salmon



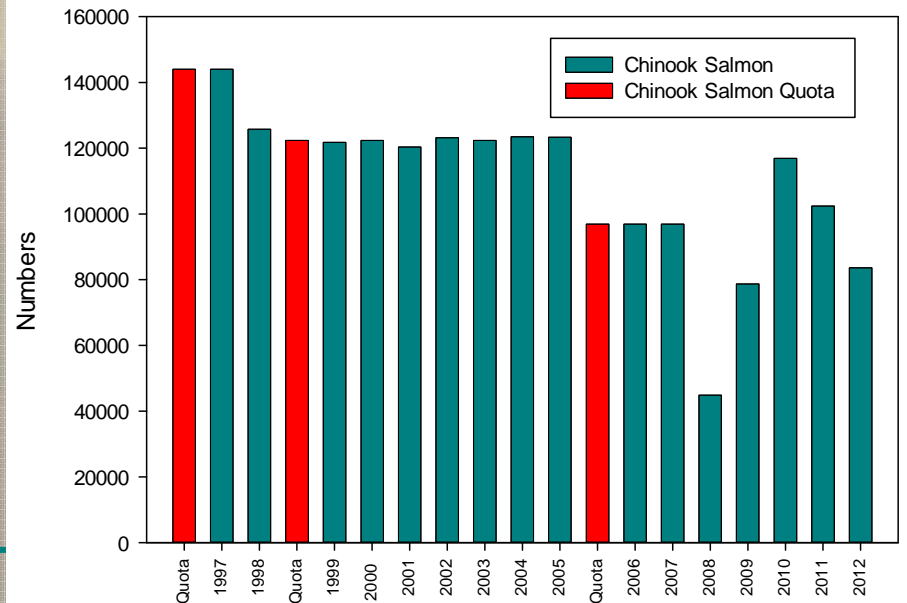
Racine County Salmon and Trout Stocking Comparisons
Chinook Salmon



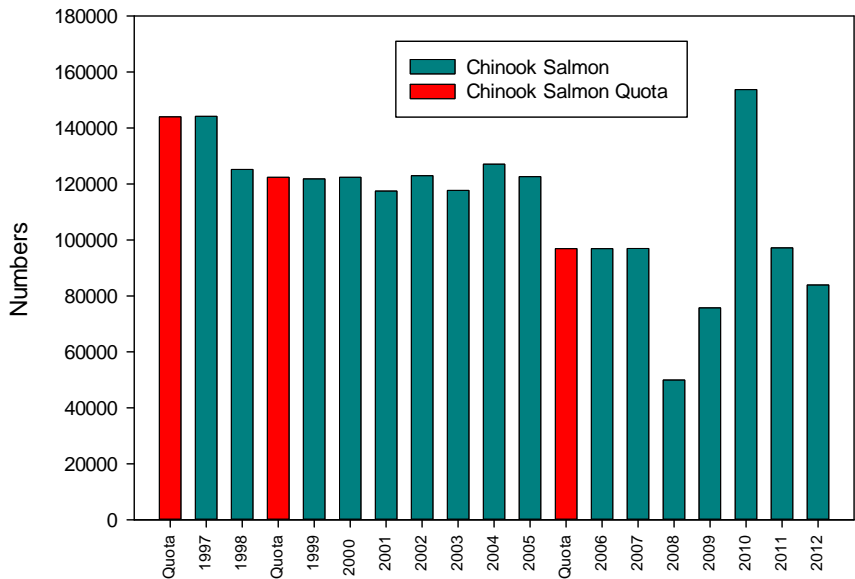
Milwaukee County Salmon and Trout Stocking Comparisons
Chinook Salmon



