

SOCAL-10 Test Plan Summary

GENERAL OVERVIEW

What is SOCAL-10?

SOCAL-10 is the first year of a 5-year project (notionally called SOCAL-BRS (Behavioral Response Study), designed to contribute to emerging understanding of marine mammal behavior and changes in behavior as a function of sound exposure for various species. It is part of an integrated, international, comprehensive effort to measure impacts using observational methods, satellite tagging, prior to real exercises, and controlled exposure studies (CEE). SOCAL-10 extends previous efforts (from NOAA, US Navy sponsors, researchers, and operational personnel, and academic and private sector researchers and engineers), to understand and thereby better manage the potential negative effects of sound on marine mammals.

SOCAL-10's Primary objectives are as follows:

- 1.) Tag a variety of focal species and obtain baseline behavioral data;
- 2.) Conduct CEEs on focal species and develop new "tagless" playback protocols (pilot effort) where focal animals are not carrying acoustic tags;
- 3.) Determine optimal BRS configuration for SOCAL is scaled playback configuration and integration of pinnipeds as focal animals

Why do this?

Data to be obtained in SOCAL-10 and beyond are critically needed to assess and mitigate potential negative effects of sound on marine mammals from human activities, including military sonar training and testing. These data will be provided directly to sponsors, Navy staff for operational planning and risk assessment, regulatory agencies, and scientific/public audiences (respectively and appropriately).

Where are we doing this?

The operational area includes southern/northern "inshore" areas around southern California (from the Mexican border to Morro Bay) and an offshore areas that includes the U.S Navy's SOCAL operational area (US waters) and specifically the SOAR acoustic range to the west of San Clemente Island.

When will we collect data?

SOCAL-BRS will occur during the summer/autumn months of 2010 through 2015. SOCAL-10 is operating in two legs on the R/V Truth from 22 Aug to 10 Sept and on the R/V Sproul from 21 Sept to 1 October.

How?

The source vessel will be the logistical hub of operations. It will have visual monitoring capabilities and will move to RHIBs once tags attached and conduct CEEs, monitoring/mitigation, and tag retrieval.

Tagging RHIBs will largely operate independently of source vessel, providing their own visual detection in support of tagging efforts until tags are attached. Once animals are tagged, RHIBs will serve a monitoring and support role for the source vessel during playbacks.

Passive acoustic monitoring will guide field operations, as possible, when operations are conducted on the SCORE range. Sonobuoys will also be used (as possible and not within the CINMS). No specific aerial survey effort will be included in SOCAL-10, although during leg II there will be some aerial surveys associated with range monitoring with which we will be in communication.

Who are our sponsors?

-U.S Navy, Chief of Naval Operations, Environmental Readiness Division; Program Mgr: Dr. Frank Stone

-Office of Naval Research, Marine Mammal Research Program; Program Mgr: Dr. Michael Weise.

Who is authorizing our work?

- SOCAL-10 will operate under NMFS permit #14534 issued to NMFS Office of Science and Technology; Brandon Southall is the designated chief scientist and a number of co-investigators are on-board (see other sheet)

- SOCAL-10 also has obtained a scientific research permit (#2010-004) from the Channel Islands National Marine Sanctuary (issued to B. Southall)

- SOCAL-10 has also been issued a consistency determination by the California Coastal Commission

- Individual IACUCs have also been completed for some participating organizations as well as a DOD Animal Use Protocol

How will our work be communicated to others?

- We are using www.sea-inc.net/SOCAL10 as the public portal of information on the project. There is much information there, including simple and detailed summaries of the project, a slide overview, and other information.

- Linked to the website is a from-the-field blog with updates and summaries of our work, pictures, videos, etc. B. Southall will be the conduit for information to the blog and website, but is very open to ideas, material, and suggestions for what to include (and he will be bugging you likely for it).

- Following the project and for Nov "lessons-learned meeting" (LaJolla 21-23 Nov), a quick-look report will be completed and provided to sponsors. Other information will be made available upon discussion with our team and sponsors for scientific/public presentations.

TAGGED FOCAL ANIMAL CEE OBJECTIVES AND PROTOCOLS

This objective is to conduct CEEs to focal individual/groups of cetaceans in which at least one animal is carrying a suction cup acoustic tag.

The following conditions must be met:

- 1.) Tags must be successfully deployed long enough to obtain reasonable amount of data with minimal attachment disturbance (ideally 2 hours following attachment for odontocetes; >45min. for mysticetes);
- 2.) During this interval, obtain all possible visual observation on baseline behavior from source vessel and RHIBs;
- 3.) Determine/confirm that no calves in group are neonates (>6 months of age);
- 4.) Determine that operational conditions are likely to allow for successful completion of CEE and interpretation of results, as well as post-exposure monitoring.

Tagged CEE Procedures

- 1.) The position source vessel must be ~1000 m from focal group;
- 2.) Avoid conditions where other vessels approach to within 1 km of focal animals;
- 3.) Initiate sound transmissions at a source level of 160 dB re: 1uPa, with 1 transmission every 25 sec. ramped up by 3 dB per transmission to maximum output level;
- 4.) Maintain transmissions once every 25 sec. at max. source level for a total max. transmission time of 30 min.;
- 5.) One signal type per focal individual.

Shut-Down Criteria

This pertains to any marine mammal inside 200 m shut-down zone around the source level during transmission. If any marine mammal exhibits directed, high speed or other abnormal swimming behavior (disorientation/confusion, etc.), especially toward shore, we will shut-down.

If a mother-calf pair begins to become clearly separated, sound transmissions will be terminated. As per our discussions with CCC, SOCAL-10 will use a *precautionary interpretation* of how separation is determined.

As for post-playback monitoring, source boat and/or RHIB visual teams will remain visual for a minimum of one hour post CEE.

TAGLESS CEE OBJECTIVES AND PROTOCOLS

This objective is to conduct CEEs to focal individuals/groups of cetaceans in which no animals are carrying a suction cup acoustic tag, but one or more may be tagged with a satellite tag.

The following conditions must be met:

- 1.) Monitor behavior using source boat and RHIB visual capabilities for a minimum of 45 min.-2 hrs.
- 2.) Determine/confirm that no calves in group are neonates (absence of fetal folds; >6 months old)
- 3.) Operational conditions are likely to allow for successful completion of CEE and interpretation of results, as well as post-exposure monitoring

Tagless CEE Procedures

- 1.) Position source vessel ~1000m from focal group
- 2.) Reduce engine noise/speed
- 3.) Avoid other vessels approaching within 1 km of focal animals
- 4.) Deploy source to specified depth
- 5.) Determine # marine mammals within 200m of source vessel
- 6.) Initiate sound transmissions at a source level of 160dB re: 1uPa, with one transmission every 25 sec. ramped up by 3dB per transmission to max. output level
- 7.) Maintain transmissions once each 25s at max. source level for a total max. transmission time of 30 min.

Shut-Down Criteria

This pertains to any marine mammal inside 200m shut-down zone around source vessel during transmission. If any marine mammal exhibits directed, high-speed, or other abnormal swimming behavior (disorientation/confusion, etc.), especially toward shore, we will shut-down.

If a mother-calf pair begins to become clearly separated, sound transmissions will be terminated. As per our discussions with CCC, SOCAL-10 will use a *precautionary interpretation* of how separation is determined.

As for post-playback monitoring, source boat and/or RHIB visual teams will maintain visual monitoring of focal groups for a minimum of one hour post CEE.