California State Lands Commission
New Low Energy Geophysical Survey Permit
"Overview of Regulations"

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Jeff Carothers (Fugro)

Fugro's marine survey services involves the study, mapping and analysis of subsea and nearshore conditions as well as sub-bottom geology in order to better inform and help manage human activities in and near the marine environment.

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California State Lands Permit Background and the Original Mitigated Negative Declaration of 1984

It all Started with Seismic Exploration Ships in the 1970's and early 1980's.

- Ships used high energy air driven pistons as a sound source in water (air-guns).
- By the early 1980s a number of complaints had been made primarily bye the commercial fishing industry.
- The California State Lands Commission (CSLC) was tasked to conduct an environmental study (CEQA) and assess the adverse affects on Marine Mammals
- Due to the fact that the complaints were related to O&G activities the study was assigned to the Commission's
  Mineral Resources Management Division.
- Following the EIR in 1984 the Mineral Resources Division officially banned the use of Air-Guns and a non-exclusive Geophysical Survey Permit Program was put in place.
- The resulting permit was based on a Mitigated Negative Declaration (MDEC) developed from the study. The permit allowed permitted companies to conduct surveys without having to file for a new permit on each project, so far so good.

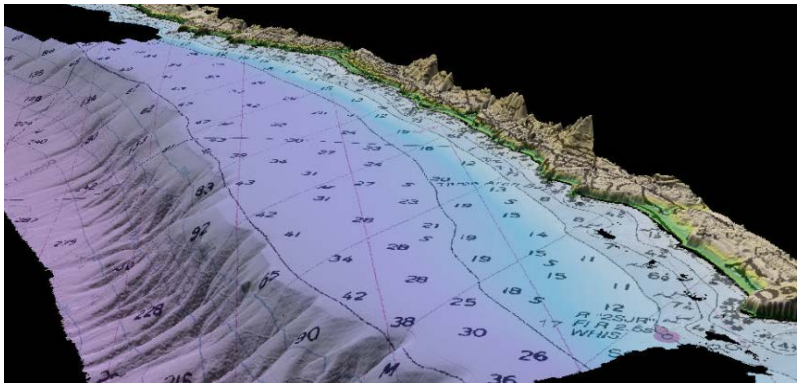
Permit Regulations 1984 until 2011

- The original 1984 Geophysical Survey Permit Program required anyone conducting acoustic surveys in State Waters to apply for a permit, put up a $50K bond, obtain the permit and adhere to the regulations of the permit whether the survey was of a “Geophysical” nature or not. The permits were issued for periods of 3 years requiring a new application and permit every 3 years.

- This seemed to work well but a major limiting factor is that the CSLC did not have the resources to enforce the regulations so there were and are a number of survey companies continuing to operate without a permit in state waters. There was and still is no stated penalty for surveying without a permit.

- The Permit Regulations in effect from 1984 to September 2011 required any Permittee to notify stakeholders in the area about upcoming surveys to avoid conflicts with primarily fishing concerns. The permit set what was required to notify stakeholders.

  1. Two Weeks in advance of field operations submit a Notice to Mariners to the USCG, send survey notices with a chart of the survey area, to a number of government agencies, ports and harbors, commercial fishermen, and other interested parties. About 40-50 entities were notified by certified mail before each survey even if it was to be only a 1 hour survey.
  2. The notices contain information on where and when the survey is going to take place and what equipment will be used Provide CSLC copies of all survey data, charts, and reports if requested.
  3. The permit also required that the CSLC also receive copies of all survey data, charts, and reports if requested. This could raise confidentiality issues with some clients, however this was rarely enforced.
  4. In 2011 CSLC made and ad-hoc change to the regulations requiring Marine Wildlife Observers be aboard during all surveys.



