HAMILTON BIOLOGICAL

February 27, 2025

Mark Baker, Soft Lights Foundation
9450 SW Gemini Drive PMB 44671
Beaverton, OR 97008

SUBJECT: BAY BRIDGE LIGHTING PROJECTS: FLAWED CEQA EXEMPTIONS AND BURIED STUDIES

Dear Mr. Baker,

At your request, and in support of the legal action that you are taking to require CEQA review of The Bay Lights 360 project (Mark Baker v. Bay Area Toll Authority [BATA] et al.), I prepared a letter dated January 26, 2025, evaluating (a) the permitting processes followed by governmental agencies responsible for evaluating and approving the installation of decorative LED lighting on the San Francisco-Oakland Bay Bridge, and (b) the biological justification for the latest LED light installation, provided by HT Harvey & Associates in a memorandum dated March 24, 2023, entitled *Final Assessment of the Potential Impacts of The Bay Lights 360 Project on Birds and Fish*. This follow-up letter reviews the requirements for a public agency claiming a categorical exemption from CEQA, and demonstrates that each of the four Notices of Exemption (NOEs) that BATA has issued for successive bridge-lighting projects violates Section 15300.2 of the CEQA Guidelines. I also provide evidence that BATA, Caltrans, and the Bay Conservation and Development Commission (BCDC) have coordinated with each other to ensure that none of the successive Bay Bridge lighting projects would be required to undergo the normal CEQA review process, even after two scientific studies commissioned by Caltrans demonstrated that installing and operating tens of thousands of LED lights on the Bay Bridge are likely having significant adverse effects on the environment.

CATEGORICAL EXEMPTIONS MUST BE SUBSTANTIATED

When a lead agency claims a proposed action to be categorically exempt from CEQA, the agency is required to explain why the exemption is valid, citing the best available information, where appropriate. An agency may not claim a categorical exemption for a controversial project by issuing a cursory decree, unsupported by factual analysis. BATA has never satisfied this basic requirement of CEQA in any of its four NOEs.

Caltrans' web page[1] describes the process for determining whether a project may be declared categorically exempt from CEQA review, per Section 15300.2 of the CEQA

[1] https://dot.ca.gov/programs/environmental-analysis/standard-environmental-reference-ser/volume-1-guidance-for-compliance/ch-34-exemptions-to-ceqa

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Guidelines, three aspects of which apply to the 2012 NOE and three subsequent NOEs (2013, 2015, 2023):

> If the project is determined to be categorically exempt, Caltrans must consider whether the exemption is negated by an exception pursuant to CEQA Guidelines, Section 15300.2, and Public Resources Code, Section 21084. Such exceptions may apply under the following circumstances:
>
> a) The project site is environmentally sensitive as defined by the project's location. A project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant.
>
> b) The project and successive projects of the same type in the same place will result in cumulative impacts;
>
> c) There are "unusual circumstances" creating the reasonable possibility of significant effects;

My letter dated January 26, 2025, provided extensive evidence demonstrating:

a) San Francisco Bay is statutorily recognized as a "particularly sensitive environment" (*cf.* the McAteer-Petris Act, the Coastal Zone Management Act, the Management Plan for San Francisco Bay).

b) A large body of scientific research indicates that the initial and successive lighting projects on the West Span of the Bay Bridge, considered along with numerous other large-scale lighting projects in and around San Francisco Bay—including the 48,000 LEDs that were installed on the East Span of the Bay Bridge, also without CEQA review—result in cumulative impacts to wildlife.

c) The conversion of 1.8 miles of the Bay Bridge from utilitarian public infrastructure, owned by Caltrans, to a vast LED display screen upon which a privately funded group exhibits nightly, computerized light shows, is not only an "unusual circumstance," but it clearly represents a major alteration to a public facility and a non-negligible expansion of the bridge's former use.

Because the "reasons why project is exempt" claimed by BATA in the 2012, 2013, 2015, and 2023 NOEs lacked factual support, and were contradicted by the best available information, each of these NOEs violate CEQA Section 15300.2.

The following sections review each of the four NOEs, revealing a clear pattern of unsupported conclusions by BATA, enabled and abetted by other public agencies. Specifically, (a) BATA's issuance of NOEs in 2012, 2013, and 2015 relied upon a cursory 2012 technical memo that provided inadequate factual basis for declaring the first two lighting projects categorically exempt from CEQA; (b) Caltrans made no effort to ensure that environmental review of the second and third lighting projects incorporated the relevant findings of two Caltrans studies demonstrating the adverse effects of LED lighting on wildlife; and (c) BCDC has chosen to ignore the two Caltrans studies in favor of a pro-project memorandum that cherry-picks and misrepresents the scientific literature.

2012 NOTICE OF EXEMPTION

On June 8, 2012, BATA, acting as the CEQA lead agency for the "Temporary Bay Bridge Lights Project," issued an NOE:

JUN 08, 2012

NOTICE OF EXEMPTION by: JENNIFER WONG
Deputy County Clerk

To: San Francisco County Clerk-Recorder
City and County of San Francisco
City Hall, Room 168
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4678

From: Bay Area Toll Authority (BATA)
101 Eighth Street,
Oakland, California 94607

RECEIVED
JUN 13 2012
SAN FRANCISCO BAY CONSERVATION & DEVELOPMENT COMMISSION

Project Title: Temporary Bay Bridge Lights Project

Project Location: Bay Bridge, San Francisco, CA

Project Location – City: City of San Francisco **Project Location –County:** San Francisco County

