From:	Beagle, Andrew
To:	Daly, Keith; Degenhart, Mark;
cc:	Green, Frank; Francis, Carley; Morrow, Steve;
Subject:	FW: Letter of Concurrence for Columbia River Crossing test pile project
Date:	Monday, January 24, 2011 10:02:08 AM
Attachments:	LOC_FTA.PDF LOC_FHWA.PDF

Attached are the LOCs. See Sharon's email below; please give a copy to the inspectors and contractor.

Andrew Beagle, P.E.
360-816-8880
beaglea@columbiarivercrossing.org

-----Original Message-----
From: Rainsberry, Sharon [mailto:RainsbS@wsdot.wa.gov]
Sent: Monday, January 24, 2011 9:57 AM
To: Morrow, Steve; Beagle, Andrew; Lord, Jenny
Subject: FW: Letter of Concurrence for Columbia River Crossing test pile project

Hello,

I am sure you are all aware, but just a reminder we need to have a copy of the LOC at the project site.

-----Original Message-----
From: Ben Laws [mailto:Benjamin.Laws@noaa.gov]
Sent: Monday, January 24, 2011 8:50 AM
To: Rainsberry, Sharon
Subject: Re: Letter of Concurrence for Columbia River Crossing test pile project

Hi Sharon, I should have mentioned - Please be sure that the appropriate

personnel have reviewed the LOC prior to start of the test pile project;

that a copy of the LOC is on hand at the project site, and that all monitors and other appropriate personnel are familiar with the stipulations of the LOC.

Thanks,
Ben

Rainsberry, Sharon wrote:
> Ben - Thank you.
>
> -----Original Message-----
> From: Ben Laws [mailto:Benjamin.Laws@noaa.gov]
> Sent: Friday, January 21, 2011 11:30 AM
> To: Rainsberry, Sharon
> Cc: Morrow, Steve; Callahan, Cindy (FHWA); Saxton, Steve; Alison Agness;
> Simmons, Devin
> Subject: Letter of Concurrence for Columbia River Crossing test pile
> project
>
> Sharon et al,
>
> Please see attached Letters of Concurrence. Hard copy will follow, to
> FTA and FHWA. Please let me know if you have any questions or concerns.
>
> Thanks,
> Ben
>
>

--

Ben Laws
NOAA Fisheries Service
Office of Protected Resources
1315 East West Highway, F/PR1
Silver Spring, MD 20910

E-mail: benjamin.laws@noaa.gov
Phone: (301) 713-2289 x159

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

John McAvoy
Federal Highway Administration
Washington Division
Suite 501, Evergreen Plaza
711 South Capitol Way
Olympia, WA 98501

Dear Mr. McAvoy,

On December 21, 2010, the National Marine Fisheries Service (NMFS), Office of Protected Resources, received your request for a Letter of Concurrence (LOC) documenting that the taking of marine mammals incidental to a test pile project, conducted in support of the Columbia River Crossing (CRC) project, is not likely to occur. Based on our review, we concur with your determination that an incidental take authorization, pursuant to the Marine Mammal Protection Act (MMPA), is not necessary to carry out the test pile project provided that all planned monitoring and mitigation measures, as described in the LOC request and this letter are implemented.

Description of Action

The purpose of the test pile project, as described in the LOC request, is to acquire geotechnical and sound propagation data to assess site-specific characteristics and to assess mitigation measures related to pile installation activities planned for the CRC project. The test pile project proposes to drive a total of six test piles into the underwater substrate near two of the new I-5 bridges' proposed pier locations. Accounting for set-up/tear-down and potential delays, the project is expected to be completed over approximately ten working days in February 2011, with impact driving expected to be limited to no more than six hours total over the course of the ten days. To evaluate noise attenuation, impact driving will occur without the use of a sound attenuation device for approximately two of the six hours.

