Iron County Loon Project

What are our Goals?

*Study the Common Loon
*Increase chick production
*Find possible causes for failure of nests:
    -Shoreline development
    -Predation
    -Lack of quality nesting sites
    -Lake traffic and disturbances
*Present results and gather more information
*What makes a good loon lake?
*How does pH and dissolved oxygen affect loons?
*How do aqueous invertebrates indicate a healthy lake?

Iron County Loon Project

- Fox
- Deer
- Pardee
- Upson
- Grand Portage
- Gile Flowage

Schedule

April/ May – Place Platforms, WQ Study, Watershed & Land Use

June – Check Nest for Eggs, WQ Study, Shoreline Buffer Transect

July – Check for Young & Behavior, WQ Study, Littoral Zone

August – Check Lakes for Young, Remove Platforms

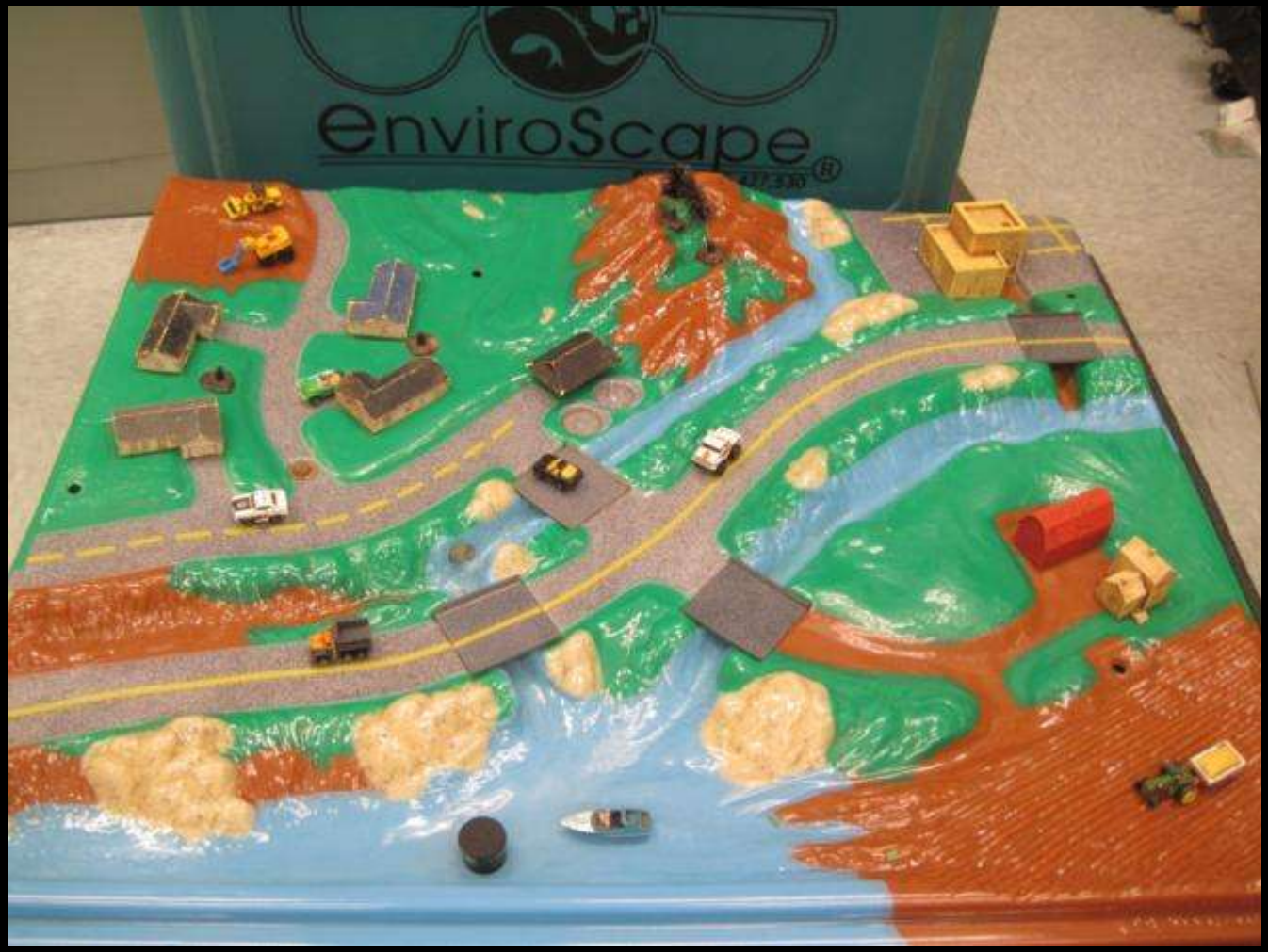
Canoe and Kayaking

Artificial Nest Platform

Determining Lake Health

- Watershed, Land Use, % Development
- Chemical Sampling
- Aquatic Invertebrate Sampling

Land Use Development



- Maps- watersheds
- Aerial photo- # homes % developed
- Enviroscape- Impacts / BMPs

Chemical Testing


Secci Disk ~ Water Clarity

Identifying Aquatic Macro Invertebrates

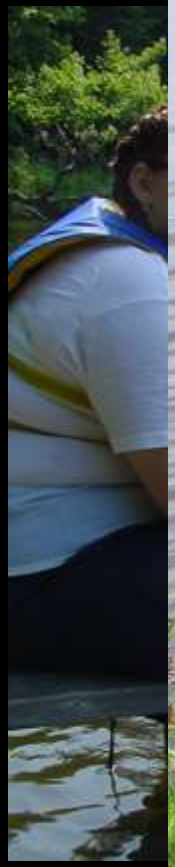
- Sampling Technique

Shoreland Buffer Transect

- 100ft. inland
- Hula Hoop Survey
- Every 10ft; random
- % groundcover
- % shrub layer
- % canopy cover

