



# Recovery Tool for Enhanced Black Abalone Recruitment on the California Channel Islands and Coastal Habitat

Project # 12-635



## Background:

The Department of Defense (DoD) is responsible for the management of Federal lands, which are home to a wide array of flora and fauna some of which have been listed as endangered or threatened as part of the Endangered Species Act (ESA). The black abalone was listed as endangered under the ESA in January 2009 (74 FR 1937). Black abalone currently inhabit the rocky intertidal areas of DoD land in southern California (San Nicolas and other Channel Islands). San Nicolas Island is an important Navy training and operating range. Without proper management of black abalone, these ranges could potentially be at-risk for restricted training activities or even closure. In order to avoid potential negative impacts on training and operations, a proactive program in abalone restoration efforts must be started to increase the number of disease-resistant black abalone within impacted areas.

## Objective:

To determine which culture regimes will condition black abalone for spawning The main objective is to develop competent larvae, settle the larvae for metamorphosis into juvenile abalone, and culture of the juvenile abalone for eventual outplanting into designated habitat to increase recruitment of this species.

## Summary of Approach:

SSC PACIFIC is growing Black Abalone under various controlled environmental conditions to determine (1) the optimal seawater temperature for sustained growth (body mass, gonad index) and (2) the optimal algal diet required to attain an appropriate gonad index for spawning in the laboratory. When the appropriate gonad index is attained, induced spawning will be conducted.

## Benefit:

Navy installation resource managers will be the receivers of the product of this proposal. The installation managers are responsible for the management of natural resources on Navy property. Successful management is necessary for the continuation of operations and training on Navy ranges. The Channel Island and surrounding environs hosts the most important training range in the eastern Pacific Ocean for the Navy. The US Pacific Fleet conducts live ship to shore training and engages in near shore operational exercises. Under the Endangered Species Act (ESA), all of these activities require annual concurrence from the National Marine Fisheries Service (NMFS) as these types of training and operations may affect endangered black abalone populations and their habitat. By proactively addressing further loss of endangered species and species of concern, installation managers will be provided with the best available information. The capability of conducting trial outplants (when this decision is made) and getting ahead of the curve by developing culturing methods for endangered species allows range management a suitcase of options to mitigate range activities. These activities support the US Navy's perception that we are good stewards of the environment, by showing concern and being proactive in the protection of endangered species of abalone.

## Accomplishments:

1. An ESA permit to culture black abalone was secured from the National Marine Fisheries Service to conduct research on conditioning the black abalone
2. SSC Pacific transferred black abalone to its farm and established a culturing system
3. Data has been collected for 10 months on growth requirements
4. Induced spawning planned for October 2013

## Contact Information:

Dr. David Lapota

Space and Naval Warfare Systems Center, Pacific  
53475 Strothe Road, Code 71761; San Diego, CA  
92152-6310

Phone: 619.553.2798

Fax: 619.553.6305

david.lapota@navy.mil