The proposed pile installation study will provide information necessary for a contractor to design pile installation activities for bridge construction associated with CRC, will allow the CRC project to begin with pre-determined mitigation zones based on site-specific empirical data, and will assess the relative effectiveness of two attenuation devices. This information will be used to help assess how well the proposed pile installation methods work and the extent to which proposed sound attenuation methods reduce underwater sound levels. The specific purpose of implementing this project is to establish empirical data related to both engineering and environmental objectives, as described in CRC's application.

The CRC has proposed to test a total of six steel piles, to be driven in representative substrate near two of the proposed pier locations for the new bridge (Piers 3 and 6). Test piles will be

installed in the typical or mid-channel depth (approximately 40-50 ft) at the proposed pier locations. Two steel pile sizes (24-in and 48-in) will be used for the test pile project. The sizes were chosen to represent the range of sizes that may be used on the larger CRC project.

Hydroacoustic monitoring equipment will be strategically located in near-field and far-field locations. Near-field monitoring points will be 10 m from the pile installation. Far-field monitoring locations will be upriver and downriver of the test piles. A detailed noise monitoring plan will be finalized prior to beginning the test pile project, and one to two days of testing is anticipated at each location. Hydroacoustic monitoring and reporting plans are described in detail in CRC's application.

Two test piles at Pier 3 will be installed to test production rates using a vibratory hammer with load bearing capacity determined by an impact hammer to test production rates. During the time the impact hammer is used, an unconfined bubble curtain will be in place. Two additional test piles at Pier 3 and two piles at Pier 6 will be installed using an impact hammer to test the effectiveness of a confined bubble curtain. The CRC application lists the method of installation for each pile and estimated number of impact hammer strikes at each of the two locations, as well as a more detailed description of pile driving tests to be conducted. All piles will be removed with a vibratory hammer if possible. If piles cannot be extracted, they will be cut off approximately two feet below the mud line. The hammer apparatus will be stationed on a work barge anchored in position with spuds.

Mitigation and Monitoring

Mitigation and monitoring measures proposed by CRC are outlined below.

- *Establishment of shut-down zones*: CRC has calculated disturbance zones for the 160- and 120-dB thresholds for impact and vibratory driving, respectively (see Table 1). For vibratory driving (120-dB zone), the actual distances will be somewhat less than those calculated, as sound will attenuate upon contact with land. These zones will be adjusted, if appropriate, according to empirical data collected in situ.

Table 1. Radii for shut-down zones (m)

Pile type	**Hammer type**	**160 dB (impulse)**	**120 dB (continuous)**
Pile removal	Vibratory	N/A	1,600
24-in steel pipe	Impact	858	N/A
48-in steel pipe	Impact	5,412	N/A
48-in steel pipe*	Vibratory	N/A	20,166 (upstream) 8,851 (downstream)

* Sound will encounter landforms in both directions before reaching calculated distances. Distances presented are distances to landforms.

- *Shut-down of pile driving activities*: NMFS-approved observers shall monitor these zones, and shall advise project personnel when shut-down of pile-driving activities is required. Shut-down of pile driving activities shall occur if any marine mammal enters or approaches the established zones corresponding to the 160- and 120-dB thresholds, as appropriate, and

shall not resume until the observer advises that the animal has moved beyond the disturbance zone radius, either through sighting or by waiting until enough time has elapsed to assume that the animal has moved beyond the zone. If visual contact of an animal in or near the zone is lost, the observer shall allow a certain time period to elapse before alerting construction personnel that the animal has left the zone. Based on the type of pile installation that is occurring, required elapsed times from last sighting may vary:

- For impact pile driving of 24-in piles, elapsed time shall be eleven minutes.
- For impact pile driving of 48-in piles, elapsed time shall be 67 minutes.
- For vibratory installation of all piles, elapsed time shall be 180 minutes.
- For vibratory removal of any piles, elapsed time shall be twenty minutes.