Littoral Buffer Transect

Aquatic Plant Identification



Results

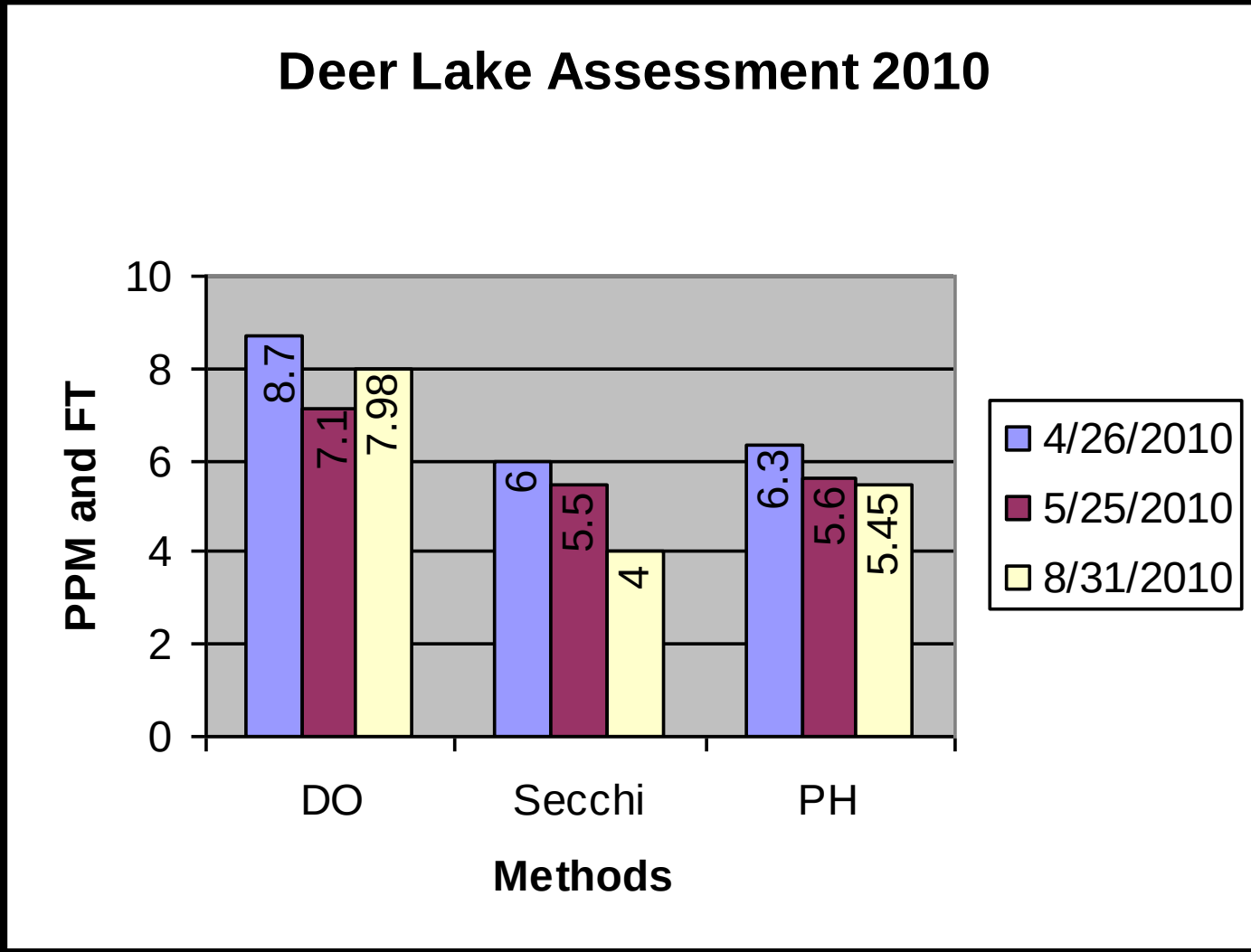
Water Quality Measurements 2010

- **WQ was sampled on each lake in April, June, & July/August.**
- **Samples were collected near shore.**
- **Lake clarity ranged from 4-15ft., DO ranged 6.8-9 & pH ranged 6.3-7.5**