Name of Public Agency Approving Project: California Department of Transportation (Caltrans) District 4

2012 NOE: Project Described as Temporary

The 2012 NOE described the original "temporary" project:

> **Description of Project:** The project proposes to temporarily install light-emitting diode (LED) white lights on the Bay Bridge, in honor of the Bay Bridge's 75th Diamond Anniversary. Up to thirty thousand (30,000) energy-efficient LED lights, approximately two (2) inches in diameter each, will be installed on the vertical suspender cables of the north facing side of the upper deck level of the Bay Bridge's West span. The bridge lights will face away from bridge vehicular traffic and towards the San Francisco waterfront. The lights will be lit from dusk to early morning (between 12:00am and 2:00am) beginning in late 2012 and light removal is expected to begin in January 2015. The project will not affect the Bay Bridge structure, will not involve any ground disturbance, and does not involve any expansion of use of the Bay Bridge.

The project was a temporary installation "in honor of the Bay Bridge's 75th Diamond Anniversary." The lights would be lit nightly, until some time between midnight and 2:00 a.m., and would be removed starting in January 2015, terminating the project.

2012 NOE: Categorical Exemption Lacked Adequate Factual Support

In the 2012 NOE, BATA claimed a Categorical Exemption from CEQA:

> **Exempt Status:** ■ Categorical Exemption, Class 1: Section 15301
>
> **Reasons why project is exempt:** Class 1: Operation, repair, maintenance or minor alterations to a public facility involving no or negligible expansion of use.
>
> The project, installation of temporary lights on the Bay Bridge, involves no expansion of use, will not result in significant effects on the environment due to unusual circumstances, nor will it result in a cumulative impact. The project will not result in a traffic safety impact, damage to scenic resources, cause a substantial adverse change in the significance of a historic resource, or affect sensitive-species or habitat; and the site is not located on a documented hazardous waste site.

The "reasons why project is exempt" given in the 2012 NOE were not explained, but stated as self-evident facts. As discussed on the following pages, a brief memorandum prepared by the consulting firm HT Harvey in 2012 did not provide an adequate factual

basis for BATA to issue three successive NOEs (in 2012, 2013, and 2015) authorizing the first two bridge lighting projects (2013 to 2015 and 2015 to 2023).

Review of the 2012 HT Harvey Memorandum

The only documentation prepared in support of BATA's 2012 NOE, with respect to biological resources, is a six-page memorandum by HT Harvey Associates, dated April 5, 2012, entitled *Final Assessment of the Potential Impacts of The Bay Bridge Lighting Project on Birds and Fish (HTH #3305-01)*. My previous letter reviewed a 2023 HT Harvey memorandum prepared in support of The Bay Lights 360 project, but at that time their 2012 memo had not yet been provided to me.

Neither of the two HT Harvey memoranda were identified as having been prepared as part of a CEQA review process, although both documents use the term "significant" in ways normally reserved for CEQA analyses. My earlier letter described several ways in which the avian portion of the 2023 memo, authored by Scott Terrill, failed to meet the standards of a legitimate CEQA review. The avian portion of the 2012 memo, also authored by Dr. Terrill, has the same deficiencies, only to a greater degree. The 2012 memo's discussion of potential project effects on migratory birds is so brief that it can be excerpted, in its entirety, below:

> ***Indirect Effects of Installed Lighting***
>
> The lighting should not have a significant impact on birds. Nocturnal migrants collide with towers and other structures that are lit with constant white light. These birds also collide with lit windows on buildings during migration. This phenomenon is most pronounced in eastern and central North America and, with respect to towers, typically occurs when guy wires are used to secure the towers. Strobe lights and colored lights (especially green) substantially reduce the collision rates on migrants with lit structures (Gauthreaux and Belser 2006). Collision rates increase with decreased visibility due to fog, drizzle etc. In this case, the lights are not single-source, nor are they static. The movement patterns associated with the lighting scheme should not lead to the attraction and disorientation (and collision) of migrants associated with single-source, constant white lighting. The addition of constant white lighting sources to the existing lighting on the bridge could slightly increase likelihood of collision, especially during foggy or stormy nights, for nocturnally migrating birds.
>
> In a general sense, nocturnal migrants (especially passerines or songbirds), may be attracted to the horizon glow and overall lighting of populated areas. However, no negative effects of such attraction have been demonstrated. Under current conditions, given the amount of artificial light associated with development in the San Francisco Bay Area (including the current lighting on the Bay Bridge itself), the installation of the LED lights would not add significantly to the overall lighting in the region.
>
> Similarly, the lighting should not affect waterbirds or shorebirds associated with the Bay, including birds breeding on the bridge. In general, these birds are well below the portions of the bridge to be lit by this project and are associated with water. Migrant shorebirds flying at bridge height should be able to easily detect and avoid the bridge in most conditions. Under foggy conditions, the lighting may even increase the probability of detection and avoidance by these birds.