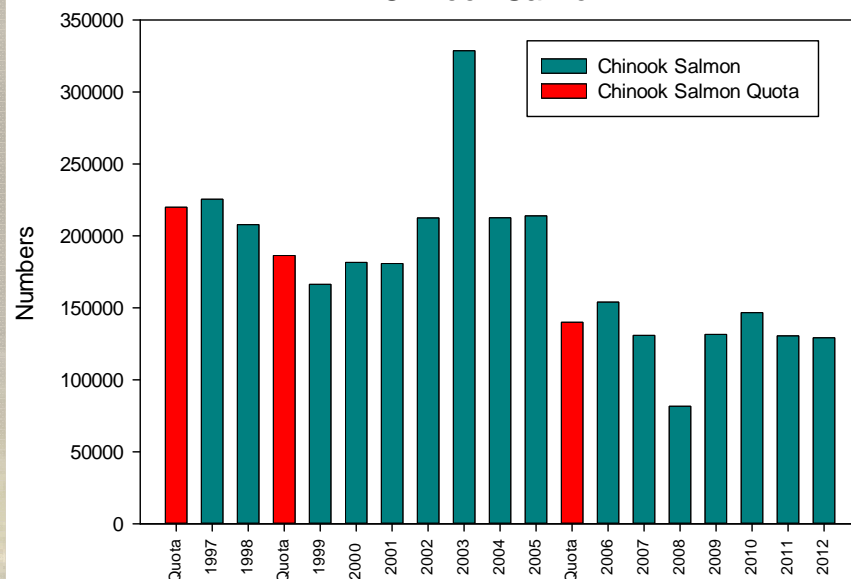
Ozaukee County Salmon and Trout Stocking Comparisons
Chinook Salmon



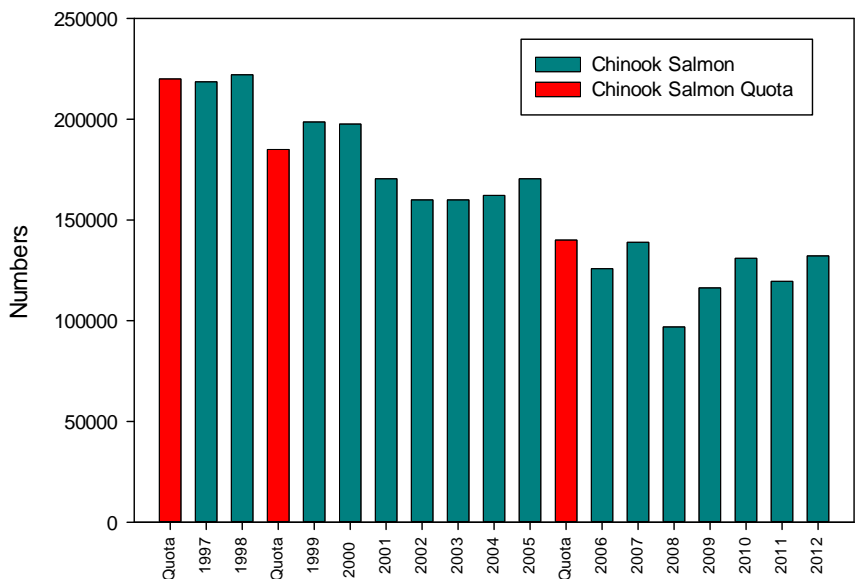
Sheboygan County Salmon and Trout Stocking Comparisons
Chinook Salmon



Manitowoc County Salmon and Trout Stocking Comparisons
Chinook Salmon



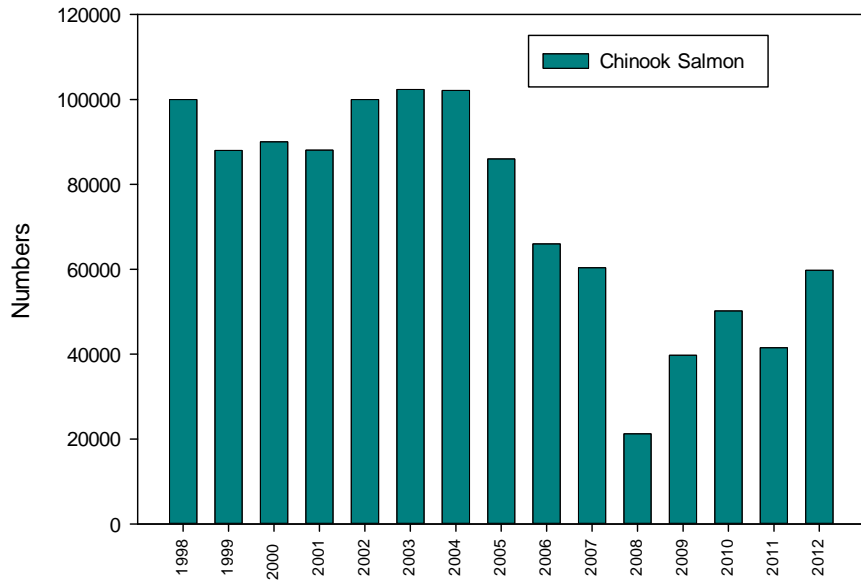
Kewaunee County Salmon and Trout Stocking Comparisons
Chinook Salmon