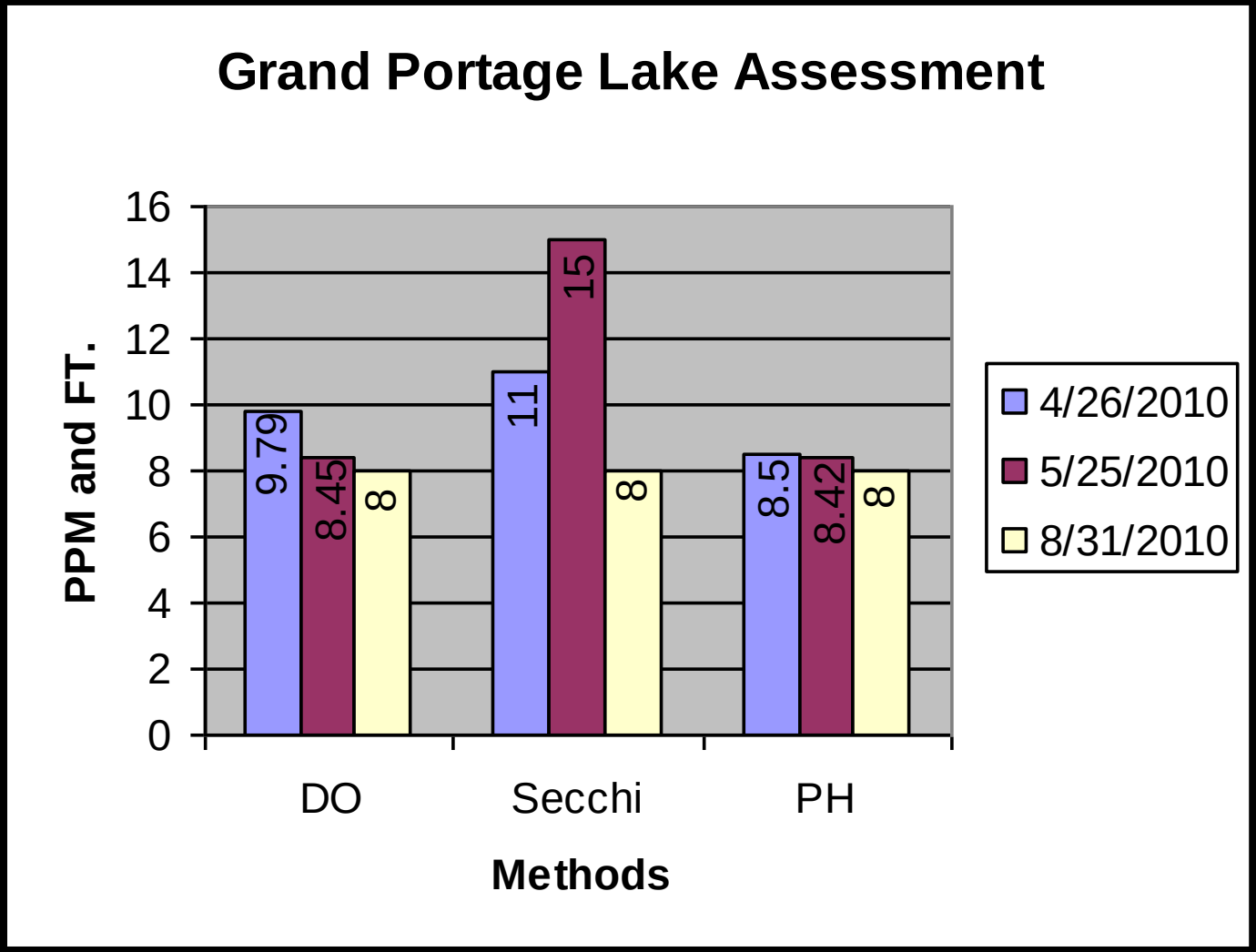
Averaged water quality measurements

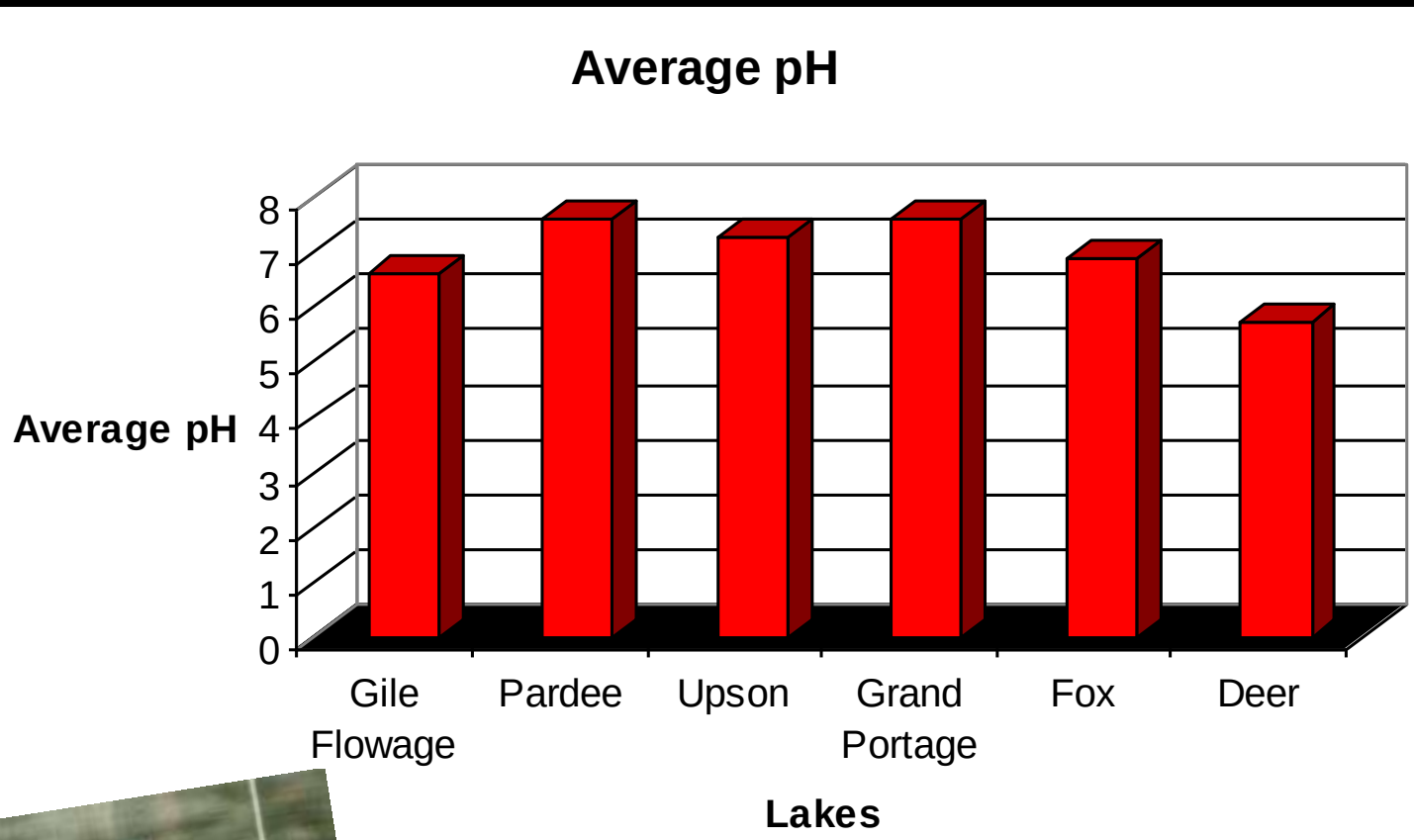
Lake	D.O. (PPM)	pH	Secchi (ft)
Owl	7.75	7.56	8.7
Pardee	9.36	8.61	10.0
Grand Portage	8.74	8.30	11.3
Deer	7.9	5.78	5.1
Fox	8.0	8.26	4.8