Hydrographic Mapping (Charting)

Coastal Zone Management Studies

Permit Regulations 2011-2013

- In 2011 environmental concerns, in an attempt to limit acoustic noise in the ocean, started filing complaints that the original Mitigated Negative Declaration from 1984 was outdated and needed to be revised. Enough pressure was felt by the CSLC that along with the Ocean Protection Council funding was obtained to do a new study on the affect of sound on marine wildlife. A contractor was awarded the work and modelling of acoustic levels and their affect on marine wildlife was underway.

- While the new study was being conducted the CSLC switched to a one year renewal period on permits and added several new conditions to the Permit Regulations that turn out to be costly. In addition to what was already in affect, new additional interim regulations were required while the new MDC was being prepared. These included the following:

  1.The interim permit added the requirement that two weeks in advance of field operations, the surveyor is to prepare a Marine Wildlife Contingency Plan and Vessel Spill Plan for submittal to the Minerals Resource Division and National Wildlife Service for approval.

  2.A requirement was added that a National Marine Fisheries Certified Marine Wildlife Observer(s) (MWO) be aboard the survey vessel during all transit and survey operations. The MWOs use binoculars to scan the area around the vessel looking for marine wildlife in the areas and record the behavior of the animal.

  3.The MWO has the authority to shut down or delay survey operations if nearby Marine Mammals appeared to be in distress. This term “distress” is fairly ambiguous and open to a different interpretation by different MWOs

  4.At the end of the project a the MWO produces a report that is submitted to the CSLC listing any wildlife sited during the survey and what if any action was taken.

Typical Survey Vessel in Coastal Areas

NOAA Coastal Survey Vessel

Final 2013 Mitigated Negative Declaration

- During the summer of 2013 the recent y completed modeling study was used to update the MND and develop new permit regulations. The focus of the new permit is to further mitigate negative affects of underwater sound on marine wildlife and to work more closely with the fishing and sport diving industries.

- The final Mitigated Negative Declaration was produced based using these criteria:

  1. Summary of Low Energy Offshore Geophysical Permit File Review
  2. Representative Survey Vessels
  3. Air Quality Emissions Calculations
  4. Marine Habitat Summary
  5. Summary Information for Plankton and Ichthyoplankton
  6. Essential Fish Habitat Assessment
  7. Underwater Sound Modeling of Low Energy Geophysical Equipment Operations
  8. Scientific Review: Acoustics and Low Energy Geophysical Surveys and their Potential for Impact
  9. Methodology for Estimation of Marine Mammal Take and Weighting or Correction Factors

- On September 20th at a meeting of the CSLC in Sacramento the MND was adopted and a new permit developed by CSLC staff to mitigate these issues was approved by the commissioners. At the meeting Permits were granted to a total of xx companies who had previously applied for the permit prior to seeing the language of the permit. The new permits with the additional, more onerous regulations went into effect on October 1, 2013.

Permit Authorized Low Energy Equipment and Survey Methods

- Under this permit, only Permittees are authorized to collect geophysical data utilizing energy receivers and/or acoustic pulse-generating devices. The Permittees are authorized to operate geophysical survey equipment in State waters only under the following conditions:

  •No survey equipment may be used other than the following and equipment necessary for use of the following (consistent with the Mitigated Negative Declaration or with characteristics substantially similar to those

  1. Echosounders (i.e. single beam and multibeam echosounders, fathometers);
  2. Side scan sonars;
  3. Sub-bottom profilers (i.e. mini-sparkers, boomers, chirp, general subbottom profiler systems), excepting boomers proposed for harbor porpoise habitat from Point Conception to the Oregon border2;
  4. Multi-component systems;
  5. Passive equipment (e.g. magnetometers, gravity meters).
  6. Remotely Operated Vehicle (ROY) for survey application.

- Permittee shall follow, to the maximum extent possible, the following guidelines as they pertain to the use of subbottom profilers and side-scan sonar, including:

  1. Using the highest frequency band possible for the subbottom profiler;
  2. Using the shortest possible pulse length; and
  3. Lowering the pulse rate (pings per second) as much as feasible.
  4. Permittee shall regularly inspect and service their equipment to ensure that it is maintained in proper working order.
  5. Use of any air or water compression devices or chemical explosives for generating acoustic pulses are expressly prohibited.