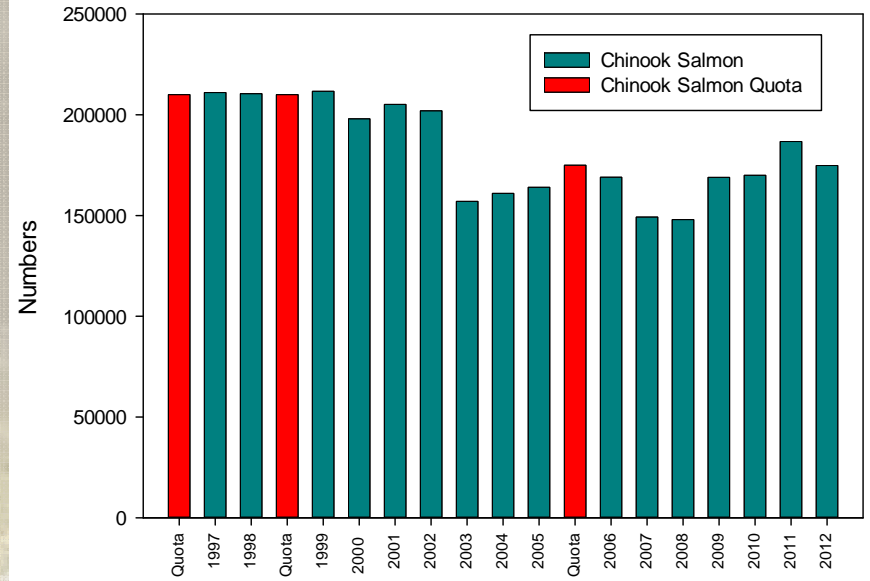
Kewaunee River and Harbor Salmon and Trout Stocking Comparison
Chinook Salmon



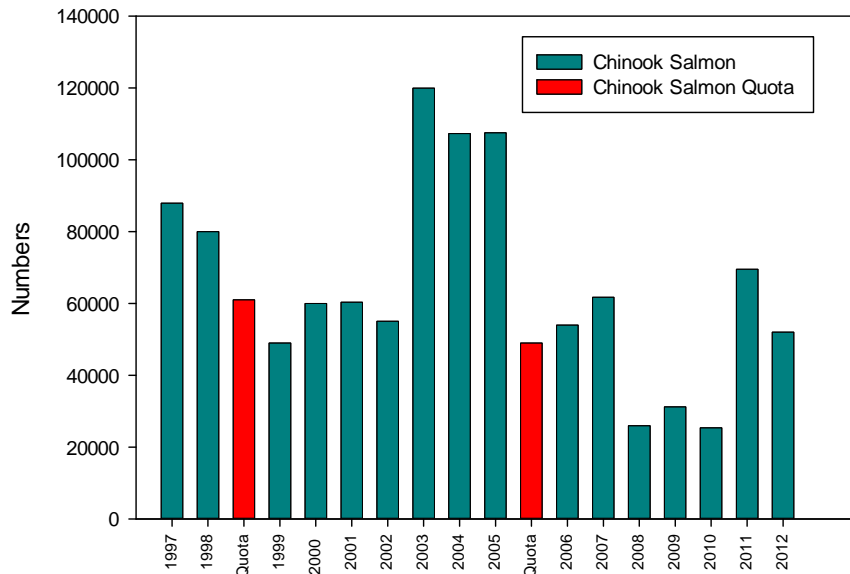
Algoma Harbor / Ahnapee River Salmon and Trout Stocking Comparisons
Chinook Salmon