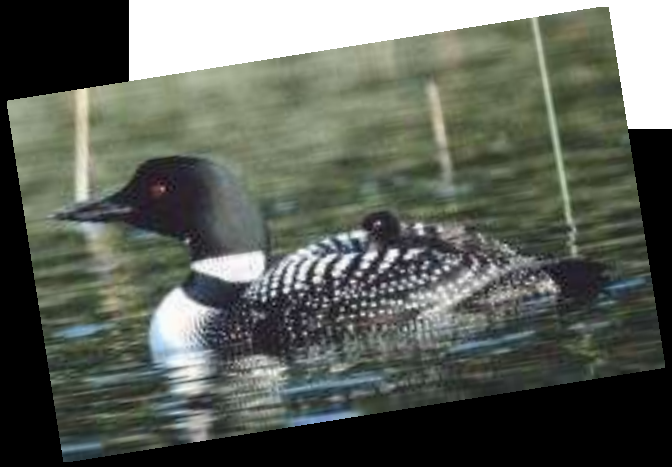
Water Quality Measurements 2010



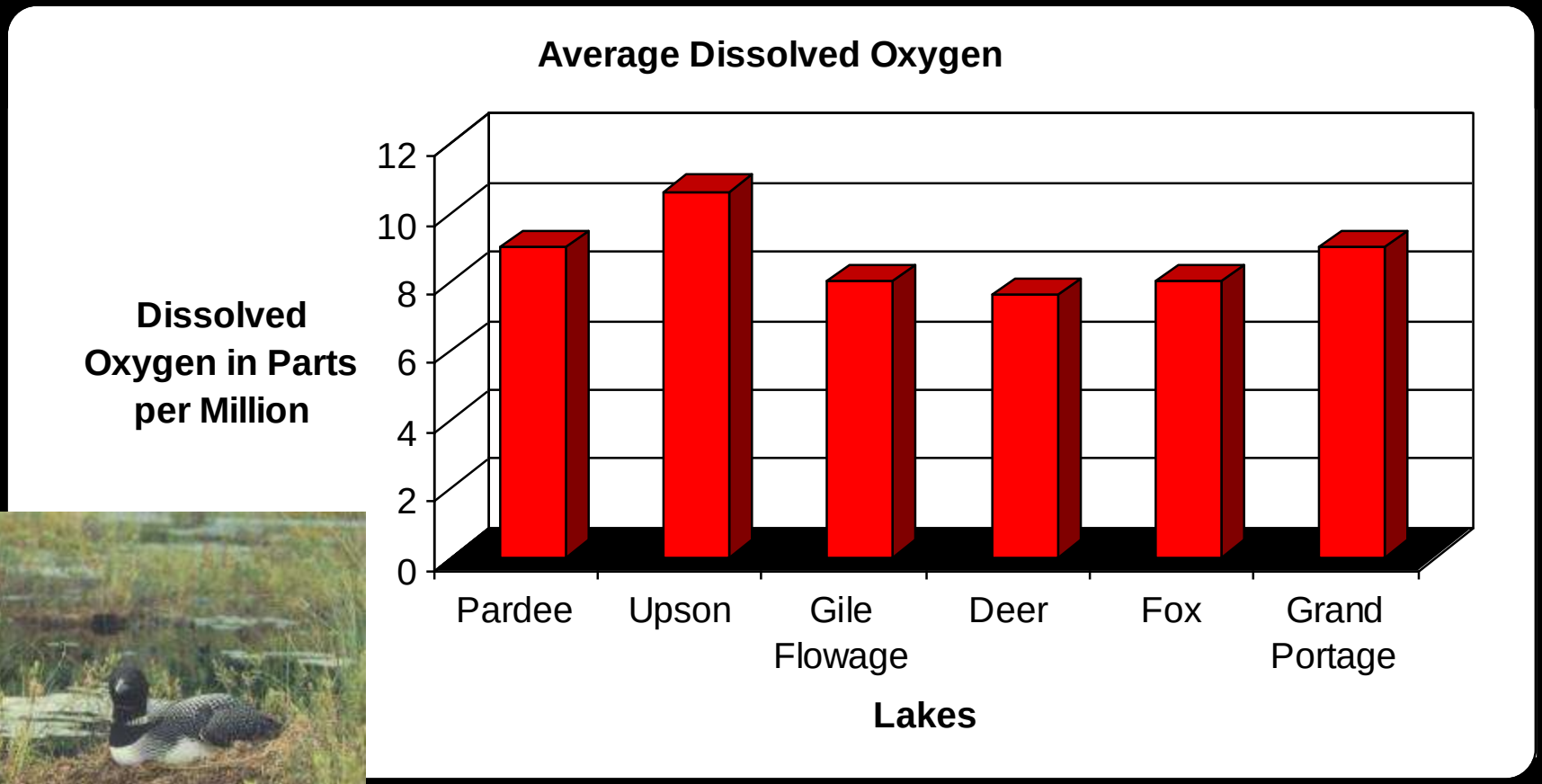