The near lack of citations in the discussion excerpted on the preceding page indicates that Dr. Terrill did not conduct a standard CEQA analysis of the potential bridge lighting project on migratory birds, because such an analysis would have drawn much more heavily from the ever-growing mountain of published literature on the effects of LED lighting on migratory birds. Setting aside any specific findings, a consistent theme running through the published literature is that *light pollution in general* is harming bird populations, and so care should be taken to limit lighting wherever possible. Consider, for example, the following quotes from the one publication cited by Dr. Terrill in the avian portion of his 2012 memorandum[2]:

> All evidence indicates that the increasing use of artificial light at night is having an adverse effect on populations of birds, particularly those that typically migrate at night.
>
> It is well established that caged migratory birds often orient toward horizon glows produced by the lights of cities (Kramer 1949, 1951).
>
> Immature migratory birds may be more susceptible to the disruptive influences of artificial night lighting than adults (Gauthreaux 1982).
>
> Birds have a four-cone system and therefore broader spectral sensitivity than humans with a three-cone system (Wessels 1974, Graf and Norren 1974, Norren 1975). The extra cone type of birds is responsive to wavelengths in the ultraviolet range of the spectrum. In addition, bird eyes have oil droplets of different colors that narrow receptor sensitivities (Partridge 1989, Vorobyev et al. 1998). Because of these differences birds likely see their environment differently than do humans, which makes it difficult to speculate about the mechanism of how light pollution affects migrating birds at night.
>
> The tendency of birds to move toward lights at night when migrating and their reluctance to leave the sphere of light influence once encountered has been well documented.
>
> The intense glow of city lights can be reduced by making certain that all light is directed toward the ground whenever possible. Streetlights should be shielded so that the pattern of illumination is below the horizontal plane of the light fixture. Floodlights on the ground that point upward to illuminate buildings, bridges, and monuments are harmful and should be avoided. Such architectural lighting often is hazardous to migrating birds, particularly on nights that are misty with a low overcast ceiling. If such lighting designs must be used, then they should be turned off during migration seasons when weather conditions could contribute to attraction and mortality.
>
> *Suggested general mitigation measure:* Program building's lighting system to achieve a measurable reduction in night lighting from 11 P.M. to 7 A.M. or, ideally, ensure that all lights are extinguished during that period.
>
> *Suggested general mitigation measure:* Extinguish all exterior vanity lighting (e.g., rooftop floods, perimeter spots) during the migration periods.
>
> *Suggested general mitigation measure:* When lights must be left on at night, examine and adopt alternatives to bright, all-night, floorwide lighting.
>
> Populations of migratory birds are declining throughout the world, and the decline can be attributed to several different factors, including migration mortality, habitat change, and habitat destruction. By eliminating or controlling light pollution we can reduce one of the factors responsible for mortality during migration.

[2] Gauthreaux, SA, Jr., and G Belser. 2006. Effects of artificial night lighting on migrating birds. Pp. 67–93 in Rich, C, and T Longcore, eds. *Ecological Consequences of Artificial Night Lighting*. Island Press, Wash. DC.

As reviewed in my last letter, HT Harvey biologists adequately described the potentially significant impacts to migratory birds of a building lighting project in Burlingame (technical memorandum dated October 18, 2022: *777 Airport Boulevard – Updated Avian Collision Risk Assessment*), and in that case identified a range of mitigation measures designed to minimize potentially significant impacts. Why have the massive Bay Bridge lighting projects—involving tens of thousands of purely decorative, high-intensity LEDs on 1.8 miles of a structure suspended over San Francisco Bay—been subjected to a far lower level of scrutiny than the lighting of an office building in Burlingame?

My previous letter provided extensive critiques of the 2023 HT Harvey memorandum. The same criticisms generally apply to the 2012 memorandum, and I do not repeat them here. I consider it relevant and illustrative, however, to note that the 2012 memo did not disclose or consider the correlated color temperature (CCT) of the LEDs used in then-proposed "temporary" Bay Bridge lighting project (the CCT was, apparently, 4000K). Presumably this was because, at that time, little research had been done to determine how LEDs of different CCTs affect different organisms. Research has since led experts to conclude that, *if LED lighting is absolutely required*, the CCT used should be less than 2700K, and preferably less than 2200K [3,4]. In 2012, before the research had been completed, scientists were not yet aware that CCT was an important factor to be considered in evaluating the potential impacts of LED lighting on wildlife. Given this lack of collective knowledge of the basic parameters of LEDs and their potential impacts, it was reckless and presumptive for the 2012 memo to state, categorically and without caveat, that 1.8 miles of the Bay Bridge could be lit up nightly, using 4000K LEDs, without causing any potentially significant impacts to wildlife. Furthermore, as discussed in my last letter, HT Harvey's 2023 memo openly acknowledged that the use of 4000K lights conflicts with current, science-based recommendations for minimizing impacts of LED lighting on wildlife, yet even this knowledge had no effect on HT Harvey's 2023 impact assessment, and did not lead them to recommend switching to LEDs with a lower CCT.

To ensure that decorative lighting on the Bay Bridge does not result in potentially significant impacts to the environment, the proposed actions must undergo full CEQA review so that other biologists, and the public at large, are granted the opportunity to evaluate the project objectively in the full context of current scientific understanding of the adverse effects of LED lighting on wildlife. If any potentially significant impacts are identified, appropriate and adequate avoidance and mitigation measures must be identified to reduce the potential impacts to a level less than significant.

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[3] Longcore, T., Rodríguez, A., et al. 2018. Rapid assessment of lamp spectrum to quantify ecological effects of light at night. *Journal of Experimental Zoology Part A: Ecological and Integrative Physiology 329*(8-9), 511–521. https://doi.org/10.1002/jez.2184

[4] Welch, D., Dick, R., Treviño, K., Longcore, T., *et al.* 2024. The world at night: Preserving natural darkness for heritage conservation and night sky appreciation. IUCN WCPA Good Practice Guidelines Series No. 33, Gland, Switzerland: IUCN. https://portals.iucn.org/library/sites/library/files/documents/PAG-033-En.pdf

2013 NOTICE OF EXEMPTION FROM CEQA

On June 10, 2013, BATA issued a second NOE with all the same information as in the 2012 NOE, but changing the commencement of LED operations from "late 2012" to "early 2013" (despite the mid-2013 date of the second NOE). Permits for the subsequent Bay Bridge lighting projects refer only to the 2012 NOE, and so the 2013 NOE is mentioned here mainly to acknowledge its existence.

