

# THE FISHERY IN KENNEBEC LAKE

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# Questions

1. How many walleye and age structure now?
2. Status of walleye habitat, food, fishing pressure?
3. How to get/keep a sustainable population/fishery?
4. How do current walleye numbers compare with what could be produced? Possible causes?

## If we decide to stock some walleye:

1. What happens to stocked fingerlings or adults?
2. Are many dumped into one location?
3. How do we address the genetics & disease?
4. What effect does stocking have on resident fish?
5. Has stocking worked elsewhere in Central or North Frontenac?
6. Can stocking change fishing pressure?

# Some other questions

1. How many baitfish licences are there on this lake?
2. How many and what species are coming out?
3. Can this affect other fish in the lake?
4. What do we know about species that originally inhabited Kennebec Lake?
5. Were walleye here originally or brought to the lake from elsewhere?

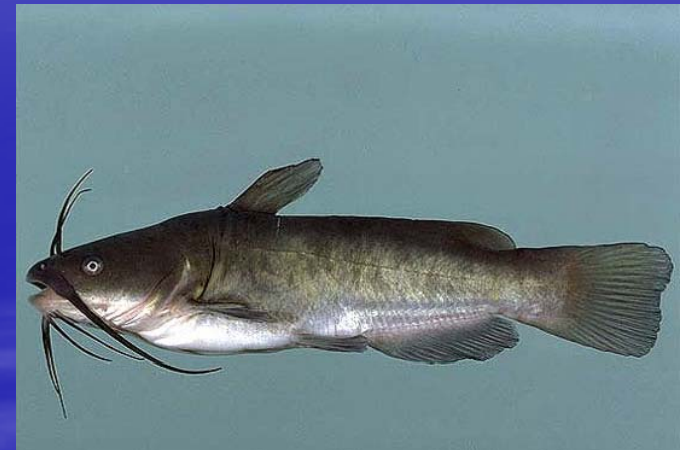
# What do we historically know about the lake?

- 1<sup>st</sup> recorded stocking episode occurred in 1917, 15,000 fingerling smallmouth bass
- In 1927, 1<sup>st</sup> recorded stocking of walleye and lake trout
- regular stocking episodes of smallmouth bass and walleye throughout 30's, early 40's and early-mid 50's
- Lake trout tried again in 1953
- Since then two episodes of smallmouth bass stocking in 1971 & 1972