Water Quality Measurements 2010





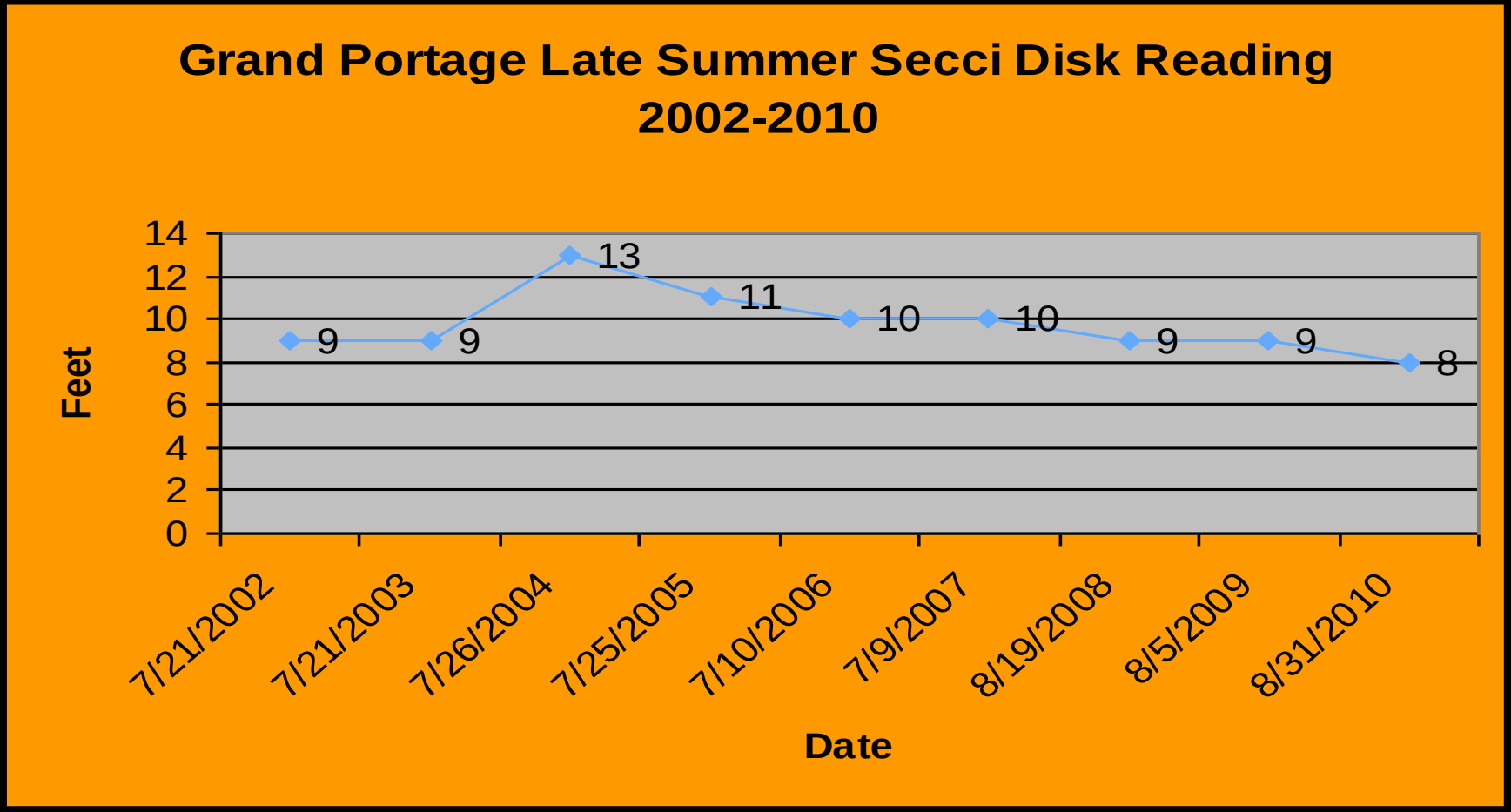


How does pH affect loon reproduction?