New Survey Permit Regulations, Compliance, and Additional Costs

- To be in compliance there are a number of new hoops for surveyors to jump through. A number of the regulations have been in affect and followed by compliant organiaions for many years. However we believe that the new regulations currently enforce are much more intrusive and will be expensive to owners.

1. Engine Tuning, Engine Certification, and Fuels (Tier 2 and a Daily Limit on Fuel Burned).
2. Permittee shall submit, and the CSLC staff shall receive, the required pre-survey documents at least twenty-one (21) calendar days prior to the proposed survey, using the Pre-survey Checklist
3. Marine Wildlife Contingency Plan (MWCP): At least twenty-one (21) calendar days prior to each survey, Permittee shall prepare a MWCP for review and approval by the CSLC staff. Said plan shall include, at a minimum, measures that: 1) specify the distance, speed, and direction transiting vessels would maintain when in proximity to a marine mammal or reptile; 2) qualifications, number, location, and authority of onboard Marine Wildlife Monitors (MWMs); 3) methods of reducing noise levels generated by the geophysical equipment; 4) Acoustic "safety zone(s)" radius that will be enforced by the MWMs (must be consistent with MM BI0-3 in attached Exhibit H); 5) identification ofpinniped haul-out sites within or immediately adjacent to the proposed survey area; and 6) observation recording procedures and reporting requirements in the event of an observed impact to marine organisms.
4. Oil Spill Contingency Plan (MM HAZ-1, Exhibit H): At least twenty-one (21) calendar days prior to each survey, Permittee shall prepare and submit to the CSLC staff for review and approval an Oil Spill Contingency Plan for accidental releases of petroleum and/or non-petroleum products. Said plan shall include, at a minimum: 1) specific steps to be taken in the event of a spill, including notification names, phone numbers, and locations of: (i) nearby emergency medical facilities, (ii) wildlife

New Survey Permit Regulations, Compliance, and Additional Costs

5. Notification of Geophysical Survey Equipment Used, At least twenty-one (21) calendar days prior to each survey, Permittee shall submit, and the CSLC staff shall receive, a written list of the specific make and model of all such equipment Permittee intends to use and, with respect to any equipment that is to be used specifically to generate acoustical energy in order to collect data, any and all specifications regarding decibel levels (dB re 1-LPa), frequencies (Hz, kHz), and all other information requested in Exhibit F, as well as the length of time the equipment would operate.
6. Verification of Equipment Service and/or Maintenance and Sound Output (MM BI0-6, Exhibit H): Prior to commencing survey activities and thereafter on an annual basis, Permittee shall test the low energy geophysical equipment utilized in the noticed survey to verify that the sound source levels are within manufacturer's specifications.
7. Current Biological Information (MM BIO-I, Exhibit H): Prior to commencement of survey operations, the Permittee shall; 1) contact the NOAA Long Beach office staff and local whale-watching operations and shall acquire information on the current composition and relative abundance of marine wildlife offshore, and 2) convey sightings data to the vessel operator and crew, survey party chief, and onboard MWMs prior to departure.
8. Permittee shall conduct all activities with due regard for the preservation of the property covered by this permit, potential environmental impacts, peak fishing seasons and with due caution to minimize damage to third parties.
9. Daily Equipment Use Duration: Acoustic pulse-generating survey equipment shall be operated for no more than ten (10) hours total each survey day
10. Night Time Operations: Permittee shall not conduct night-time survey operations, except, when the CSLC staff may authorize at its discretion, upon application, the Permittee to use single beam echosounders and/or passive equipment types at night on a case-by-case basis. The CSLC staff will take into consideration the equipment specifications, location, timing, and duration of survey activity
11. Simultaneous Equipment Operation: When several pieces of equipment are operating simultaneously they shall be timed so that they will not be transmitting at the same time in order to avoid cumulative effects.