# 1971 & 1979 Lake Surveys- fish species



# Fish species continued

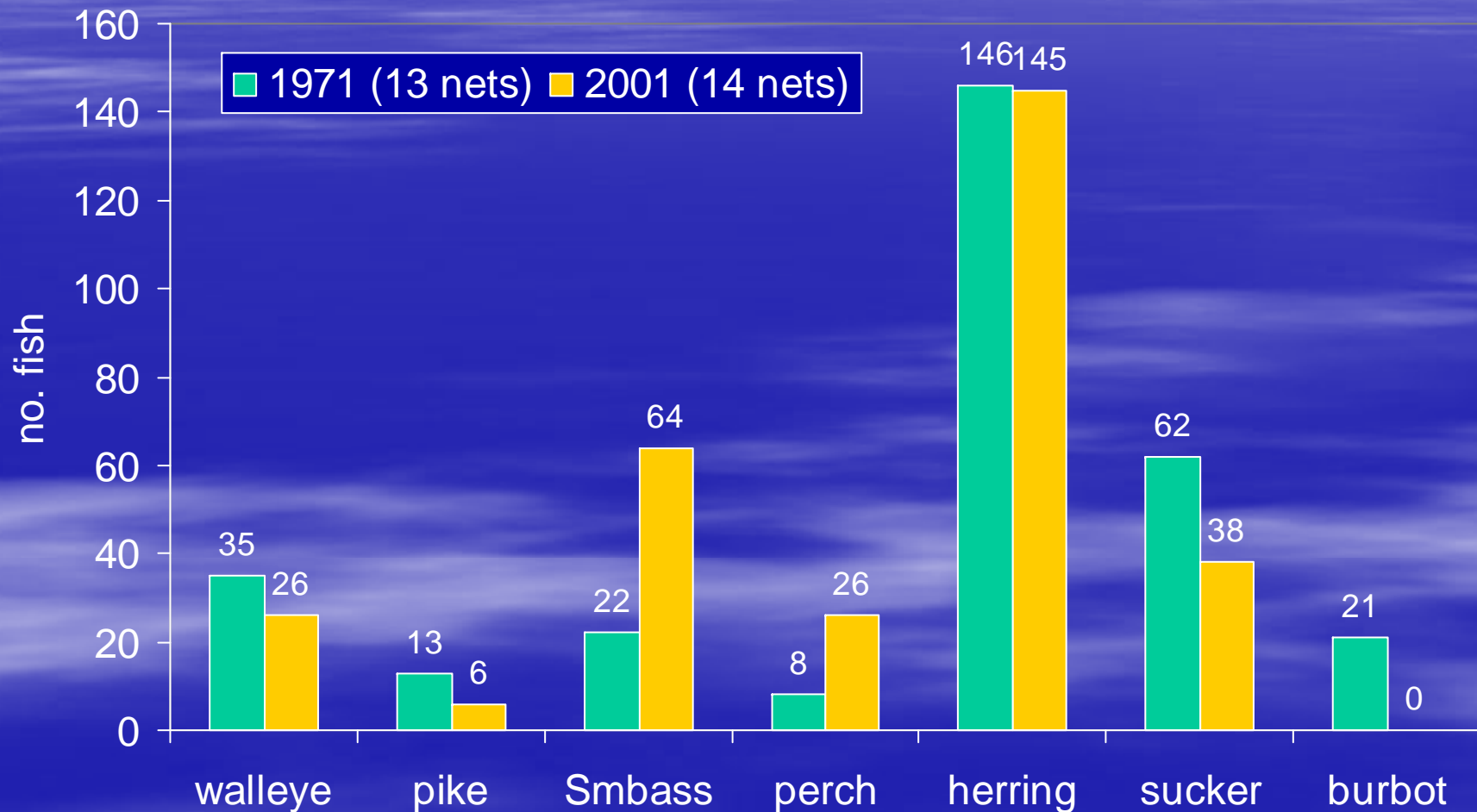


# Gill net comparisons

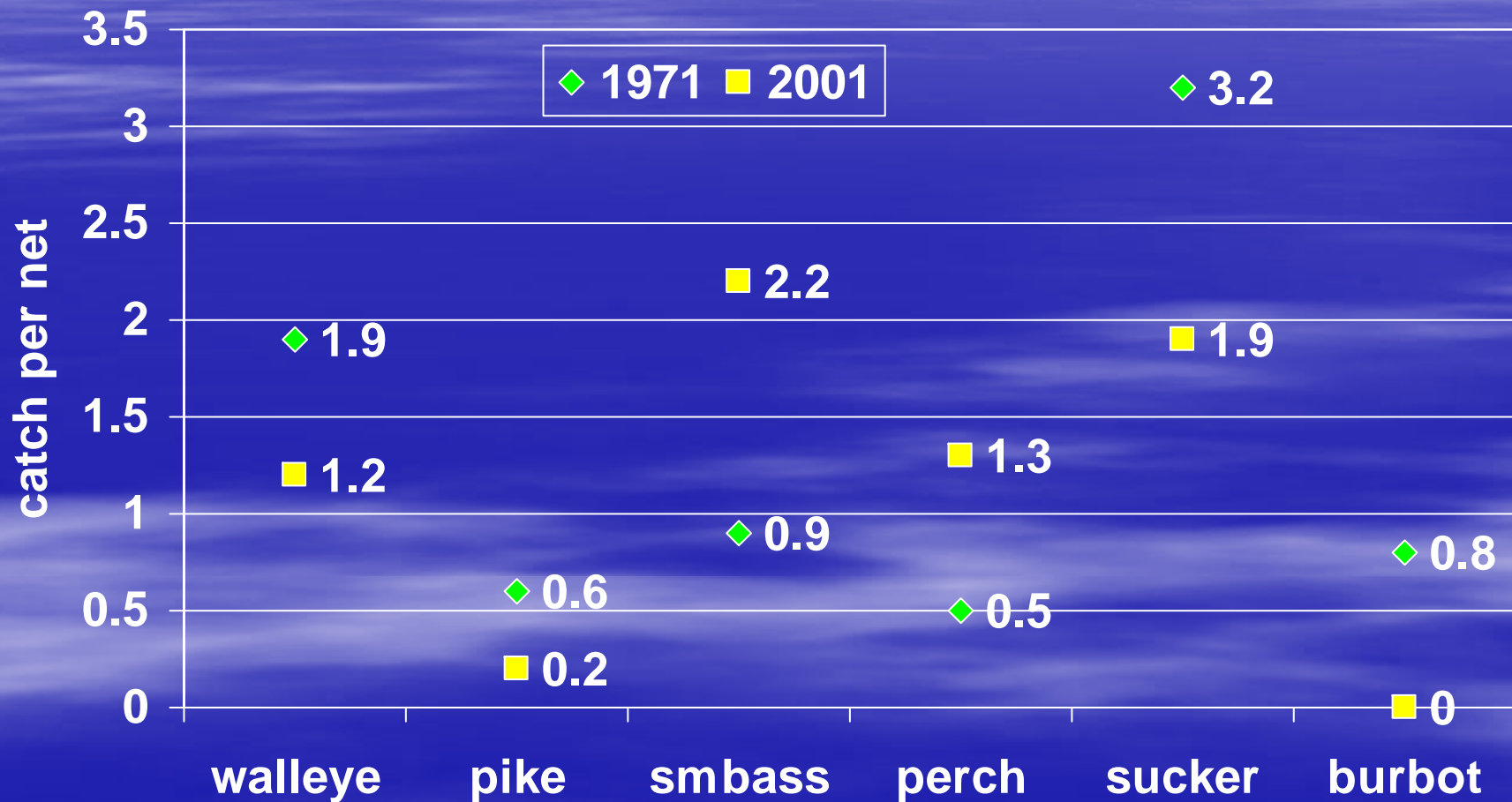


- 1971
  - Lake survey multifilament gill net
  - 13 nets set overnight in July
- 2001
  - Fall Walleye Index Netting (FWIN), monofilament gill net, standard
  - 14 nets set overnight in fall (Sept-October)