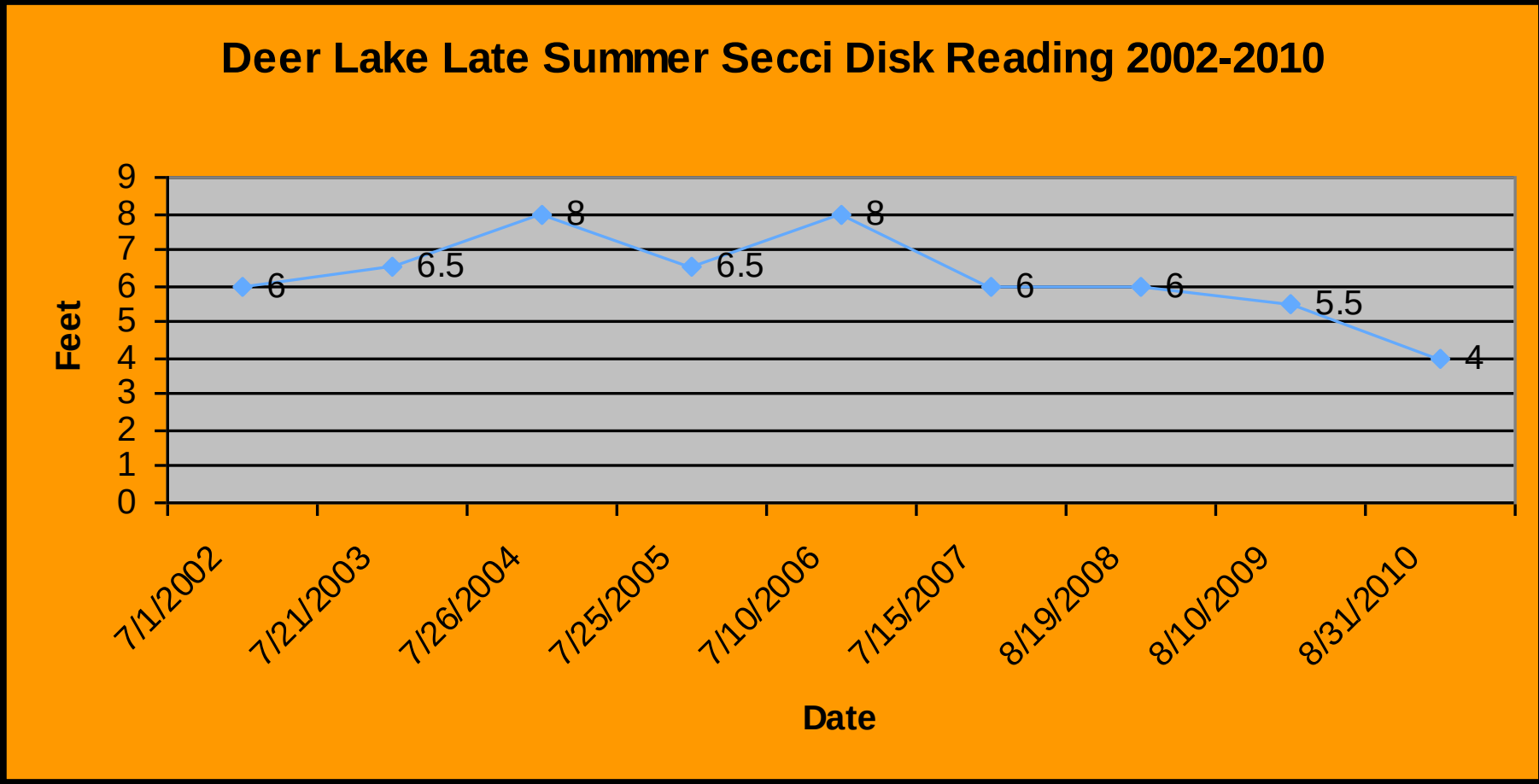


How does D.O. affect loon reproduction?