New Survey Permit Regulations, Compliance, and Additional Costs

12. Marine Wildlife Monitors (MM BI0-2, Exhibit H): A minimum of two qualified MWMs who are experienced in marine wildlife observations shall be onboard the survey vessel throughout both transit and data collection activities. Onboard MWMs responsible for observations during vessel transit shall be responsible for monitoring during the survey equipment operations. All visual monitoring shall occur from the highest practical vantage point aboard the survey vessel; binoculars shall be used to observe the surrounding area, as appropriate,
13. Safety Zone Monitoring (MM BI0-3, Exhibit H): The MWMs will survey an area (i.e., safety or exclusion zone) based on the equipment used, centered on the sound source (i.e., towfish), when the survey equipment is operating. The onboard MWMs shall have authority to stop operations if a mammal or reptile is observed within the specified safety zone (below), or if a large concentration of diving birds/seabirds is observed in the immediate vicinity. The MWMs shall also have authority to recommend continuation or cessation of operations during periods of limited visibility (i.e., fog, rain). Periodic reevaluation of weather conditions and reassessment of the continuation/cessation recommendation shall be completed by the onboard MWMs. During operations, if a mammal or reptile's actions are observed to be irregular, the monitor shall have authority to recommend that equipment be shut down until the animal(s) moves further away from the sound source. If irregular behavior is observed, the equipment shall be shut-off and will be restarted and ramped-up to full power, as applicable, or will not be started until the animal(s) is/are outside of the safety zone or have not been observed for 15 minutes. Radial distances for the safety zone of each equipment type are as follows:

Equipment Type	Safety Zone (radius, m)
Single Beam Echosounder	50
Multibeam Echosounder	500
Side-Scan Sonar	600
Subbottom Profiler	100
Boomer System	100

New Survey Permit Regulations, Compliance, and Additional Costs

14. Soft Start (MM BI0-5, Exhibit H): The Permittee shall use a "soft-start" technique at the beginning of survey activities each day (or following a shutdown) to allow any marine mammal that may be in the immediate area to leave before the sound sources reach full energy. Permittee shall initiate each piece of equipment at the lowest practical sound level, increasing output in such a manner as to increase in steps not exceeding approximately 6 decibels (dB) per 5-minute period
15. Fishing Gear Interaction (MM FISH-2, Exhibit H): To minimize interaction with fishing gear that may be present within a survey area: (1) the geophysical vessel (or designated vessel) shall traverse the proposed survey corridor prior to commencing survey operations to note and record the presence, type, and location of deployed fishing gear (i.e., buoys); (2) no survey lines within 30m (100 ft) of observed fishing gear shall be conducted. The survey crew shall not remove or relocate any fishing gear; removal or relocation shall only be accomplished by the owner of the gear upon notification by the survey operator of the potential conflict.
16. The Permittee shall submit a post survey Field Operations and Compliance Report to the CSLC staff as soon as possible, but not more than thirty (30) days after the completion of any survey activities conducted under this permit. The Report shall include
    1. A Marine Wildlife Report with a description of any encounters with marine mammals, reptiles, and/or unusual concentrations of diving birds/seabirds (e.g., species, group size, age/size/sex categories [if determinable], behavior, distance and bearing from vessel) and the outcome of those encounters;
    2. The number of times shut-downs or slow-downs were ordered due to animals being observed in the safety zone or due to poor visibility conditions, as assessed by the MWM
17. At least twenty-one (21) calendar days in advance of any proposed operations, the Permittee shall post the notice described in subsection B below in: (1) the harbormasters' offices of regional harbors; and (2) dive shops in coastal locations adjacent to the proposed offshore survey operations (by fax or in person to operator of the shop).
18. One working day in advance of the actual operations, the Permittee shall inform the State's Geophysical Coordinator, (562) 590-5201, by telephone, to confirm the receipt of required notices by the parties listed in in A.I above. The Permittee shall also send to the State's Geophysical Coordinator, a copy of any final preplot of the survey, including corresponding Global Positioning System (GPS) coordinates, which shall reflect any changes made in the planned survey