These elapsed times are based on a calculation of the likely transit speed of six miles per hour, the approximate average speed of sea lions tracked between Bonneville Dam and Astoria over the past several years. Likely speeds through the project area may be faster or slower depending on the individual and currents at the project site. Monitors shall attempt to estimate an animal's speed through the monitoring area.

Elapsed times may be reduced if it is observed that an animal is leaving a zone rather than entering a zone. For example, in a situation in which a sea lion has been observed traversing more than 75 percent of a zone and was continuing to moving out of the zone, but is not observed leaving a zone, the times may be decreased by 75 percent, or whatever may be consistent with a pinniped's average velocity through the zone.

Disturbance zones shall be monitored from a barge, the existing bridge, or other suitable vantage point or by driving a boat along and within the radius of the zones while visually scanning the area. At least one observer shall be stationed at either end of the relevant zone, with the remainder distributed throughout the zone. For vibratory and impact driving, thirteen and seven observers, respectively, are the minimum number required to effectively monitor the shut-down zones. During vibratory driving, there shall be a minimum of thirteen observers on duty, while during impact driving, where distances are less, there shall be a minimum of seven observers. Actual numbers of observers, which shall be finalized prior to beginning work, will depend on CRC's ability to gain rights of entry to land-based vantage points.

The disturbance zone shall be monitored for the presence of pinnipeds before, during, and after any pile installation activity, beginning thirty minutes prior to initiating the start of pile installation and continuing for twenty minutes following the completion of pile installation. If pinnipeds are present within the disturbance zone prior to pile installation, the start of pile installation shall be delayed until the animals leave the disturbance zone. Monitoring of the disturbance zone shall be conducted using high-quality binoculars. Each monitor shall have a radio for contact with other monitors or work crews. A GPS unit or other suitable methodology shall be used for determining the observation location and distance to pinnipeds, boats, and construction equipment. No pile driving shall occur in low-light conditions, or when visibility is impaired such that the disturbance zones cannot be effectively monitored.

Determination

In summary, based on the description of the activity and implementation of the proposed mitigation and monitoring measures, NMFS concurs with CRC's determination that marine mammal take, including Level B harassment, is not likely to occur; thus, an incidental take authorization is not necessary pursuant to the MMPA. If for any reason CRC does not implement the aforementioned mitigation and monitoring measures, then NMFS' concurrence with this determination does not apply, and NMFS would recommend that CRC apply for an incidental take authorization under section 101(a)(5) of the MMPA. The same recommendation would apply if CRC subsequently obtains information during the activities that indicates that marine mammals have been disturbed by the proposed activities. Although NMFS has concurred that take is not likely to occur, CRC remains liable for any unauthorized takes of marine mammals resulting from the activity.

In the event that harassment to a marine mammal occurs despite implementation of mitigation and monitoring measures, activities should be suspended and you must contact the Chief, NMFS Permits, Conservation and Education Division, 301-713-2289, within two business days and submit a written report describing the incident. The Permits Division may determine that the LOC remains applicable based on review of the incident report and in consideration of modifications, if applicable, made to the test pile protocol or may advise that an incidental take authorization is necessary.

For additional information on this determination, please contact Ben Laws at (301) 713-2289.

Sincerely,

for James H. Lecky
Director
Office of Protected Resources
National Marine Fisheries Service

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

R.F. Krochalis
Federal Transit Administration
915 Second Avenue, Suite 3142
Seattle, WA 98174

Dear Mr. Krochalis,

On December 21, 2010, the National Marine Fisheries Service (NMFS), Office of Protected Resources, received your request for a Letter of Concurrence (LOC) documenting that the taking of marine mammals incidental to a test pile project, conducted in support of the Columbia River Crossing (CRC) project, is not likely to occur. Based on our review, we concur with your determination that an incidental take authorization, pursuant to the Marine Mammal Protection Act (MMPA), is not necessary to carry out the test pile project provided that all planned monitoring and mitigation measures, as described in the LOC request and this letter are implemented.