2015 NOTICE OF EXEMPTION FROM CEQA

On May 14, 2015, BATA, acting as the CEQA lead agency for a new project called "The Bay Lights Project," issued a new NOE:

NOTICE OF EXEMPTION

ENDORSED
FILED
SAN FRANCISCO County Clerk
MAY 14, 2015
by: MARIBEL JALDON
Deputy County Clerk

To: San Francisco County Clerk-Recorder
City and County of San Francisco
City Hall, Room 168
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4678

From: Bay Area Toll Author
101 Eighth Street,
Oakland, California 9

Project Title: The Bay Lights Project

Project Location: Bay Bridge, San Francisco, CA

Project Location – City: City of San Francisco **Project Location –County:** San Francisco County

Name of Public Agency Approving Project: California Department of Transportation (Caltrans) District 4

As in 2012 and 2013, Caltrans was identified as the "Public Agency Approving Project" (but not the CEQA lead agency) and Illuminate the Arts was the "Person or Agency Carrying out Project."

2015 NOE: New Project Described as Open-ended

The 2015 project was described as follows:

> **Description of Project:** The Bay Lights is an existing light-emitting diode (LED) light sculpture art installation on the Bay Bridge's west span that has been lit since March 5, 2013. The project proposes to extend the lights from a temporary installation into one that extends for a decade or more. After removing the existing LED lights from the vertical suspender cables of the Bay Bridge's West span to allow for painting of the suspender cables, the lights will be re-installed in time for Super Bowl 50 in February 2016. The lights would be illuminated from dusk to dawn for a period commemorating the Super Bowl and through the year 2026. Up to twenty-five thousand (25,000) energy efficient LED lights, approximately two (2) inches in diameter each, will be installed on the vertical suspender cables of the north-facing side of the upper deck level of the Bay Bridge's West Span with ultraviolet (UV) resistant plastic coated stainless steel zip ties, so no paint disturbance will occur to the bridge structure. The bridge lights will face away from bridge vehicular traffic and towards the San Francisco waterfront. The project will not affect the Bay Bridge structure, will not involve any ground disturbance, and does not involve any expansion of use of the Bay Bridge.
>
> **Name of Person or Agency Carrying Out Project:** Illuminate The Arts

The 2015 NOE, issued on May 14, was able to claim the lights to be an "existing" installation only because Caltrans and BATA violated the terms of the 2012 and 2013 NOEs, which authorized a temporary, two-year project ("in honor of the Bay Bridge's 75th Diamond Anniversary"), with light removal "expected to begin in January 2015." Notably, the project proposed in the 2015 NOE was now tied to "Super Bowl 50" in

February 2016, although it would continue for "a decade or more" beyond that one event. The previous pretense, that the lights were "in honor of the Bay Bridge's 75th Diamond Anniversary," was no longer operative.

BATA's issuance of multiple successive categorical exemptions for increasingly intensive projects—framing each project as an extension of the "temporary" project declared categorically exempt in 2012, and citing specific events that establish a sense of urgency to justify sidestepping the normal environmental review process—represents an end-run around CEQA. For reasons discussed in this letter, and as reviewed in detail in my letter of January 26, 2025, BATA's 2012 claim of a categorical exemption for the original project violated CEQA Sections 15300.2(a), 15300.2(b), and 15300.2(c). The subsequent bridge-lighting projects of longer duration/increased intensity violate these same provisions of CEQA, and do so to a greater extent than did the original project.

2016 CALTRANS ENCROACHMENT PERMIT

On March 28, 2016, Caltrans issued Encroachment Permit 0416-NMC0596 to BATA for a new LED light installment. This permit cites (1) a Memorandum of Understanding (MOU) involving Caltrans, BATA, and Illuminate the Arts dated December 15, 2014, and (2) an application from BATA dated March 14, 2016. Neither of these documents has been provided for my review. Section 7 of Caltrans' encroachment permit states:

> **7.0 ENVIRONMENTAL**
> The permittee shall implement the required measures from the approved environmental document submitted with this project.
>
> The permittee shall comply with Bay Conservation and Development Commission's permit requirements.
>
> The permittee shall implement appropriate measures to prevent dropping any object(s) in the San Francisco Bay.

The vagueness of these environmental requirements, which stand in contrast to other aspects of the permit that are spelled out in detail (e.g., intellectual property rights), raise additional questions. For example:

- What was the "approved environmental document submitted with this project" and who granted the approval, based on what evidence?
- Why is CEQA compliance not mentioned anywhere in the permit?

The 2016 encroachment permit provides additional evidence that Caltrans did not give adequate consideration to environmental review for the second bridge-lighting project, despite the 2015 NOE naming Caltrans as the "Public Agency Approving Project."

