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Bluegill

Lepomis macrochirus (Rafinesque, 1819)
syn. *Lepomis macrochira*

ALBERTA REGULATION: FISHERIES ACT

Last Updated: January 2018

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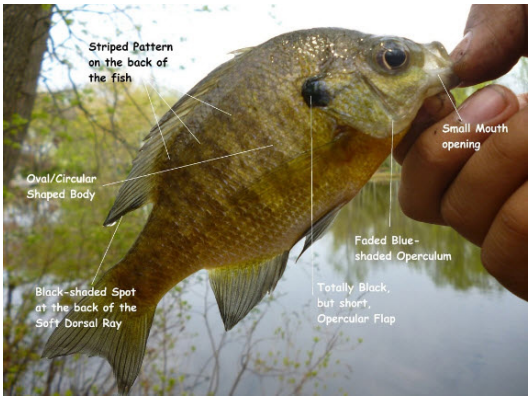

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Overview:

The bluegill is a freshwater fish of the sunfish family native to St. Lawrence - Great Lakes and Mississippi river basins.[2] It has been widely introduced across North America and other parts of the world where it is popular as a sportfish.[1]

The bluegill's Latin name: Lepomis = "scaled gill cover" and macrochirus = "large hand" which may refer to its body shape.[1]

Bluegill become sexually mature early – at one year of age but can spawn as early as four months – and females spawn five times per year, on average. A 12.0 cm female can produce about 80,000 eggs per year and bluegill live up to five years.[1] This rapid population growth leads to overcrowding of native fish and direct competition for food and habitat.[1]

Male bluegill perform alternative reproductive strategies. 'Parental' males delay sexual maturity until 7-8 years of age and fight amongst themselves to construct spawning nests within a colony.[4] When the females arrive, the 'parental' males spawn with them. 'Cuckolder' males mature sexually by age 2 and do not participate in nest building.[4] When females arrive smaller cuckolders 'sneak' in past the 'parental' male's defense boundary and spawn directly over the eggs as the female lays them.[4] Larger cuckolders mimic females and follow them into the nest to spawn with the female. Their success depends on fooling the 'parental' male.[4]

L. macrochirus is most similar to the orangespotted (*L. humilis*) and redear sunfish (*L. microlophus*) but can be distinguished by the black spot at the base of the soft dorsal fin.

Bluegill hybridize with several *Lepomis* species.[1]

As of January 1, 2016, the possession, sale, or transport of this species in Alberta is illegal under the Fisheries Act.

Habitat:

Bluegill inhabit shallow, warm, slow-moving (<0.5 m/km) streams and lakes, ponds and reservoirs often with abundant vegetation. Deeper areas are used in winter and during summer heat. Young fish utilize areas with cover while older fish prefer more open water.[1]

Identification:

Bluegill have a laterally compressed and very deep body – body depth is usually 2-2.5 times total body length. The mouth is terminal and oblique.

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Bluegill *(continued)*

The sides of the head and chin have a bluish colouration and the back is olive-green to brown. The sides of the body are blue-green to brown-orange or may be pinkish. The breast is yellow and the abdomen yellow-white.[1] A faint black spot on the back edge of the gills and at the base of the dorsal fin distinguish this species from other *Lepomis*. The opercle is flexible and not margined in scarlet.[1] The gill rakers reach at least to the base of the second below when depressed.

Breeding males have a copper coloured breast and green or blue metallic overtones on the head and body. Females have more conspicuous and distinguished genital papilla than males.[1]

L. macrochirus has ctenoid (triangular) scales. The lateral line is arched upwards and has less than 55 scales.[1]

Pectoral fins are long and pointed with 12-13 rays, whereas the lower fin rays are shorter than the upper pectoral fin rays. The anal fin has 3 spines and 10-12 rays, the dorsal fin 6-13 spines and 11-12 rays. The peritoneum (gut lining) is silvery.[1]

Average total length is 19 cm and the maximum reported length 41 cm. The maximum published weight is 2.2 kg and maximum reported age 10 years.[2]

Ecology:

Spawning occurs generally from March to October but depends on water temperature - in Florida spawning started at water temperatures of 21°C.[1] Bluegill commonly nest at water depths from 0.2-1.2 m, usually in a vegetation-free area over sand or gravel. Nests are placed close together in colonies of 9-15.[1] Colonies may consist of dozens of nests.[3] The males prepare the nests with their tails, clearing away silt and fine sand.[1] Spawning males are more aggressive and will court a female by swimming up to her and then back to the nest while producing a series of grunting noises.[1]

Fertilized eggs are 0.11-0.14 cm in diameter.[1] Eggs hatch in 2-3 days and the adult males guard the nests and the hatchlings.[3] Fry migrate to deeper water after yolk-sac absorption.[1] Growth is very rapid in the first three years.[1]

Bluegill are active mainly at dusk and dawn, hiding under cover during the day. They will hide under logs or among vegetation. At night they move to shallower waters.[1] They swim in schools of 10-20 fish, which may include some other species.[1]

Bluegill are opportunistic feeders and their diet shifts with availability. Fry feed on zooplankton, and juveniles and adults feed on zooplankton, aquatic and terrestrial insects, and aquatic vegetation including algae. Adults will also feed on small fish, snails, worms[1] and fish eggs.[3]

Economic Impacts:

Bluegill compete directly with native fish for food.[1] The decline of native sportfish populations could have impacts on recreation and tourism.

Environmental Impacts:

The bluegill diet competes directly with native fish for food and habitat. Large bluegill populations overcrowd and stunt the growth of other fish. They may also compete with other fish species for spawning areas.[1] Bluegill are highly adaptable to different environments.[1]

Sociological Impacts:

The transformation of native aquatic communities results in the intrinsic loss of natural capital and enjoyment of natural areas.

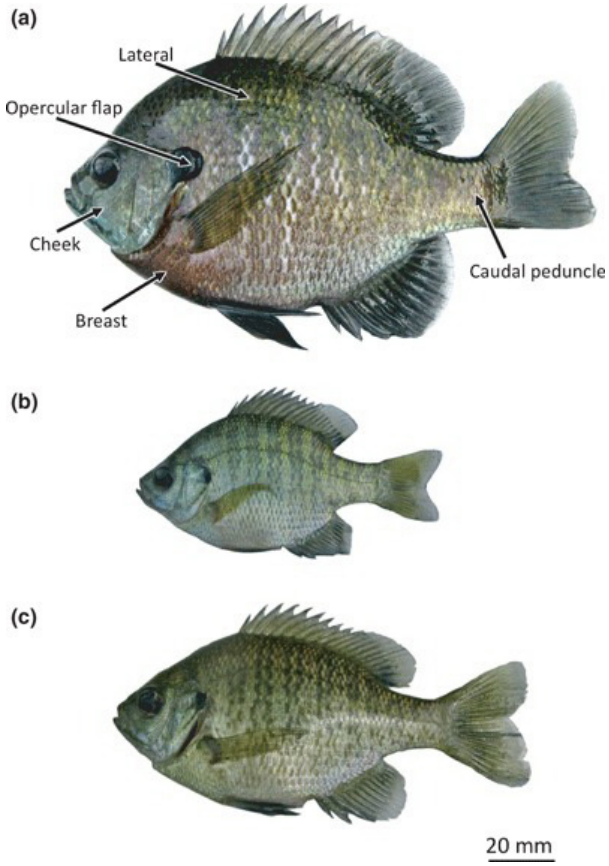
Prevention:

Learn how to identify bluegill and how to prevent spread. They are difficult to detect in the field due to their hiding behaviour during daylight hours.[1] Never empty your aquarium into natural water bodies.

Control:

Currently there are no established control options for bluegill other than preventing introduction and harvesting by fishing. If caught, bluegill should be killed and not released.

Bluegill *(continued)*



https://www.researchgate.net/publication/227530783

Figure 1: Representative photographs of bluegills (*Lepomis macrochirus*). (a) Parental male (186 mm TL) – labels indicate body regions from which spectral reflectance was measured; (b) immature male (108 mm TL); (c) mature female (146 mm TL).

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