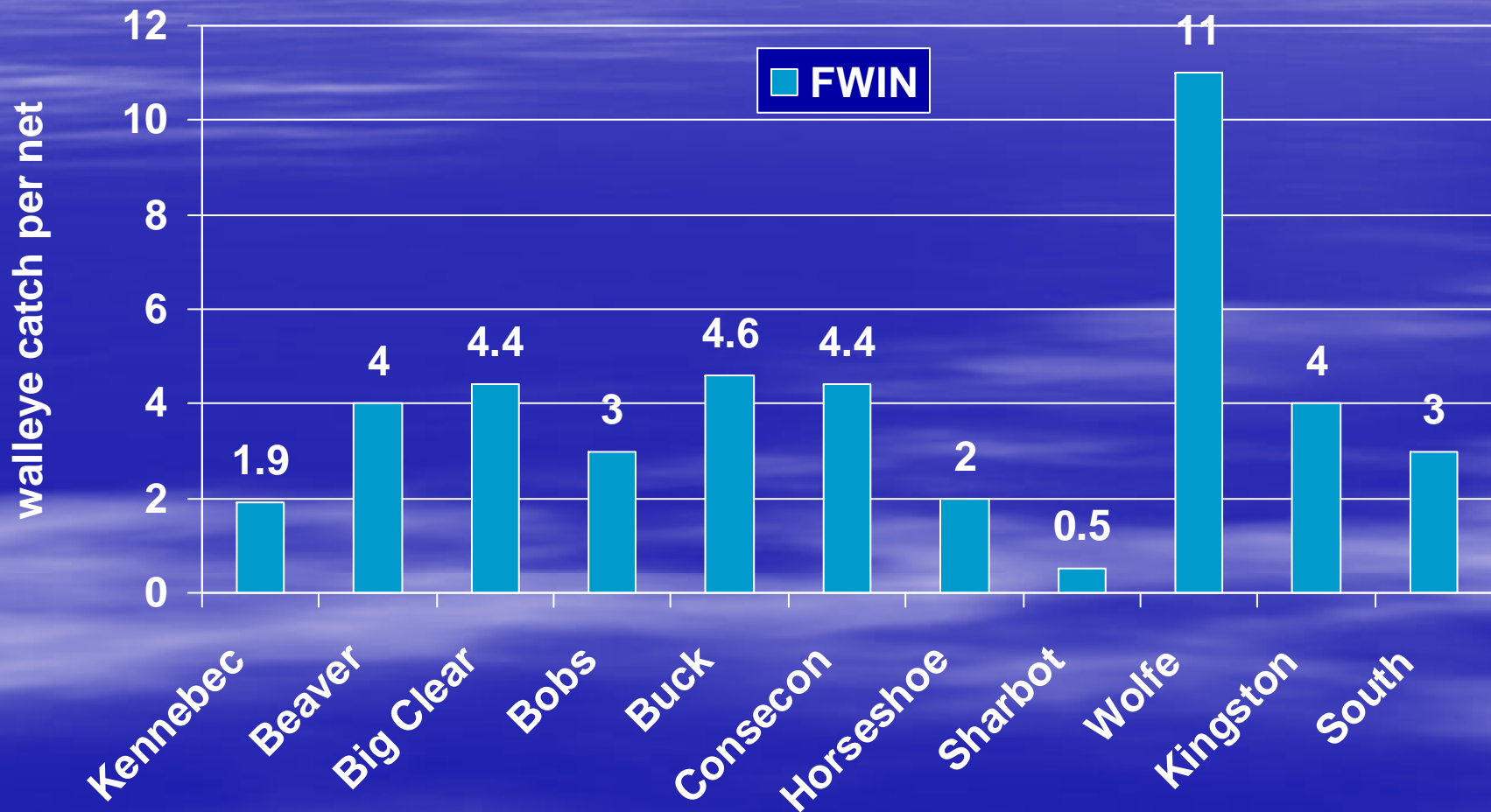
# Kennebec Lake gill net catch comparisons – 1971 & 2001