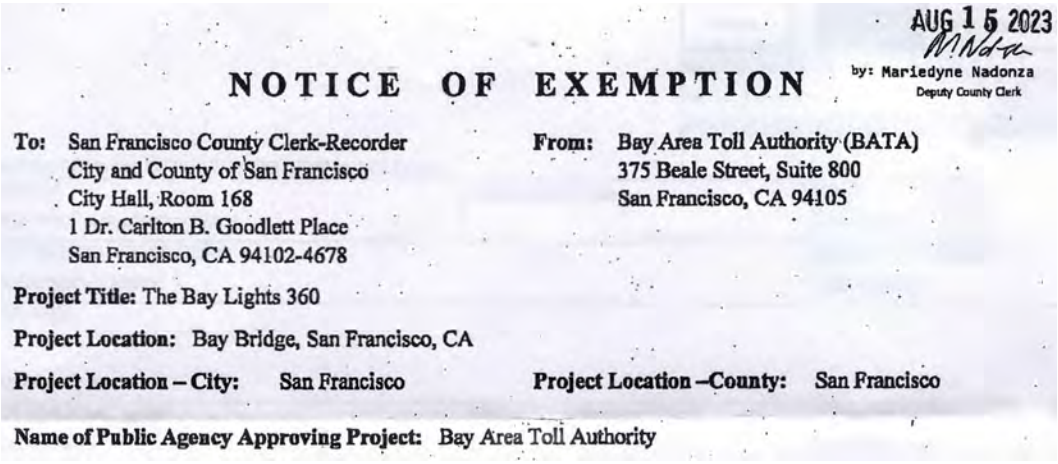
2019 CALTRANS ENCROACHMENT PERMIT

On February 12, 2019, Caltrans issued Encroachment Permit 04-18-N-MC-2833 to BATA for continuation of the previously authorized bridge-lighting project. The previous month, on January 23, 2019, Caltrans had produced a 34-page report, *Assessing the*

Impacts of LED Lighting to Wildlife[5], that described known adverse effects of LED lighting to various forms of wildlife. Caltrans decided not to incorporate any information from this relevant report into the 2019 encroachment permit, which they could have done by adding new mitigation measures or biological monitoring requirements, or by requiring that the proposed actions undergo legitimate CEQA review. As the "Public Agency Approving Project" identified in the 2015 NOE, which was still applicable in 2019, Caltrans had a public-trust obligation to take their own scientific report into account when granting BATA another permit to continue actions that Caltrans knew, at the time, to be potentially harmful to wildlife. That Caltrans ignored this responsibility represents a clear breach of the public trust.

2023 Notice of Exemption from CEQA

On August 15, 2023, BATA, acting as the CEQA lead agency for a new project called "The Bay Lights 360," issued a new NOE:



AUG 15 2023
by: Mariedyne Nadonza
Deputy County Clerk

NOTICE OF EXEMPTION

To: San Francisco County Clerk-Recorder
City and County of San Francisco
City Hall, Room 168
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4678

From: Bay Area Toll Authority (BATA)
375 Beale Street, Suite 800
San Francisco, CA 94105

Project Title: The Bay Lights 360

Project Location: Bay Bridge, San Francisco, CA

Project Location – City: San Francisco **Project Location –County:** San Francisco

Name of Public Agency Approving Project: Bay Area Toll Authority

The first page of the 2023 NOE contains important changes from the 2012, 2013, and 2015 NOEs:

- The "Project Title" changed from "Temporary Bay Bridge Lights Project" (2012 and 2013 NOEs) to "The Bay Lights Project" (2015 NOE) to "The Bay Lights 360" (2023 NOE)—as appropriate, given the substantial changes made with each successive bridge-lighting project.

- The 2012, 2013, and 2015 NOEs identify Caltrans as the "Public Agency Approving Project," but the 2023 NOE shifted all responsibility to BATA. Given that Caltrans is the agency authorized by BCDC to carry out the project, and given that Caltrans should actually be the CEQA lead agency for all of these bridge-lighting projects (as discussed later in this letter), the complete removal of Caltrans from the

[5] https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/preliminary-investigations/assessing-the-impacts-of-led-lighting-to-wildlife-pi-a11y.pdf

2023 NOE stands out as another red flag. As discussed in this letter, Caltrans had reason to distance itself from the project's inadequate environmental review, which reached conclusions unsupported by Caltrans' own studies.

2023 NOE: "World's Largest" (But Also "Negligible")

The 2023 NOE described the proposed project as follows:

> **Description of Project:** The Bay Lights is an existing art installation on the north side of the Bay Bridge's West Span and is the world's largest light-emitting diode (LED) light sculpture. The Bay Lights became operational March 5, 2013, was replaced in kind in the fall of 2015, and recommissioned in February 2016 as a permanent installation. The proposed Project consists of three main components: (1) the extension of the light sculpture for another 10 years to 2033; (2) the replacement of the light fixtures with newly updated and more robust fixtures and components while keeping the same technical details and intensity of the lights as the current installation; and (3) the addition of light fixtures to the driver's (inward-facing) side of the same suspension cables for a 360-degree view of the light sculpture.

In describing the second Bay Bridge lighting project (The Bay Lights, 2015 to 2023) as the "world's largest" LED light sculpture, BATA contradicted its own declarations—made in the 2012, 2013, and 2015 NOEs—that the first and second lighting projects involved "negligible" expansion of use and would not "result in a cumulative impact." Notably, the Description of Project in the 2023 NOE failed to state the number of LEDs in the then-existing project (25,000), the number of lights being proposed (50,000), or the length of bridge affected (1.8 miles). Also unstated was the correlated color temperature (CCT) of the LED lights being used, 4000K, which conflicts with the earlier recommendations by Travis Longcore, the Principal Investigator of a Caltrans-commissioned research project on the effects of LEDs on wildlife, that any LEDs considered absolutely necessary have a CCT less than 2700K, and preferably less than 2200K (Longcore et al. 2018, Welch et al. 2024; see footnotes 3 and 4 on page 6 of this letter).