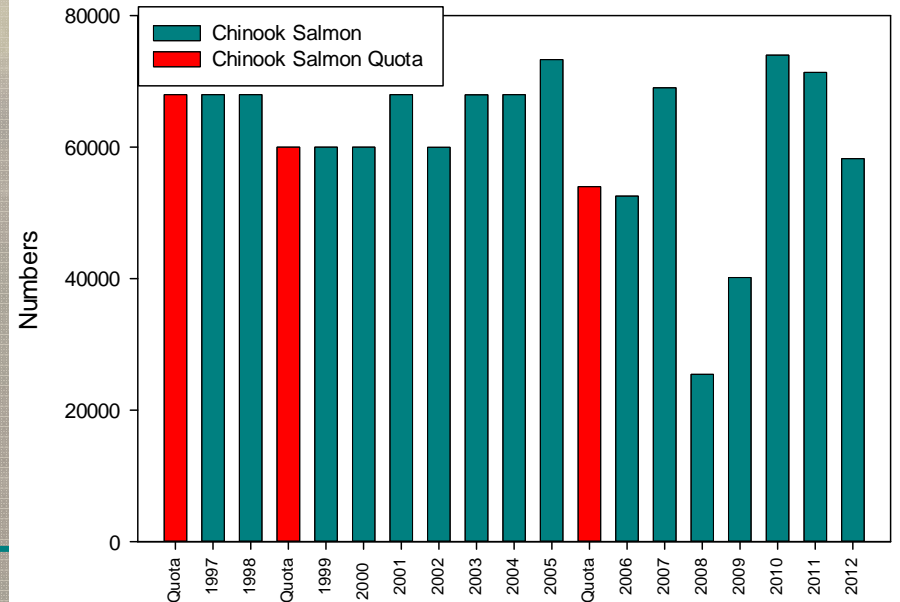
Strawberry Creek Salmon and Trout Stocking Comparisons
Chinook Salmon



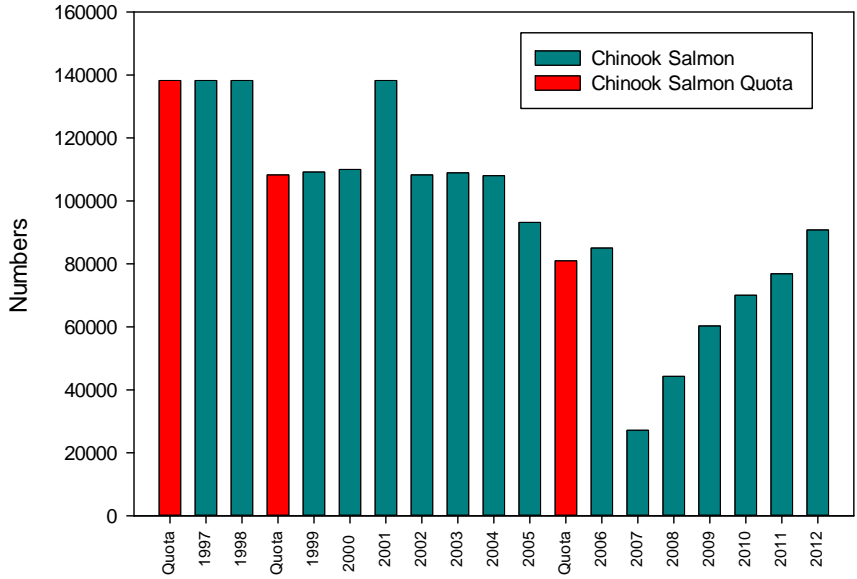
Door Co. - Lake Michigan Salmon and Trout Stocking Comparisons
Garret Bay, Gills Rock, Ellison Bay
Chinook Salmon



Oconto Co. Salmon and Trout Stocking Comparisons
Chinook Salmon



Marinette Co. Salmon and Trout Stocking Comparisons Chinook Salmon



FISHERIES MANAGEMENT..... we make fishing better



Number of Chinook salmon stocked by year and location

	2008	2009	2010	2011	2012
Kenosha	79,900	119,715	146,951	157,467	157,854
Racine	96,000	80,950	85,744	20,154	112,616
Milwaukee	58,684	113,946	114,440	115,729	99,804
Ozaukee	44,880	78,741	116,902	102,431	83,646
Sheboygan	49,914	75,674	153,735	97,160	83,918
Manitowoc	81,619	131,542	146,683	130,512	129,200
Kewaunee	75,637	76,609	80,825	78,110	72,480
Algoma	21,223	39,719	50,194	41,488	59,763
Strawberry Creek	148,000	168,943	170,045	186,781	174,811
Door County	25,938	31,231	25,362	69,546	52,031
Oconto	25,454	40,190	74,006	71,370	58,283
Marinette	44,296	60,290	70,097	76,850	90,807