Description of Action

The purpose of the test pile project, as described in the LOC request, is to acquire geotechnical and sound propagation data to assess site-specific characteristics and to assess mitigation measures related to pile installation activities planned for the CRC project. The test pile project proposes to drive a total of six test piles into the underwater substrate near two of the new I-5 bridges' proposed pier locations. Accounting for set-up/tear-down and potential delays, the project is expected to be completed over approximately ten working days in February 2011, with impact driving expected to be limited to no more than six hours total over the course of the ten days. To evaluate noise attenuation, impact driving will occur without the use of a sound attenuation device for approximately two of the six hours.

The proposed pile installation study will provide information necessary for a contractor to design pile installation activities for bridge construction associated with CRC, will allow the CRC project to begin with pre-determined mitigation zones based on site-specific empirical data, and will assess the relative effectiveness of two attenuation devices. This information will be used to help assess how well the proposed pile installation methods work and the extent to which proposed sound attenuation methods reduce underwater sound levels. The specific purpose of implementing this project is to establish empirical data related to both engineering and environmental objectives, as described in CRC's application.

The CRC has proposed to test a total of six steel piles, to be driven in representative substrate near two of the proposed pier locations for the new bridge (Piers 3 and 6). Test piles will be installed in the typical or mid-channel depth (approximately 40-50 ft) at the proposed pier

locations. Two steel pile sizes (24-in and 48-in) will be used for the test pile project. The sizes were chosen to represent the range of sizes that may be used on the larger CRC project.

Hydroacoustic monitoring equipment will be strategically located in near-field and far-field locations. Near-field monitoring points will be 10 m from the pile installation. Far-field monitoring locations will be upriver and downriver of the test piles. A detailed noise monitoring plan will be finalized prior to beginning the test pile project, and one to two days of testing is anticipated at each location. Hydroacoustic monitoring and reporting plans are described in detail in CRC's application.

Two test piles at Pier 3 will be installed to test production rates using a vibratory hammer with load bearing capacity determined by an impact hammer to test production rates. During the time the impact hammer is used, an unconfined bubble curtain will be in place. Two additional test piles at Pier 3 and two piles at Pier 6 will be installed using an impact hammer to test the effectiveness of a confined bubble curtain. The CRC application lists the method of installation for each pile and estimated number of impact hammer strikes at each of the two locations, as well as a more detailed description of pile driving tests to be conducted. All piles will be removed with a vibratory hammer if possible. If piles cannot be extracted, they will be cut off approximately two feet below the mud line. The hammer apparatus will be stationed on a work barge anchored in position with spuds.

Mitigation and Monitoring

Mitigation and monitoring measures proposed by CRC are outlined below.

- *Establishment of shut-down zones*: CRC has calculated disturbance zones for the 160- and 120-dB thresholds for impact and vibratory driving, respectively (see Table 1). For vibratory driving (120-dB zone), the actual distances will be somewhat less than those calculated, as sound will attenuate upon contact with land. These zones will be adjusted, if appropriate, according to empirical data collected in situ.

Table 1. Radii for shut-down zones (m)

Pile type	**Hammer type**	**160 dB (impulse)**	**120 dB (continuous)**
Pile removal	Vibratory	N/A	1,600
24-in steel pipe	Impact	858	N/A
48-in steel pipe	Impact	5,412	N/A
48-in steel pipe*	Vibratory	N/A	20,166 (upstream) 8,851 (downstream)

* Sound will encounter landforms in both directions before reaching calculated distances. Distances presented are distances to landforms.