# Kennebec Lake gill net catch per net comparisons – 1971 & 2001



# How does Kennebec compare with other area lakes?

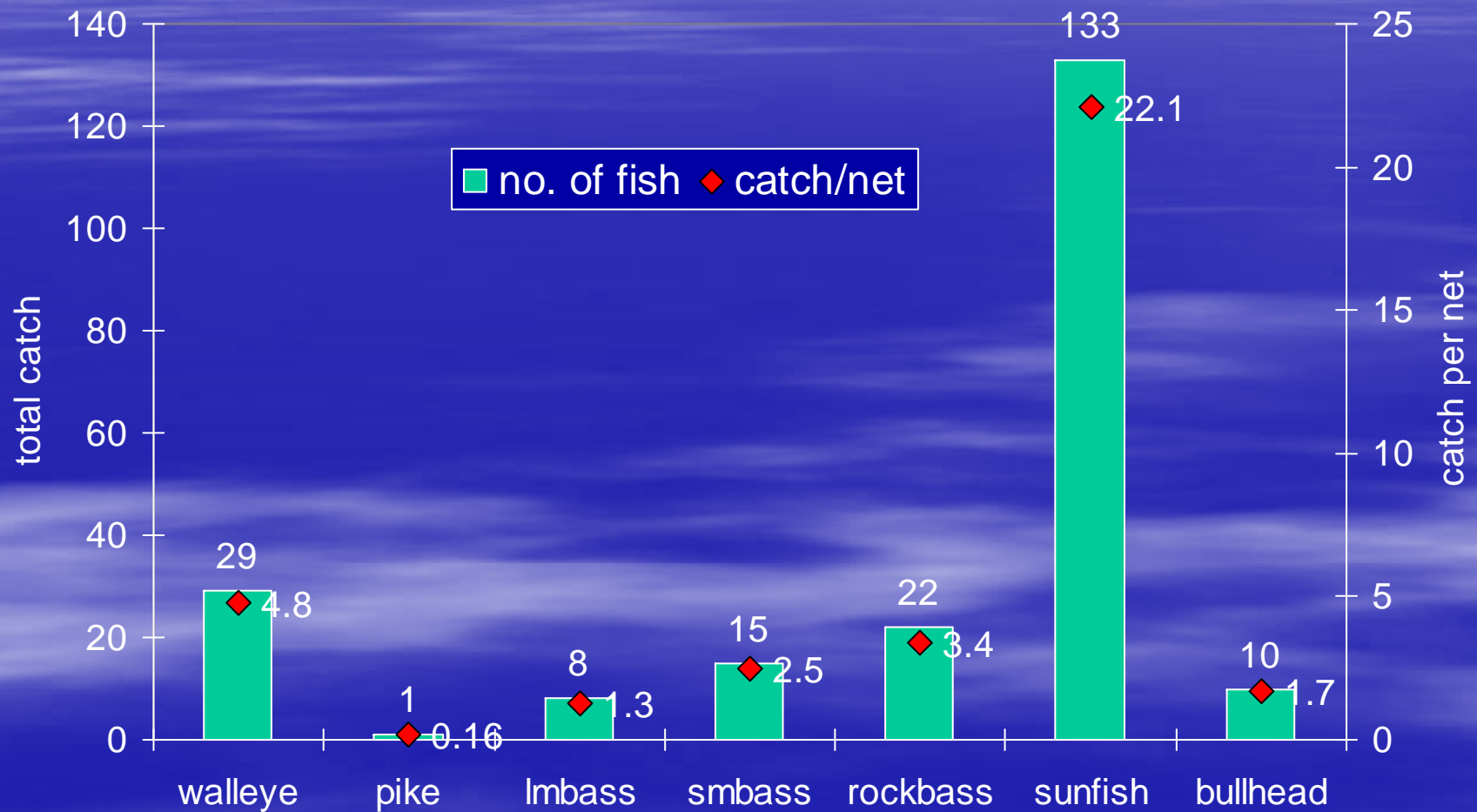


# Kennebec Lake trap netting - 1971

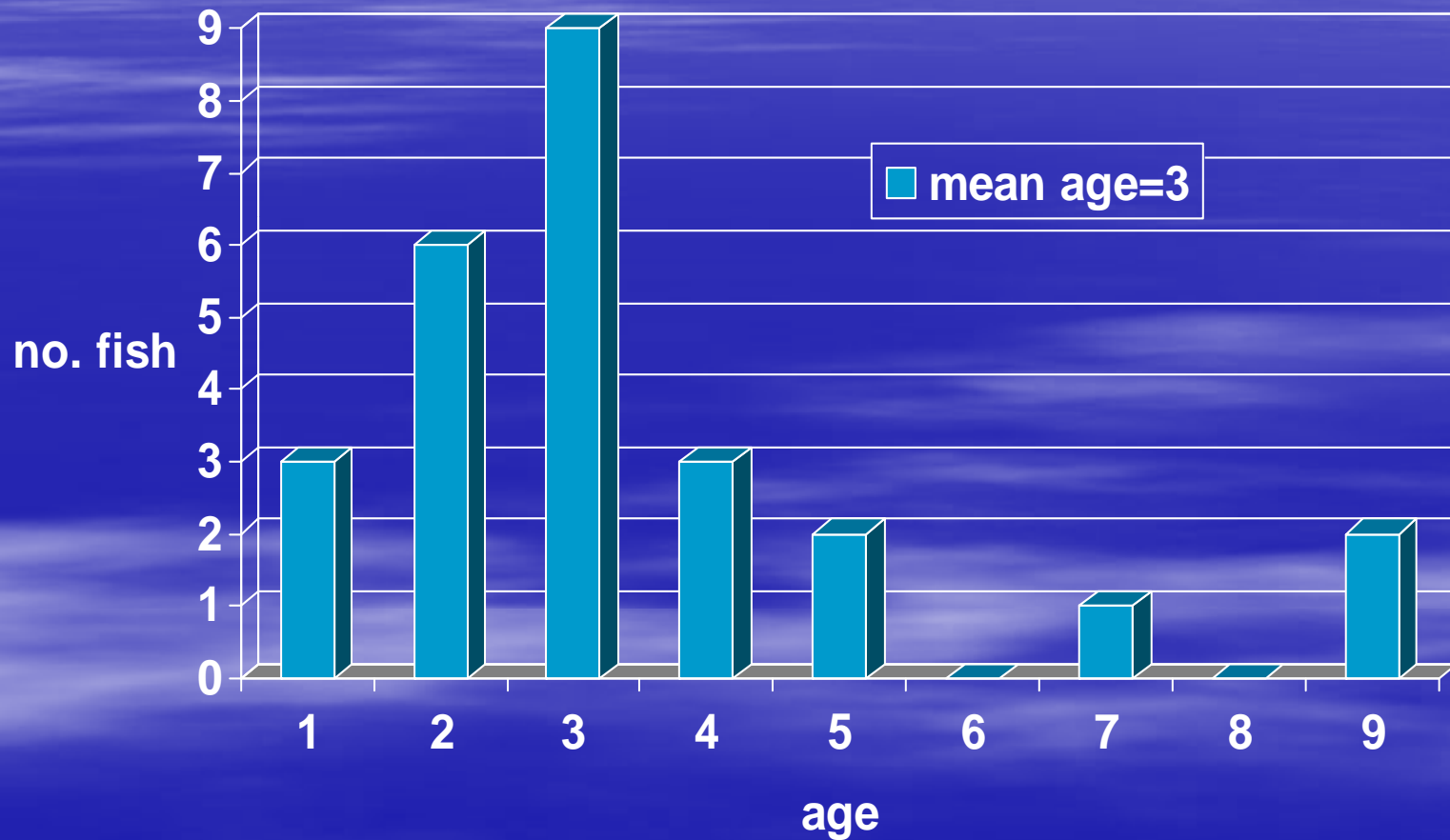


- Six trap nets set in July-August 1971
- Six-foot trap nets set overnight, tied off to shore
- Samples near shore fish community, comparable to standard Nearshore Community Index Netting (NSCIN) currently carried out