In the 2023 NOE for The Bay Lights 360 project, which proposed doubling the number of LEDs on the bridge for ten years, BATA repeated the same unsupported falsehoods about the project being a "negligible" expansion of use that "would not result in significant effects on the environment" or "result in a cumulative impact":

> **Exempt Status:** Class 1, Section 15301, Existing Facilities: Class 1 consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use.
>
> **Reasons why project is exempt:** The project is the extension of the light sculpture for another 10 years, removal and re-installation of the existing LED lights, and the addition of new lights on the driver's side of the same suspension cables to allow a 360-degree view of the LED light sculpture. The addition of the LED lights is considered a negligible expansion as the existing lights are already a prominent feature on the Bay Bridge and the hours of operation would remain the same.
>
> Per Section 15300.2 of the California Environmental Quality Act (CEQA) Guidelines, it has been determined the project would not result in significant effects on the environment due to unusual circumstances. The project is not located on a hazardous waste site, will not damage scenic resources, cause a substantial adverse change in the significance of a historic resource, or result in a cumulative impact. For this reasons and those stated above, the project is exempt from the provisions of CEQA.

As discussed previously, tens of thousands of decorative LEDs were "already a prominent feature" on the West Span of the Bay Bridge in 2023 only because (1) BATA had issued unwarranted CEQA categorical exemptions for two previous bridge-lighting projects, and (2) Caltrans granted an encroachment permit to BATA in 2019 that failed to consider Caltrans' own 2019 report, entitled *Assessing the Impacts of LED Lighting to Wildlife*, which summarized numerous scientific studies identifying adverse effects of LED lighting upon various forms of wildlife.

Furthermore, the 2023 NOE was issued five months after the release of another important and relevant Caltrans report: *Effects of LED Lighting on Terrestrial Wildlife*[6]. For this 189-page scientific review, Travis Longcore reviewed 342 discrete studies conducted in the field and in laboratory settings on the effects of LEDs on terrestrial wildlife. As discussed in my previous letter, the Abstract of Dr. Longcore's report states:

> Current research supports the mitigation of LED impacts by reducing intensity, controlling spill, reducing duration, and controlling spectrum to avoid peak sensitivities of most groups to shorter wavelengths. Significant variability in photoreceptor sensitivity and flexibility of spectral outputs of LEDs argue for the consideration of specific affected species for efforts to mitigate adverse impacts from LEDs.

Public agencies, acting in the public trust, are obligated to act upon the scientific findings made in the two reports that Caltrans commissioned using taxpayer funds. Although both the 2019 and 2023 Caltrans studies identify substantial adverse effects of LED lighting on wildlife, Caltrans has taken no steps to avoid, minimize, or mitigate the potentially significant adverse effects of the Bay Bridge lighting projects on wildlife. Furthermore, Caltrans has done nothing to ensure that other responsible public agencies (e.g., BATA, BCDC) appropriately consider the relevant findings of these publicly funded scientific reports when installing and operating tens of thousands of LEDs on Caltrans' public property (i.e., the Bay Bridge).

2023 NOE: Caltrans Disappears

BATA's 2012, 2013, and 2015 NOEs all identified Caltrans as the "Public Agency Approving Project." Remarkably, however, Caltrans was not mentioned at all in the 2023 NOE. Rather, BATA for the first time identified *itself* as the "Public Agency Approving Project." An important change between 2015 and 2023 is that, in the interim, Caltrans had commissioned two lengthy scientific reports, the results of which flatly contradicted BATA's repeated declarations that the lighting projects "would not result in significant effects on the environment" or "result in a cumulative impact." Notably, Caltrans did nothing to stop the damaging projects, to identify measures to mitigate potentially significant adverse effects of LED lighting on wildlife, or require the projects to undergo legitimate CEQA review. Instead, Caltrans simply allowed BATA to issue the 2023 NOE with Caltrans no longer identified as the "Public Agency Approving Project."

[6] https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/final-reports/ca23-3696-finalreport.pdf

2023 NOE: What About the Other Public Agencies?

The only indication that Caltrans shared the damaging findings of the Longcore report with BATA and/or BCDC prior to September 7, 2023 (when BCDC permitted The Bay Lights 360 project) is a brief statement made by the BCDC's Executive Director, Lawrence Goldzband, on page 9 of the fourth amendment to Permit M2012.009:

> A report commissioned by Caltrans, dated April 2023, summarizing the existing research on the effects of LED lights on terrestrial wildlife found that the color, intensity, and special characteristics such as flicker of LED lights have the potential to disrupt migration patterns of birds, bats, and insects.

One might expect that a 189-page report from Caltrans, authored by renowned expert Travis Longcore, describing a wide range of adverse effects of LED lighting on wildlife, would cause Mr. Goldzband to reconsider issuing a fourth non-material amendment to Permit M2012.009, and would instead finally require the massive lighting project to undergo legitimate CEQA review. This did not happen. Instead, Mr. Goldzband provided the one-sentence summary of the Caltrans study quoted above—thus acknowledging the study's existence while completely ignoring its relevant findings. Rather than granting the Caltrans study the attention it warranted, Mr. Goldzband immediately dismissed its findings and recommendations by shifting attention to HT Harvey's 11-page memo, dated March 24, 2023 (i.e., a week prior to publication of the Caltrans report):

> However, a biological memo assessing the likely impacts of the project concluded that the sculpture is not expected to significantly adversely impact the Bay or wildlife species given the existing high levels of ambient light on the Bay Bridge and roadway and the low levels of light expected to reach the water.