Enforcement and Penalties

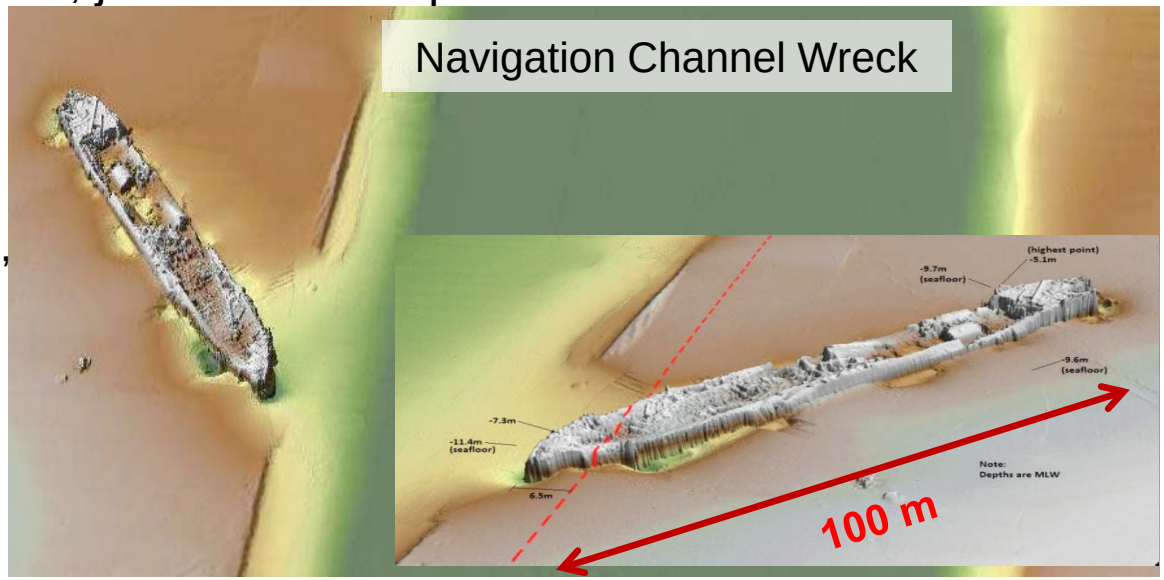
- ENFORCEMENT - Talks with the CSLC Staff and Commissioners confirmed what we already knew. The State have no mechanism or funding to enforce or police the Permit Regulations.
- The CSLC enforcement is being left up to the Permittees who have the option of reporting survey activities conducted by non Permit Holders when they are aware of survey activitees by Non Permitees.
- Why would Permittees operating in Compliance go to the effort to report non-compliant surveys being conducted by organization's with no Permit.
  - It's obvious that in the spirit of good Ocean Stewardship all Surveys should follow the some sort of environmental regulations to protect our Marine Wildlife.
  - Non compliant Organizations operate outside the regulations and may have an adverse impact on Marine Wildlife.
  - Business - Compliant Organizations with Permits and who are following State regulations are more costly. This makes compliant organizations following the regulations more expensive to contact. At this time the problem is caused by the non-compliant organizations as most Project Owners are unaware of the regulations and hire based on low price.
- PENALTIES – During talks with the CSLC Staff we were unable to determine what if any penaties would be in place for organizations operating without a Permit

Who is Required and Who is Not Required to Follow New Regulations

- Who is Mandated to Follow New Regulations:

  Anyone Conducting Offshore Surveys within CSLC Waters and using the Equipment Listed in the Permit, just a few examples are listed below:

  - Private Marine Survey Companies,
  - The USACE,
  - Dredging Companies Doing their Own Progress Surveys,
  - 3rd Party Dredge Survey Contractors,
  - Universities Conducting Research Programs,
  - ROV Companies Doing Biological Transects.