- *Shut-down of pile driving activities*: NMFS-approved observers shall monitor these zones, and shall advise project personnel when shut-down of pile-driving activities is required. Shut-down of pile driving activities shall occur if any marine mammal enters or approaches the established zones corresponding to the 160- and 120-dB thresholds, as appropriate, and shall not resume until the observer advises that the animal has moved beyond the disturbance

zone radius, either through sighting or by waiting until enough time has elapsed to assume that the animal has moved beyond the zone. If visual contact of an animal in or near the zone is lost, the observer shall allow a certain time period to elapse before alerting construction personnel that the animal has left the zone. Based on the type of pile installation that is occurring, required elapsed times from last sighting may vary:

- For impact pile driving of 24-in piles, elapsed time shall be eleven minutes.
- For impact pile driving of 48-in piles, elapsed time shall be 67 minutes.
- For vibratory installation of all piles, elapsed time shall be 180 minutes.
- For vibratory removal of any piles, elapsed time shall be twenty minutes.

These elapsed times are based on a calculation of the likely transit speed of six miles per hour, the approximate average speed of sea lions tracked between Bonneville Dam and Astoria over the past several years. Likely speeds through the project area may be faster or slower depending on the individual and currents at the project site. Monitors shall attempt to estimate an animal's speed through the monitoring area.

Elapsed times may be reduced if it is observed that an animal is leaving a zone rather than entering a zone. For example, in a situation in which a sea lion has been observed traversing more than 75 percent of a zone and was continuing to moving out of the zone, but is not observed leaving a zone, the times may be decreased by 75 percent, or whatever may be consistent with a pinniped's average velocity through the zone.

Disturbance zones shall be monitored from a barge, the existing bridge, or other suitable vantage point or by driving a boat along and within the radius of the zones while visually scanning the area. At least one observer shall be stationed at either end of the relevant zone, with the remainder distributed throughout the zone. For vibratory and impact driving, thirteen and seven observers, respectively, are the minimum number required to effectively monitor the shut-down zones. During vibratory driving, there shall be a minimum of thirteen observers on duty, while during impact driving, where distances are less, there shall be a minimum of seven observers. Actual numbers of observers, which shall be finalized prior to beginning work, will depend on CRC's ability to gain rights of entry to land-based vantage points.

The disturbance zone shall be monitored for the presence of pinnipeds before, during, and after any pile installation activity, beginning thirty minutes prior to initiating the start of pile installation and continuing for twenty minutes following the completion of pile installation. If pinnipeds are present within the disturbance zone prior to pile installation, the start of pile installation shall be delayed until the animals leave the disturbance zone. Monitoring of the disturbance zone shall be conducted using high-quality binoculars. Each monitor shall have a radio for contact with other monitors or work crews. A GPS unit or other suitable methodology shall be used for determining the observation location and distance to pinnipeds, boats, and construction equipment. No pile driving shall occur in low-light conditions, or when visibility is impaired such that the disturbance zones cannot be effectively monitored.

Determination

In summary, based on the description of the activity and implementation of the proposed mitigation and monitoring measures, NMFS concurs with CRC's determination that marine mammal take, including Level B harassment, is not likely to occur; thus, an incidental take authorization is not necessary pursuant to the MMPA. If for any reason CRC does not implement the aforementioned mitigation and monitoring measures, then NMFS' concurrence with this determination does not apply, and NMFS would recommend that CRC apply for an incidental take authorization under section 101(a)(5) of the MMPA. The same recommendation would apply if CRC subsequently obtains information during the activities that indicates that marine mammals have been disturbed by the proposed activities. Although NMFS has concurred that take is not likely to occur, CRC remains liable for any unauthorized takes of marine mammals resulting from the activity.

In the event that harassment to a marine mammal occurs despite implementation of mitigation and monitoring measures, activities should be suspended and you must contact the Chief, NMFS Permits, Conservation and Education Division, 301-713-2289, within two business days and submit a written report describing the incident. The Permits Division may determine that the LOC remains applicable based on review of the incident report and in consideration of modifications, if applicable, made to the test pile protocol or may advise that an incidental take authorization is necessary.

For additional information on this determination, please contact Ben Laws at (301) 713-2289.

Sincerely,

for James H. Lecky
Director
Office of Protected Resources
National Marine Fisheries Service