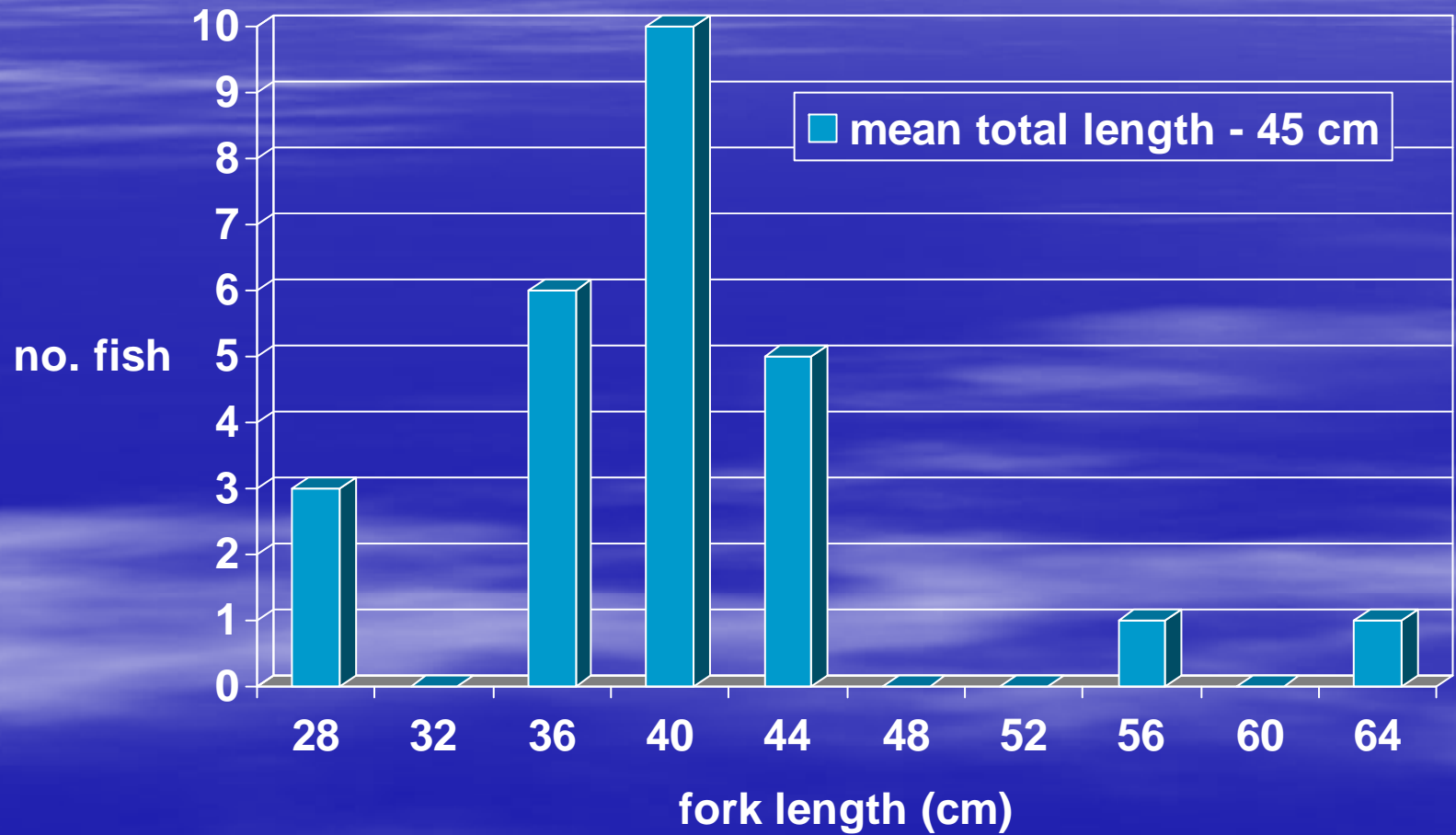
# Kennebec trap net catch - 1971



# 2001 Fall Walleye Index Netting – age structure from 26 walleye



# 2001 Kennebec FWIN – walleye size structure



# Other Kennebec Walleye Findings



- Age-at-50% maturity is 3, on average, one year less than other Kingston and southern Ontario Lakes
- Growth index is 200 mm/yr, on average, 50 mm/yr more than other Kingston and southern Ontario Lakes

# Other fish species FWIN findings

	Smallmouth bass (63 fish)	Northern pike (6 fish)	Lake herring (145 fish)
Mean age	Age-4	Age-3	Age-6
Mean total length	27 cm 10.5 in	42 cm 16.5 in	27 cm 10.5 in

# Kennebec Lake fishing pressure?



- No historical creel surveys on file
- 2007 Community Fisheries & Wildlife Involvement Program (CFWIP) grant for boat counts on Kennebec
- Voluntary creel forms handed out