Water Clarity 05'-10' Grand Portage - Late Summer



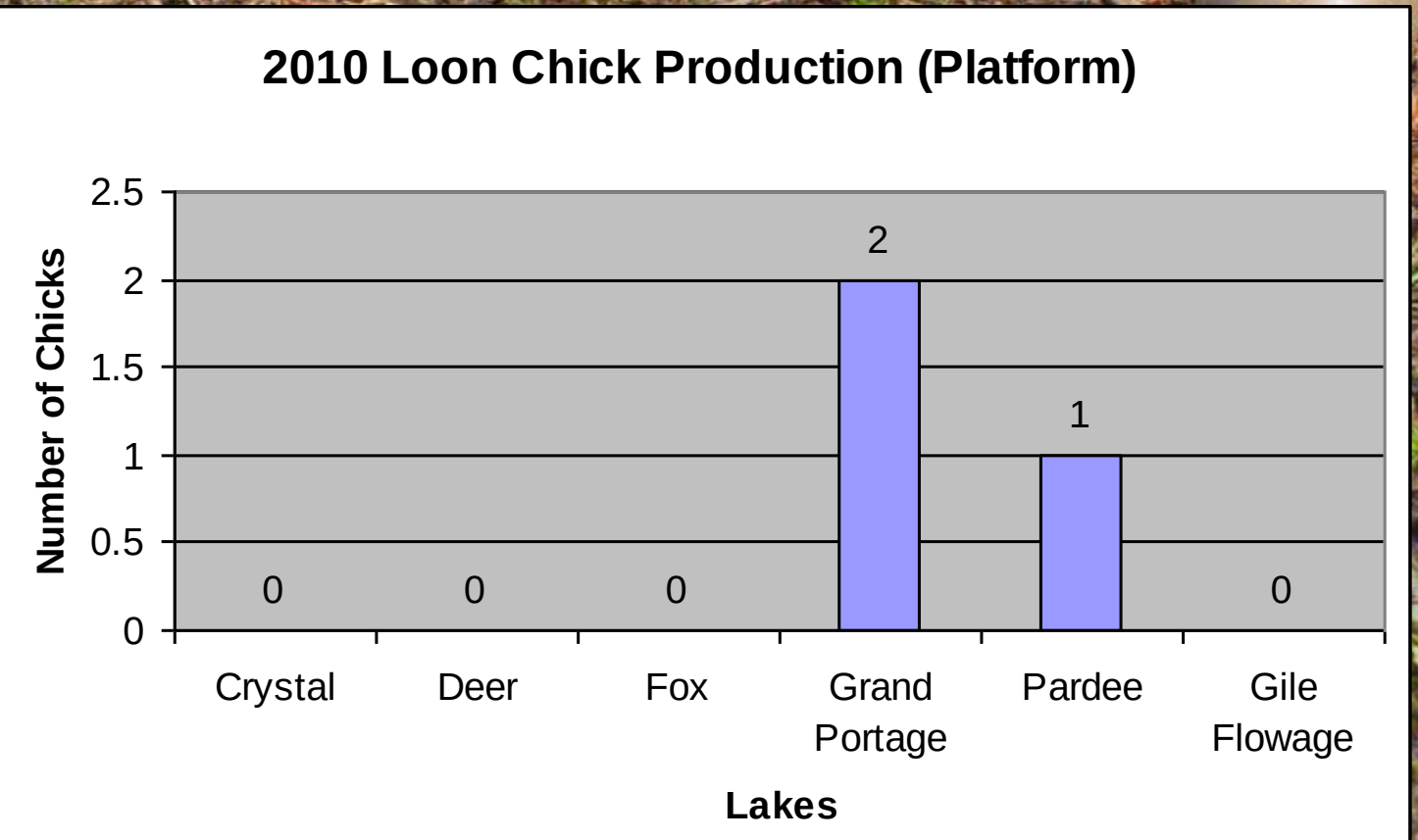
Water Clarity 02'-10'
Deer Lake- Late Summer



Chick Production- Platforms

Chick Production 2010

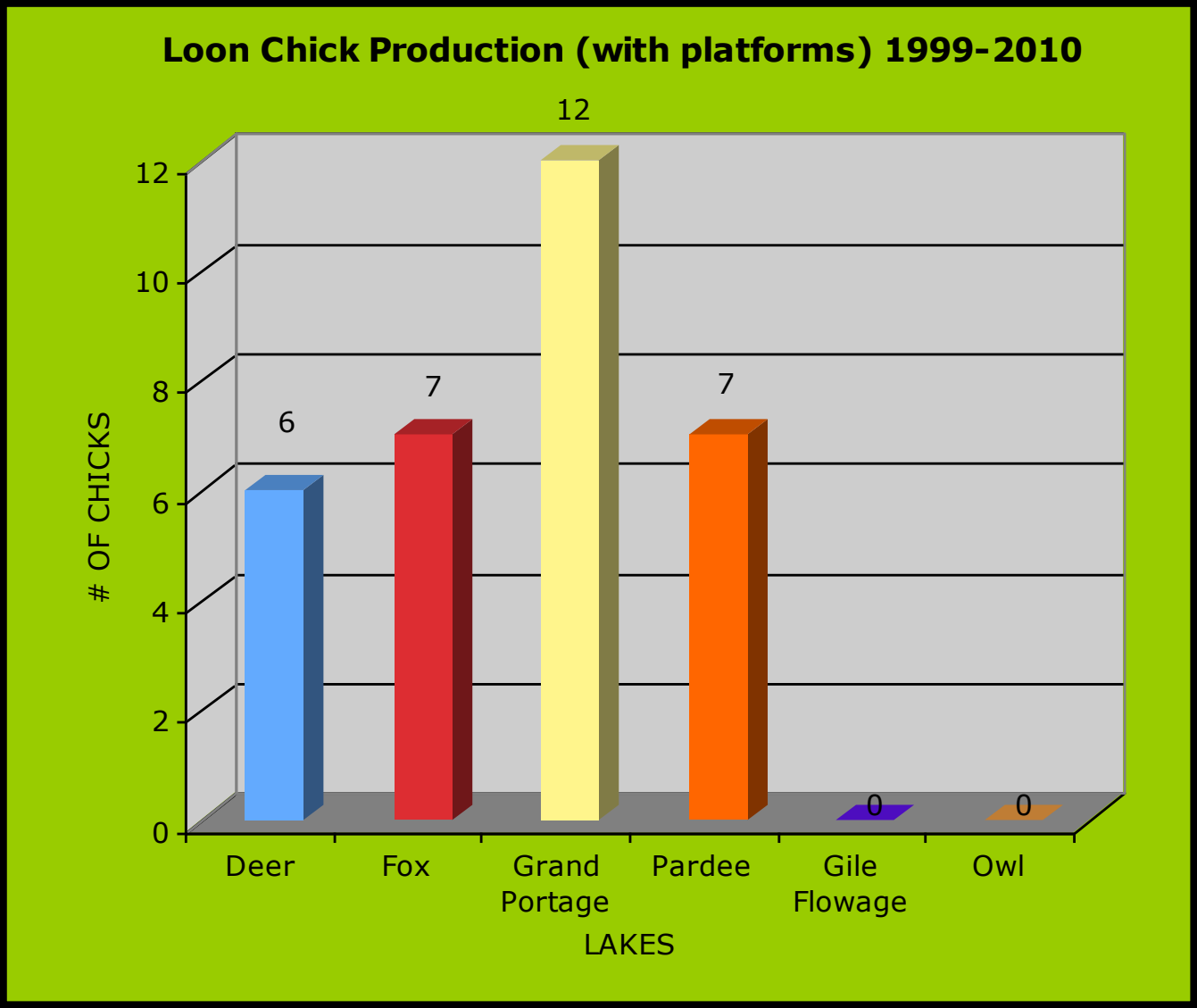
- 5 platforms, loons utilized 4 in 2010
- 4 chicks; end total of 3 (one predated)
- One natural nest, ended up failing