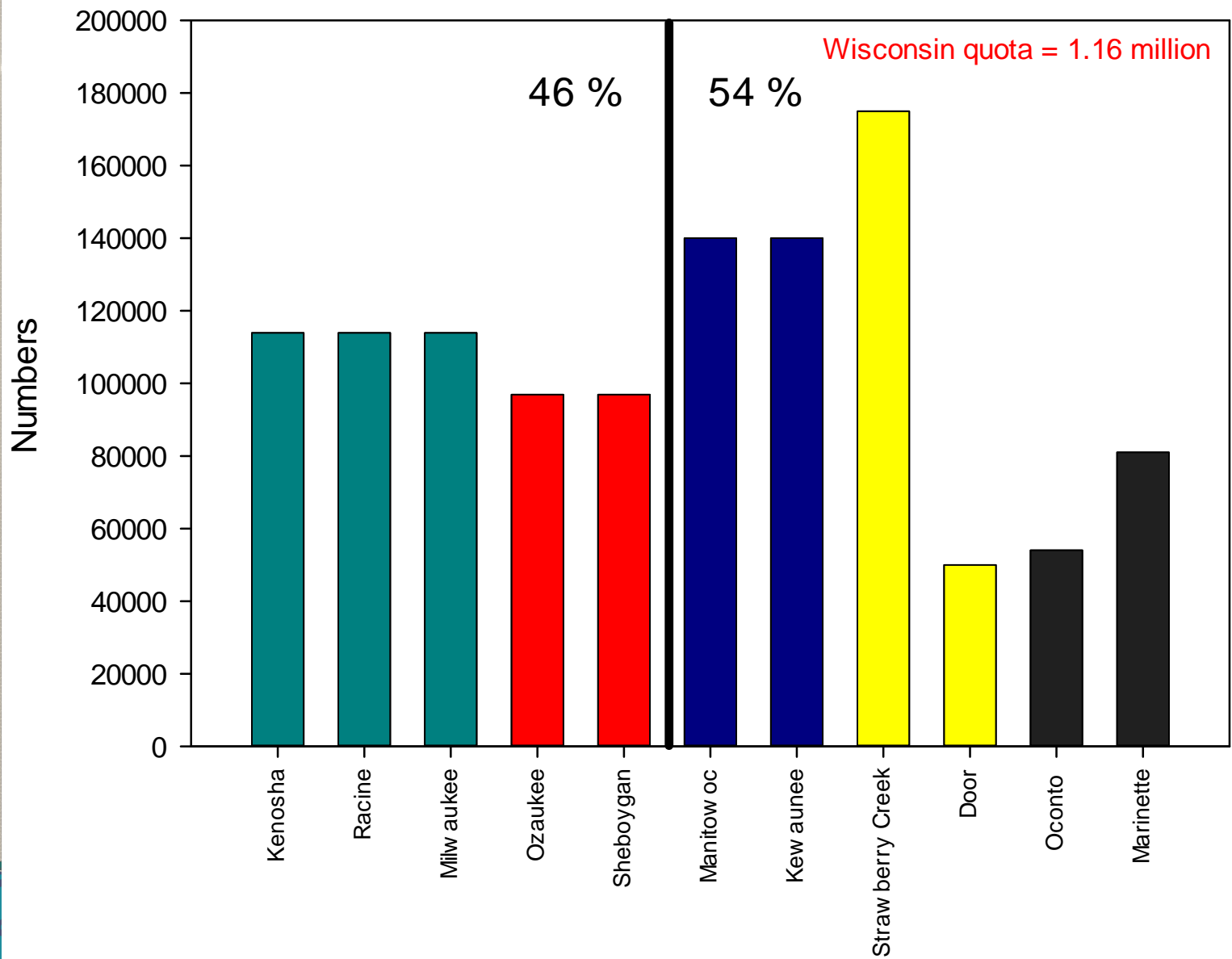


FISHERIES MANAGEMENT..... we make fishing better



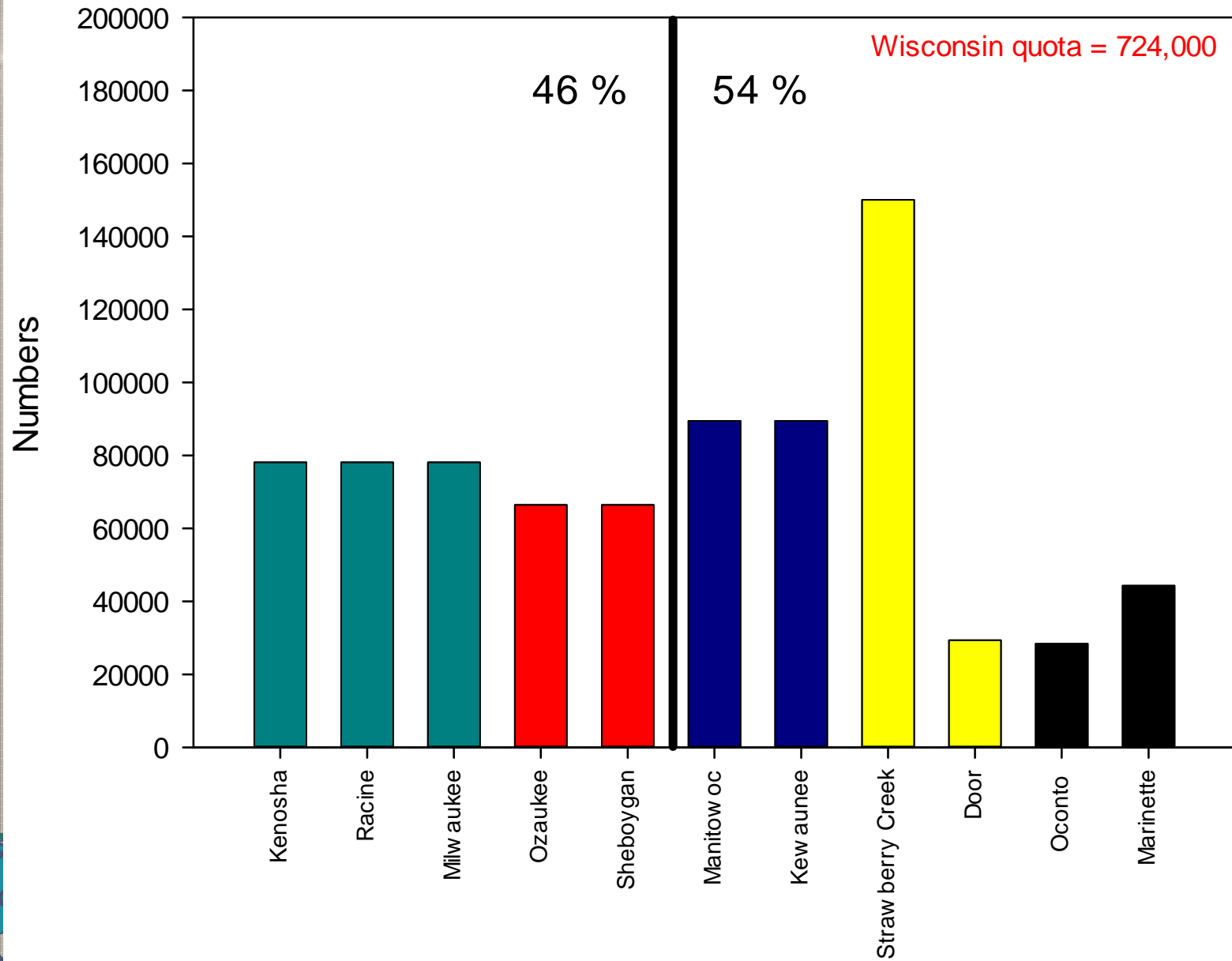
Current Quota Allocations by County Comparisons - 2012

Chinook Salmon



Current Quota Allocations by County Comparisons - 2013

Chinook Salmon



	May-2013		May-2012	
	Fingerlings		Fingerlings	
Kenosha (Pike)	27,420		40,000	
Kenosha Harbor	50,689		73,945	
Racine (Root)	78,109		113,945	
Milwaukee				
McKinley	66,385		96,842	
Milwaukee (Oak)	11,725		17,104	
Ozaukee	33,219		48,460	
Ozaukee (Sauk)	33,219		48,460	
Sheboygan River	66,439		96,920	
South total	367,206	Ratio 0.46	535,676	Ratio 0.46
Manitowoc	89,518		140,000	
Kewaunee	89,518		140,000	
Strawberry Creek	150,000		175,000	
Door Co	29,319		49,948	
Oconto	28,434		48,440	
Marinette	44,289		75,450	
North total	431,078	Ratio 0.54	628,838	Ratio 0.54
Grand total	798,284		1,164,514	
South Reduction	0.3145			
North Reduction	0.4130			



Summary

- Stocking allocation model created in 1986
- Model has been used since 1986 to allocate salmon/trout stocking numbers by management zone
- Since 1990, the split has been 54% North and 46% South
- Stocking numbers have matched stocking quotas fairly well
- Stocking in 2013 using this model distributes chinook salmon based on 150,00 at Strawberry Creek and 54% North and 46% South





FISHERIES MANAGEMENT..... we make fishing better