# 2007 Kennebec CFWIP Boat Counts

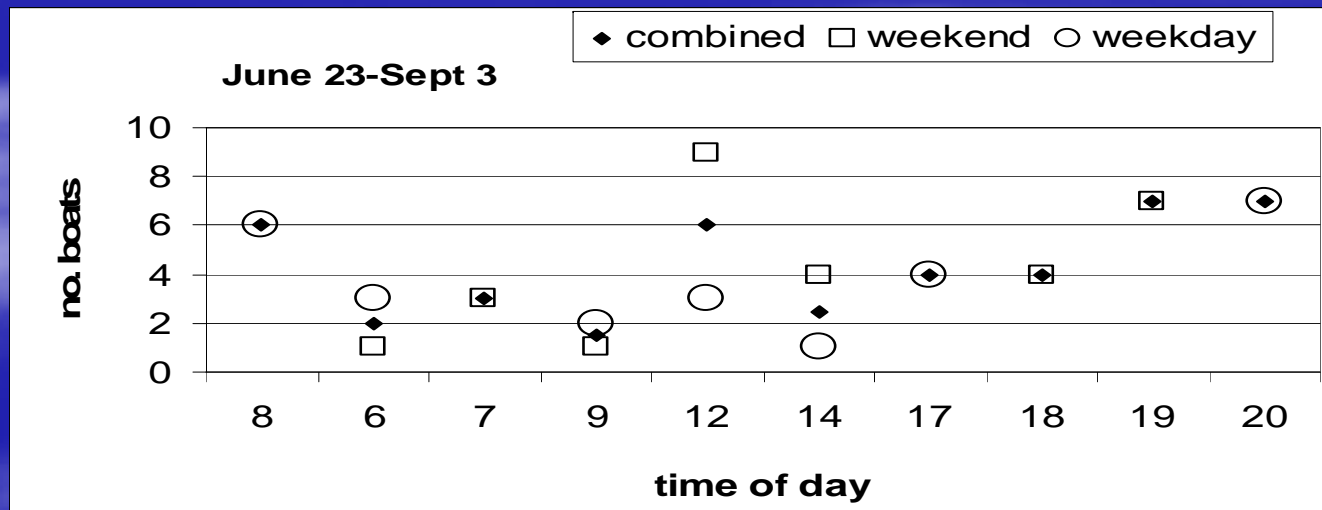
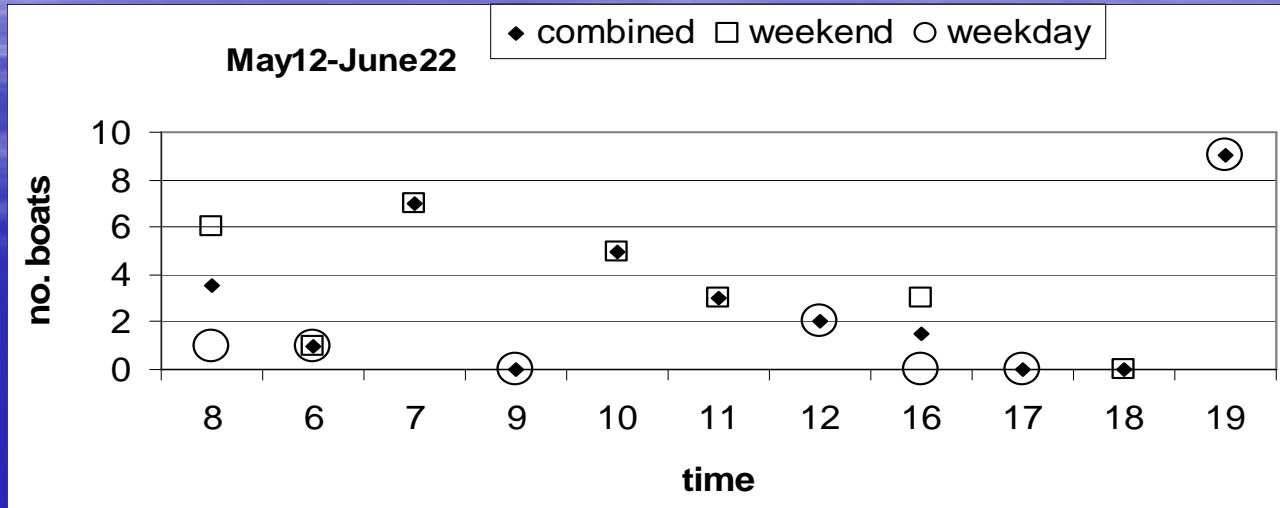
## Participants

- Many thanks to the following participants:
  - Bernie & Noreen Dertinger
  - Terry Kennedy
  - Doug Smith
  - Greg Morris
  - Jack & Dianne Nicolson
  - John, Calvin & Charlotte Duchene
  - S. Tucker
  - David Praskey
  - Aileen & Gray Merriam
  - Peter & Gloria Smiley
  - Ron Henry
  - Bill Van Vug