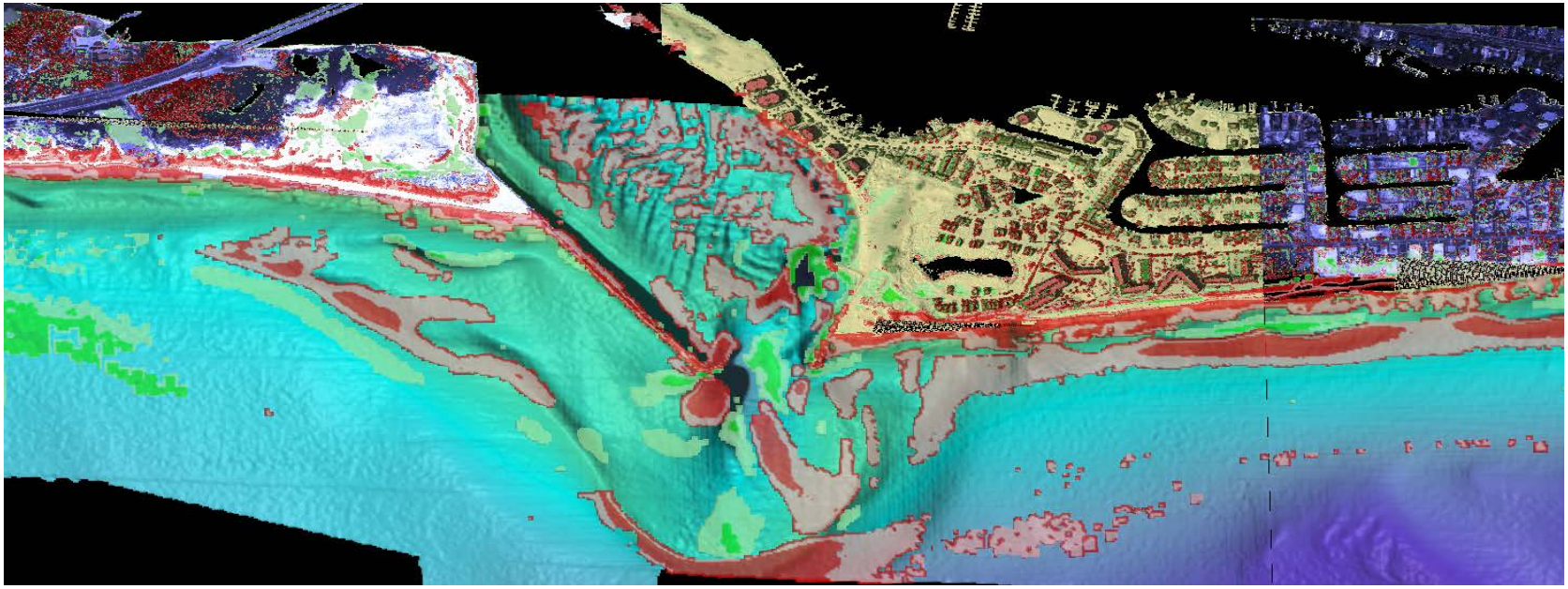
- Who is Not Mandated to Follow New Regulations:

  Even though using basically the same type of systems with similar and in a number of cases higher energy systems, which the State Acknowledges is true.

  - Fishing Vessels (Sport and Commercial),
  - Tankers and Container Ships using very high energy forward looking sonars, and
  - All other vessels that may use fish finding sonars, fathometers, etc.

Potential Negative Impacts on Ports and Coastal Projects

- Ocean mapping and data management services help local, regional and national government agencies manage **coastal planning, critical habitat, urbanization,** and **environmental emergencies**.
  - Large Increase in Cost of Data Acquisition
  - Limited Access to Survey Certain Designated Areas, even for Research
  - Delays in Project Start Up Due to Regulatory Review
  - Possible Denial of Survey Operations by CSLC, up to the Project Start Date
  - Limited Survey Periods, Seasonal Limitations and only 10 hours/day of work.



Thank you,

Questions?

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