My previous letter reviewed the avian portion of HT Harvey's 2023 memorandum, and showed how its author cherry-picked and misrepresented the immense body of research identifying various adverse effects of different types of lighting on wildlife.

Having determined that the 11-page HT Harvey memorandum carried more weight than did the 189-page Caltrans study, and having determined that doubling the number of LEDs from 25,000 to 50,000 represented a "minor repair or improvement" that could be approved by the BCDC Executive Director without the new project being reviewed and voted on by the Commission, Mr. Goldzband reached the following conclusion:

> As a result, no special conditions have been required to mitigate for light impacts, but in considering any future requests to extend the authorization for the project, the Commission should take into account the most current research on the impacts of LED lights in consultation with the appropriate wildlife agencies.

To comply with CEQA, the public agencies responsible for permitting and authorizing The Bay Lights 360 (BCDC, Caltrans, and BATA) were obligated to "take into account the most current research on the impacts of LED lights in consultation with the appropriate wildlife agencies" *when the project was proposed in 2023,* not at some vague, undefined point in the future. Furthermore, all findings, impact analyses, and mitigation

recommendations set forth by these public agencies and their consultants should have been subject to public review in an Environmental Impact Report (EIR).

By any objective measure, the 189-page Caltrans study reflected "the most current research on the impacts of LED lights" in April 2023, when Mr. Goldzband, BATA, and Caltrans were considering whether to authorize doubling the number of 4000K LED lights on the West Span of the Bay Bridge. This taxpayer-funded study, prepared by a recognized expert in the study of lighting effects on wildlife, was not credibly counterbalanced by the cursory and obviously flawed HT Harvey memo. In choosing to rely solely upon the less authoritative document that supported his preferred conclusion, Mr. Goldzband appears to have abused his discretion as the BCDC Executive Director.

CEQA Lead Agency Should Be Caltrans, Not BATA

Determining the lead agency is addressed in CEQA Section 15051:

> Where two or more public agencies will be involved with a project, the determination of which agency will be the lead agency shall be governed by the following criteria:
>
> **(a)** If the project will be carried out by a public agency, that agency shall be the lead agency even if the project would be located within the jurisdiction of another public agency.
>
> **(b)** If the project is to be carried out by a nongovernmental person or entity, the lead agency shall be the public agency with the greatest responsibility for supervising or approving the project as a whole.
>
> **(1)** The lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose such as an air pollution control district or a district which will provide a public service or public utility to the project.

Which public agency "carried out" the lighting projects and which public agency had "the greatest responsibility for supervising or approving the project as a whole"? The following points show that it was Caltrans:

- Caltrans owns the Bay Bridge;
- Caltrans employees were responsible for installing and maintaining the lights for the "Temporary Bay Bridge Lights Project" in 2013;
- BCDC permit M2012.009, issued in 2012, authorized Caltrans, not BATA, to carry out the project;
- Caltrans is a 22,000-person public agency with a robust planning staff experienced in administering CEQA, while BATA is "an agency with a single or limited purpose" that has limited experience administering CEQA;

- Caltrans is the public agency that commissioned the relevant reports on the potential adverse effects of LED lighting on wildlife (but that failed to ensure that these taxpayer-funded reports were properly taken into account by BATA and BCDC).

Therefore, in compliance with CEQA Section 15051, Caltrans should have been designated the CEQA lead agency for each of the successive bridge lighting projects.

INVALID 2012 NOE IS FOUNDATIONAL TO THE BCDC PERMIT

BCDC Permit M2012.009 and all amendments, including the fourth and most recent one authorizing The Bay Lights 360 project, cite the fatally flawed 2012 NOE as having provided Environmental Review for the three bridge-lighting projects. Page 9 of the most recent amendment, issued on September 7, 2023, states:

> D. **Environmental Review.** The Bay Area Toll Authority (BATA), acting as the lead environmental agency, issued a notice of exemption, dated June 8, 2012, which found the project categorically exempt from the need to prepare an environmental document under the California Environmental Quality Act (CEQA).

Because the original permit and all amendments issued by BCDC rely upon the illegitimate 2012 NOE, those permits and amendments also lack legitimacy. The same would be true if the BCDC permits and amendments cited the 2013, 2015, or 2023 NOEs.

Also, the fourth amendment authorizes "The Bay Lights 360" project, not the "Temporary Bay Bridge Lights Project" for which BATA issued the 2012 NOE. To authorize The Bay Lights 360, BCDC needed to refer to the 2023 NOE, which is equally invalid.

SUMMARY AND CONCLUSION

As documented in my original correspondence to you, dated January 26, 2025, and elaborated upon in this second letter, the categorical exemptions from CEQA claimed by BATA in the 2012, 2013, 2015, and 2023 NOEs lack factual support, and are undeniably contradicted by the best available information on the known effects of LED lighting on migratory birds and other wildlife. Each of these NOEs clearly violate CEQA Sections 15300.2(a), 15300.2(b), and 15300.2(c).

Furthermore, I have demonstrated specific ways in which BATA, Caltrans, and BCDC have coordinated their regulatory efforts so as to bury the findings of two important, publicly funded Caltrans studies describing the impacts of LED lighting on wildlife. Working together, these three public agencies have seen to it that none of the three successive Bay Bridge lighting projects has been required to undergo the normal CEQA review process required of any project that could potentially result in significant adverse effects on the environment. Rather, these agencies have relied upon two cursory and flawed memos from HT Harvey & Associates—documents not prepared as part of a CEQA review process—that improperly conclude that these projects will have no potentially significant impacts to wildlife.