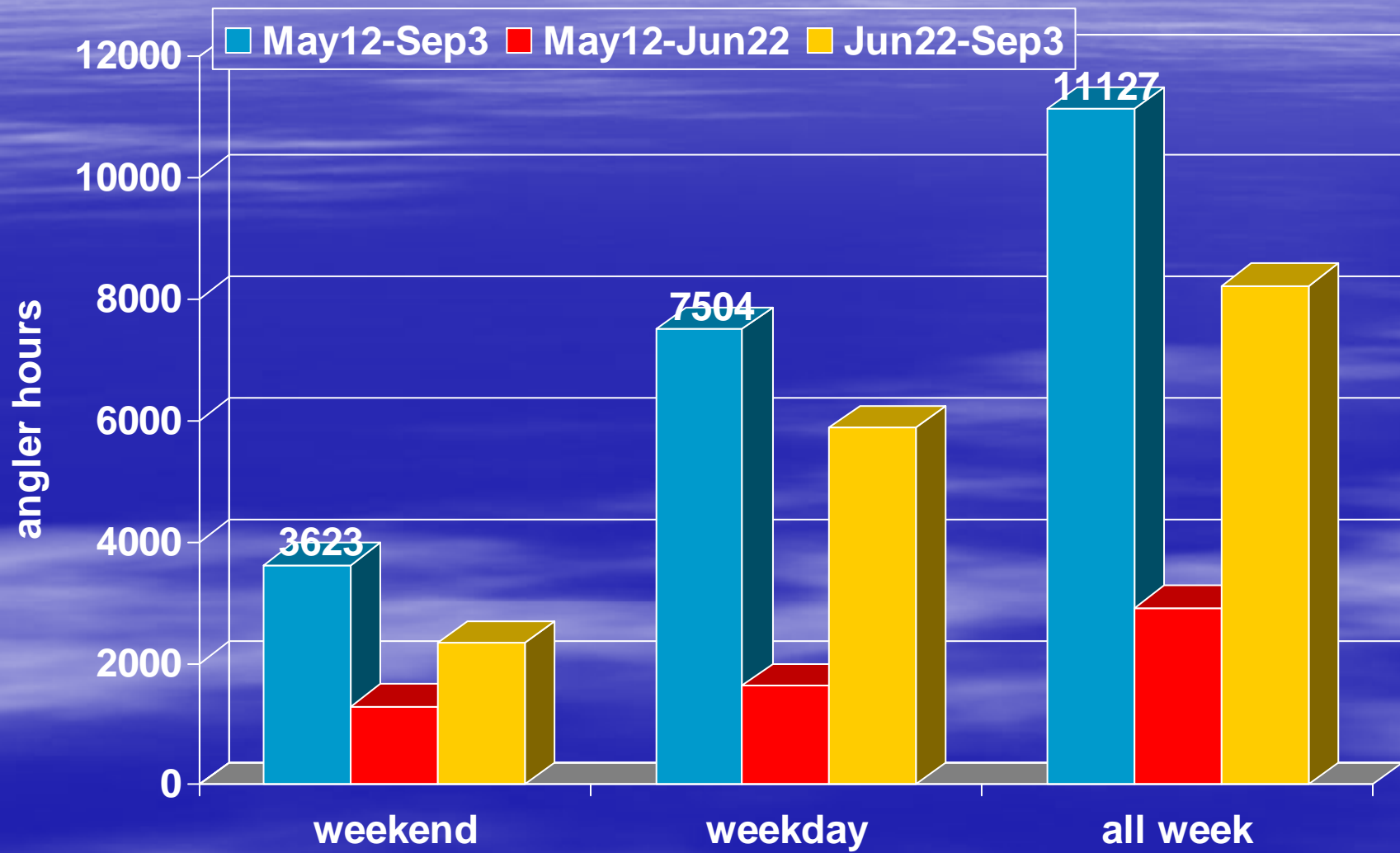
# 2007 Kennebec CFWIP Boat Counts

- Boat counts done at least three times for each strata (season, daytype, period)
- 28 boat counts between May 12 – Sept 3
- An average 1 hour count sampled across entire day (6 am to 9 pm), weekdays and weekends, entire lake
- On average, 3 boats fishing per count (0 to 9 boats)
- One more boat, on average, in summer
- One more boat, on average, on weekends

