

Population Estimates and Water Quality Summary for Native Fish in Backwater Habitats (FY 2011)

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Outline

- Lower Colorado River Management Plan (LCRMP) Strategies
- Background: brief description/ stocking/ water quality/ Population estimate (Lincoln Peterson model)
 - High Levee Pond (HLP)
 - Emerald Canyon Golf Course (ECGC)
 - Office Cove (OC)
 - River's Edge Golf Course (REGC)
- Summary
- Recommendations

LCRMP Strategies

- Use of hatcheries to produce larger fish for reintroduction
- Use of natural or constructed habitats to develop self-sustaining populations and to produce larger fish for release into the main stem
- Use of exploited habitat made available by reservoir drawdown or drying to establish populations of large adults

Backwater Management Goals

- Explore Stocking Densities
- Rear 1000 RBS in backwaters to size >400 mm
- Release 1000 RBS >400 mm from backwaters into Colorado River
- Monitor Water Quality

High Levee Pond (HLP)

- Established in 1993 and located in Cibola National Wildlife Refuge
- FY 2011, water quality sustained throughout the year
- Population estimate was conducted from the April stocking using remote pit tag scanners in July of 2011, estimate is 241 RBS at 44% survivorship



Location	Month/Year	# of RBS Stocked	Average Length
HLP	April 2011	550	373 mm

Emerald Canyon Golf Course (ECGC)

- Located in La Paz County, Manage three ponds for endangered fish restoration
- Ponds 1 and 9 were each treated with Mako to reduce the adverse affects of a potential algae bloom



Location	Month/Year	# of RBS Stocked	Average Length
ECGC 1	April 2011	60	373 mm
ECGC 9	April 2011	20	373 mm
ECGC 11	April 2011	20	373 mm

ECGC Cont...

- Pond 1 population estimate is 54 RBS CL 20-134, with an average growth rate of 9.93mm per month and an average weight of 0.80 kg
- Pond 1 currently has a 90% survivorship from the April 2011 stocking of 60 RBS; the survivorship of the 2007 stocking was 3.5% out of 1002 RBS
- Pond 9 population estimate is 14 RBS CL 4-25 with an average growth rate of 11.6 mm per month and an average weight of 0.93 kg
- Pond 11 population estimate is 14 RBS CL 4-25 with an average growth rate of 15.37 mm per month and an average weight of 1.9 kg
- Pond 9 and 11 are both holding a 70% survivorship according to the current population estimate

Office Cove

- Located on the BWRNWR, Office cove is enclosed by a permeable berm
- This permeable berm allows the pond to rise and fall with the fluctuating lake levels



Location	Month/Year	# of RBS stocked	Average Length
OC	April 2011	265	373 mm

Office Cove Cont...

- A population estimate was preformed in November using remote scanners, due to equipment failure a presence survey was then performed
- The average length of RBS N=59 in OC was 398.9 mm with a monthly growth rate of 3.55 mm and an average weight of 0.57 kg



River's Edge Golf Course

- Located in Needles, CA between river mile 50 and 51, River's Edge houses two lined ponds containing RBS and BTC
- Inlet and Riverside ponds were both treated with Mako to help prevent a possible algae bloom



Location	Month/Year	# of RBS stocked	Average Length
Inlet Pond	April 2011	101	373 mm

River's Edge Golf Course Cont...

- Inlet Pond population estimate is 44 RBS, CL 18-110
- 15.14 mm average growth per month with an average weight of 1.3 kg
- 44% survivorship from April stocking in relation to current population estimate

Backwater Review

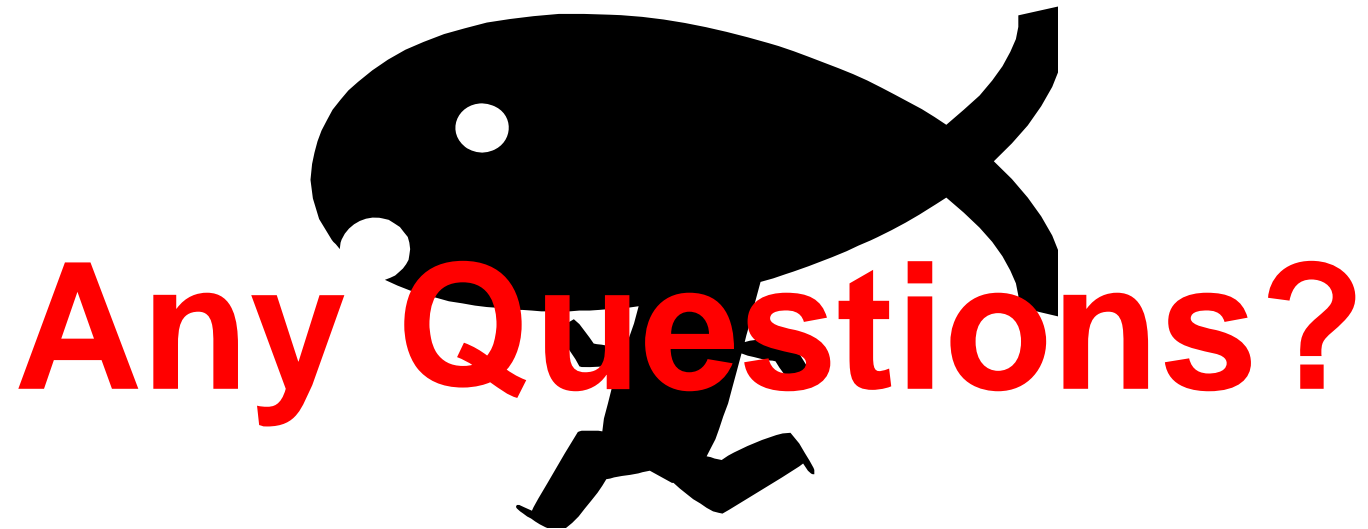
Location	Population Est.	Stocking Density	Avg. Growth Rate/ Month	Survival Percentage
HLP	241	550	N/A	44%
ECGC 1	54	60	8.07	90%
ECGC 9	14	20	9.93	70%
ECGC 11	14	20	14.31	70%
OC	N/A	265	3.55	NA
Inlet	44	100	15.14	44%

Summary

- RBS show an average growth rate that will put them well above the desired stocking size of >400 mm with in a years time
- This year we have altered the stocking density of each pond in an effort to find the stocking threshold of each backwater
- We will have to continue to alter the stocked population sizes in order to achieve this goal
- From this years results, 6 off channel habitats have shown a positive relation (i.e. increased growth, healthy weight, overall condition of fish and survivorship of stocked population) in reducing the amount of stocked fish when compared to past stocking regimes
- Information gained can be used to modify management actions and rearing techniques to grow fish of larger size and increase overall survival of stocked fish

Recommendations

- Explore stocking densities in the backwater habitats along the Lower Colorado River
- Continue monitoring water quality monthly and bi-monthly during the warmer months
- Remove and stock larger fish annually (>400 mm) from each backwaters
- Evaluate survival of larger fish released out of backwaters into the Colorado River
- The success of the backwater program should be measured by the numbers and sizes of fish harvested and overall survival both in the backwater as well as survival over time post-release



Any Questions?