

demuestre una correlación con coral desovando, sugiriendo sepia pueden ser atraído a la Flower Garden Banks por el acontecimiento de desovando por los corales. Además, el examen detallado de la morfología de individuos adultos mostró las hembras haber spermatophores en la zona bucal y en la capa dorsal y ventral. Mientras que la significación de las agregaciones anuales de *L. roperi* permanece sin resolver, la presencia de spermatophores en hembras adultas sugiere que sepia pudo desovando durante este tiempo. Otra hipótesis sería que *L. roperi* agregan durante coral desovando para capitalizar en la prolífica abundancia de recursos alimenticios durante este periodo. En cualquier caso, la agregación de *L. roperi* descrita en esta comunicación es la primera agregación anual documentada en la especie y proporciona una inmejorable oportunidad para investigar los hábitos sociales y reproductivos de *L. roperi* con mayor detalle.

PALABRAS CLAVES: Flower Garden Banks, sepia de Roper, *Loligo roperi*, Golfo de Mexico

Flame Scallops: Ripe for Aquaculture?

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The reproductive cycle of the flame scallop, *Ctenoides scaber* (Born 1778), formerly *Lima scabra scabra*, from Boca Chica Key, FL was examined from January 1998 to September 1999 using qualitative and quantitative methods. Flame scallops have a high meat-to-shell ratio, are consumed throughout the Caribbean basin, and are commonly harvested for the marine aquarium industry, but difficulties in collecting them from their rocky and coralline habitats limit the increase of the commercial fishery. Economically they may be good candidates for aquaculture production.

In the wild, annual reproductive trends are related to seasonal changes in water temperature and food production. Gamete initiation occurs in winter with maximum ripeness observed in late summer. Synchronous spawning occurs in autumn with rapidly decreasing water temperatures and increased phytoplankton abundances. Partial spawning, observed in late spring, could

not be related to environmental conditions.

Evidence of spawning was frequently observed in wild collected flame scallops 12-24 hours after collection in an uncontrolled environment. Spawning animals had ripe gametes; had densities of >20 animals/8L of seawater; had limited light for 12-24 hours, limited air exchange, <1-2°C temperature change, and had been subjected to mechanical vibrations during transport.

In the laboratory, temperature, salinity, density, and food availability were manipulated individually, combined, and with chemical stimulants to encourage spawning activity. We were not able to induce spawning. Larvae that were produced did not survive longer than 36-hours, though some developed into "D"-shaped veligers.

The data suggests that it may be possible to produce flame scallops in an aquaculture facility, however more research is needed to determine the factors that will induce spawning in a controlled hatchery environment. The production of these animals would provide alternative stock for the marine aquarium industry, alleviating the increasing stress on natural populations. It may also provide an alternative food source for humans.

KEY WORDS: Aquaculture, *Ctenoides scaber*, reproduction

Flame Scallops: Madurez para la Acuicultura?

El ciclo reproductivo de los moluscos, *Ctenoides scaber* (Born 1778) antes *Lima scabra scabra*, de la Boca Chica Key, FL fue examinado desde 1998 a 1999 usando metodos cualitativos y cuantitativos. Los moluscos tienen un alto porcentaje de carne en su concha son consumidos en cualquier parte de la Cuenca del Caribe y son comunmente cosechados por la Industria del Aquario Marino y la colleccion de ellos entre rocas es un poco dificil y los habitas de coralinos limitando el aumento de la pesca commercial.

Economicamente ellos podrian ser buenos candidatos para la produccion de la acuicultura.

En lo salvaje anualmente la reproductividad tiende a ser relacionado con los cambios de estaciones del agua temperatura y produccion de alimento. El inicio del gameto ocurre en invierno con una maxima madurez observada en lo ultimo del verano. Synchronous el desove ocurre en otoño con un grado de temperatura del agua reducido rapidamente y un incremento abundante de phytoplankton. El desove parcialmente se observa en primavera pero no podria relacionarse con las condiciones del medio ambiente.

Evidencias de desove fueron frecuentemente observadas en lo salvaje y colectados flame scallop 12-24 horas despues de la colleccion en un ambiente incontrolable. El desove de los animales tiene una madures de gametos y tiene una mayor densidad de 20 en los animales con 8 litro de agua salada, o agua marina tiene un limite de luz de 12 a 24 horas un limite de cambio de aire, menos 1-2 grados centigrados en el cambio de temperatura, y ha venido siendo sugetado vibraciones mecanicas durante el transporte.

La temperatura en el laboratorio, salinidad, densidad, y disponibilidad de alimento fueron manipulados individualmente, combinados con quimicos

estimulantes para provocar o promover el desove. Nosotros no fuimos capaces de inducir el desoven o provocar. La larva que fue producida no logro sobrevivir mas de 36 horas sin embargo algunos desarrollaron en forma de "D".

Los resultados sugieren que esto seria posible producir flume scallop en un centro de acuicultura. Sin embargo es necesario hacer mas investigaciones para determinar los factores de la cual podrian inducir a un desove controlado en un ambiente de produccion de la cria. La produccion de estos animales proveeran una alternativa de abastecimiento para la Industria Aquarium Marina, aliviando el aumento del estres en poblaciones naturales. Esto tambien podria proveer una alternativa o fuente de alimentos para los humanos.

PALABRAS CLAVES: Acuicultura, *Ctenoides scaber*, ciclo reproductivo

A Health Index for Hatchery-Reared Red Drum (*Sciaenops ocellatus*)

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The health of hatchery-reared red drum (*Sciaenops ocellatus*) has been monitored for over 15 years at the Florida Fish and Wildlife Conservation Commission's (FWC) Stock Enhancement Research Facility (SERF) in Port Manatee, FL. Routine health evaluations include external and internal examination of the major organs for overall condition, physical abnormalities, parasite infestations, microbiological infections, organosomatic indices, and condition factor. The health challenges of hatchery-reared fish are usually related to water quality and stocking densities. By using established protocols, data and parameters obtained from SERF's red drum health evaluations we have developed a health index (HI) to relate all quantitative and qualitative data associated with internal and external evaluations. The parameters were assigned based on the negative affects each had on the health of the fish. Conditions that caused severe complications or were lethal received lower values than those that had little or no affects on fish health. Healthy fish had computed HI values near 100, while those fish with HIs below 80 were health compromised and it was recommended to management that they not be released. The development of this health index will help establish defined