# Boat counts – daily variation



# 2007 Kennebec Fishing Effort

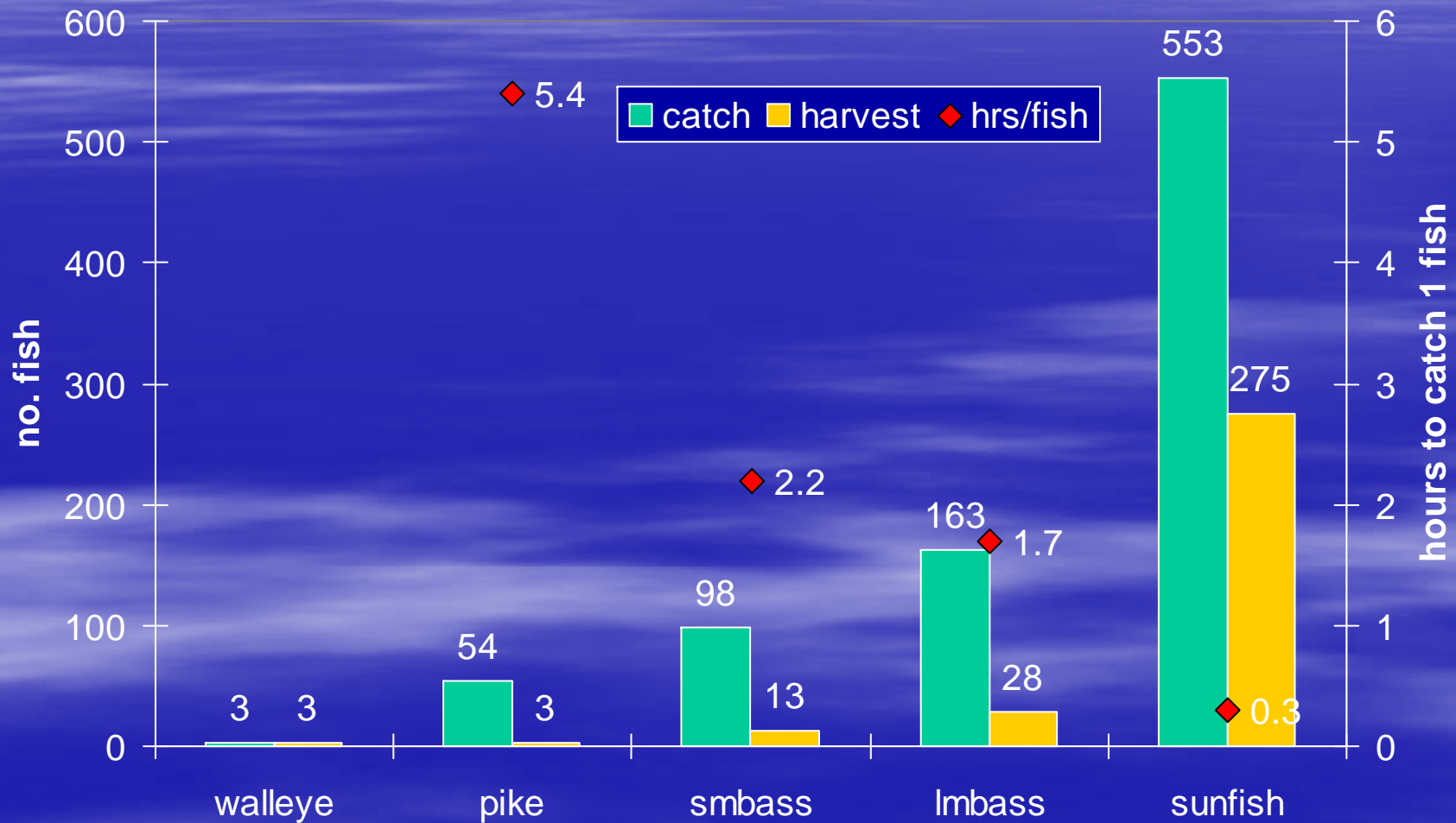


# What are anglers fishing for?

- Seven parties completed voluntary creel forms:
  - Total effort of 344 angler hours
  - Fished an average of 2.5 hours per trip
- **Number of interviews per stratum:**

Daytype/period	May12-June22	June23-Sept3
WE/AM	3	10
WE/PM	4	18
WD/AM	4	2
WD/PM	1	27
Total days fished	12	57

# What did participant catch and harvest?



# How do current walleye numbers compare with what could be produced?

- Newest science suggests the following lake characteristics are what dictate sustainable walleye yields:
  - **Lake size** (546 ha)
  - **Total dissolved solids** (47 mg/L, 1971 data)
  - **Mean depth** (7.9 m)
  - **Maximum depth** (27 m)
  - **Secchi disc depth** (2.3 m, 1971 data)
  - **Growing Degree Days >5degC** (1890)
  - Predicted sustainable walleye yield is 1.3 kg/ha/yr or **710 kg/yr** (estimated **1000 fish** per year @ 0.7 kg/fish)
  - Looks like Kennebec Lake is not yielding what it could

# Possible reason(s)?

- Lack of suitable spawning habitat or access to suitable habitat?
  - Access to existing, enhancement opportunities
- Zebra mussels changing water clarity?
  - Walleye are light-sensitive
  - Are they here yet?
- Food?
  - Gill nets not capturing many yellow perch
  - Other pan fish present

# 2007 Kennebec Lake CFWIP

## Potential Walleye Spawning Habitat

- Beaver Creek bridge crossing
  - Historically observed here, beaver dam issues blocking access some years (picture)
- Crooked Creek and creek at top end of Cox's Lake
  - Excellent spawning areas, beaver dam issues blocking access some years
- 2 shoreline/island points with good exposure at east end of lake
  - Rock could be added to enhance these sites
- 1 walleye observed off small islands at west end of lake
- Walleye have been observed in narrows to Salmon R.

# Potential Walleye Shoal Assessment continued

- Section of north shore in western basin (pictures)
  - Have big rock, potential to add some
- Off point of small island adjacent to Salmon R. outlet (picture)
  - Some rock present, enhancement possible

# Potential Shoal Enhancement Opportunities



# Potential Shoal Enhancement Opportunities



# Baitfish harvesting

- Kennebec Township has three bait fish licences
- Tend to harvest bait fish from small streams and small lakes
- Not likely that any harvesting is occurring from Kennebec Lake

# MNR Southern Region – viable reasons for walleye stocking

- **always most efficient to work with resident population**
- 1. Introduction stocking
  - Not currently present in a lake
- 2. Put-Grow-Take stocking
  - Walleye recruitment is not regular enough to produce a sustainable fishery, stocking artificially replaces recruitment
- 3. Rehabilitation stocking
  - Have prepared a stocking plan that includes benchmarks, remedial actions to enhance walleye habitat and commitments to monitor successes/failures

# Things to consider before stocking

1. What happens to stocked fingerlings or adults?
  - Cannibalism, competition for food, depends on the lake, no guarantees
2. Are many dumped into one location?
  - Better practise is to stock them at numerous locations throughout the lake
3. How do we address genetics & disease?
  - Egg collection from nearby lakes not in Viral Hemorrhagic Septicemia (VHS) infection zone
  - Implanting on enhanced sites with Kennebec eggs
  - collect eggs from numerous females, milt from numerous males

### 3. What effect does stocking have on resident fish?

- There will be competition for same food supply but would follow stocking density guidelines (100-150 fingerlings per hectare)
- stock every 3<sup>rd</sup> year

### 4. Has stocking walleye worked elsewhere in Central or North Frontenac?

- Anecdotal information that it has in some lakes but not in others (St. Andrew Lakes)
- Netting last summer indicates it hasn't worked in Fourteen Island Lake

## 5. Can stocking change fishing pressure?

- YES, likely number one impact for any stocking into a lake with public access

# Conclusions

- Some potential for walleye spawning habitat enhancement – CFWIP grant
- Last walleye assessment done in 2001, would be good to update – CFWIP grant
- Updated trap netting will provide updated insight into rest of fish community (bass, northern pike, pan fish) – CFWIP
- Kennebec Lake Association would continue to need help from it's membership for future fisheries work
- These would all go a long way toward creating a stocking plan if this option is to be considered