Chick Production 2010

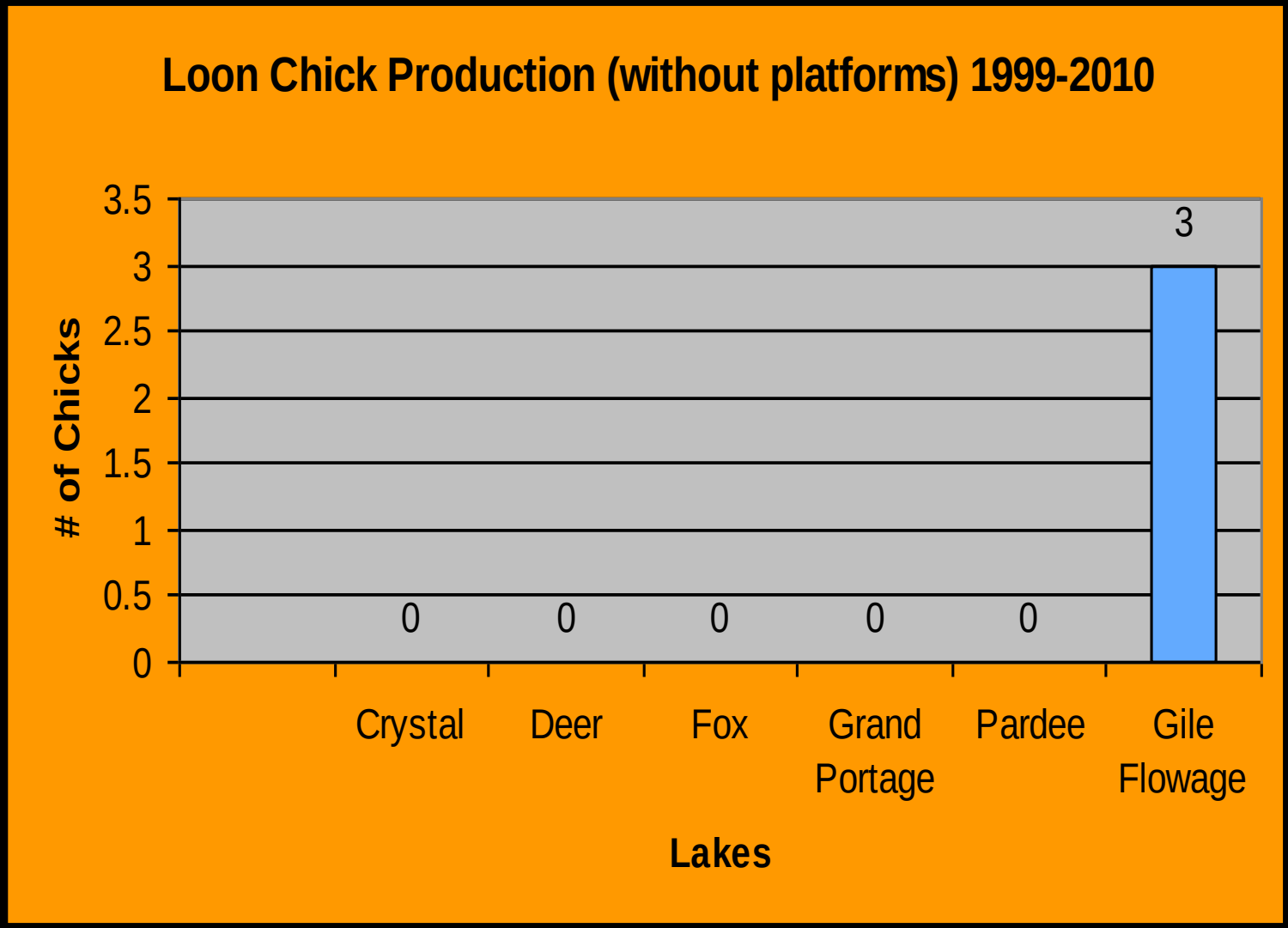
Lake Name	Nesting (y/n)	# Chicks; hatched	# chicks; survived
Pardee	Y, platform	2	1
Fox	Y, platform	0	0
Grand Portage	Y, platform	2	2
Deer	Y, natural & platform	0	0
Owl	Y, natural	0	0
Total	5	4	3

Chick Production 1999-2010



Chick Production- Natural Nest

Chick Production 1999-2010



In Summary:

- Platforms 10x more successful than natural nests
- Grand Portage is our most developed study lake, yet it has produced the most chicks!
- To address our research ?: How does pH & D.O. affect loon reproduction, we found that:
- Lakes with high water clarity, basic pH, & higher D.O. = chicks.
- Lakes with low pH and low clarity =little, or no, chick production.
- Our study lakes have shown that using artificial platforms can help increase loon reproduction.


and they live happily ever after....
Gregory Nelson