Because BATA and the other public agencies responsible for approving the Bay Bridge lighting projects have not demonstrated, and cannot demonstrate, that these projects qualify for a categorical exemption from CEQA, they should agree to halt all work on The Bay Lights 360 project until legitimate CEQA review is completed through preparation of an EIR, with Caltrans serving as the lead agency per CEQA Section 15051. The EIR's biological resources section should be prepared by biologists with demonstrated experience objectively evaluating potential impacts of LED lighting on wildlife, based on thorough review of the large body of scientific information on this topic. If any potentially significant impacts are identified through the normal CEQA review process, appropriate and adequate avoidance and mitigation measures must be identified to reduce the impacts to a level less than significant. In compliance with CEQA, all of the EIR's reports, findings, and recommendations must be subject to critical review and comment by other responsible agencies and, most importantly, the public.

As with my first correspondence to you regarding the Bay Bridge lighting projects, Travis Longcore reviewed the final draft of this letter and explicitly concurs with its technical content. Dr. Longcore shares my conclusion that HT Harvey's two technical memoranda (a) do not adequately characterize the risk of the Bay Bridge lighting projects to wildlife, and (b) fail to recommend appropriate mitigation measures.

Thank you for the opportunity to continue working with you on this important undertaking. Please call me at 562-477-2181 if you have questions or wish to further discuss any matters; you may send e-mail to robb@hamiltonbiological.com.

Sincerely,

Robert A. Hamilton
President, Hamilton Biological, Inc.

Attached: HT Harvey memo dated 4/5/2012: *Final Assessment of the Potential Impacts of The Bay Bridge Lighting Project on Birds and Fish (HTH #3305-01)*

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

5 April 2012

Meryka Blumer
Associate Project Manager
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San Jose, CA 95126

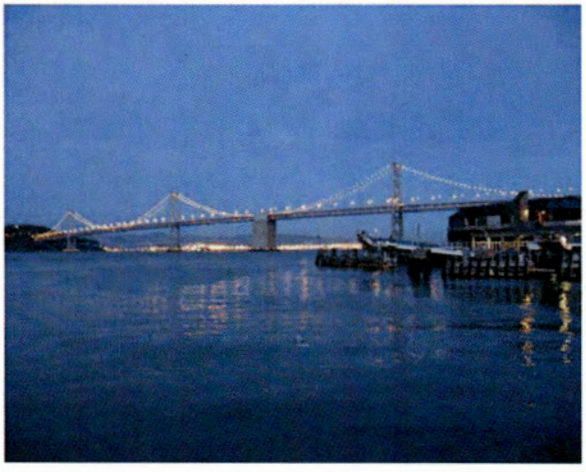
Subject: Final Assessment of the Potential Impacts of the Bay Bridge Lighting Project on Birds and Fish (HTH #3305-01)

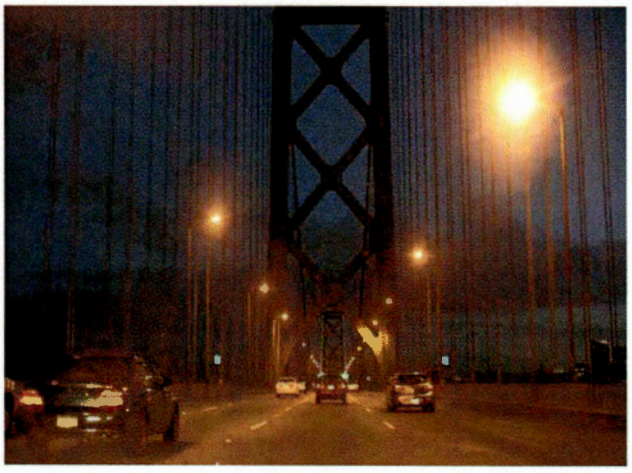
Per your request, H. T. Harvey & Associates is providing an assessment of the potential impact of the Bay Bridge Lighting Project on birds and fish. Drs. Scott Terrill and Sharon Kramer have reviewed the project description and are providing their assessments of potential project impacts on birds and fish.

Scott Terrill conducted research on avian migration for both his Masters of Science and his PhD and has published approximately 30 scientific publications. He has conducted research on bird migration in the United Sates, Mexico, Germany and Austria. Sharon Kramer has conducted research on fish ecology in Hawaii, Australia, and California/Oregon/Washington for her Masters of Science and PhD, with numerous publications. Both resumes are attached.

Overview of the Project

The Project proposes to temporarily install light-emitting diode (LED) white lights on the Bay Bridge, in honor of the Bay Bridge's 75th Diamond Anniversary. Up to thirty thousand (30,000) energy-efficient LED lights, approximately two (2) inches in diameter each, will be installed on the vertical suspender cables of the north facing side of the upper deck level of the Bay Bridge's West span. The Bay Bridge is already well-lit by static bright lights, as shown below.





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The LED lights will be secured to the vertical suspender bridge cables in strings of 75 fixtures per string at one foot spacing, and the LED nodes will be placed on the cables' outside-facing direction. The lights will be attached to the outer part of the bridge suspender cables with two (2) plastic coated stainless steel zip ties (one on top and on at the bottom of each fixture), so no paint disturbances will occur to the bridge structure. There will be a main fiber line installed through the system for control of the lighting system and power will be taken from existing facilities on the bridge. Electrical boxes (approximately 8x8x3 inches in size) will be required for the power of the lights (80 power/data boxes total) and communication of the lights control system (80 FO/Ethernet media converter boxes total). All electrical boxes will be bolted to a longer steel channel that will be attached to the existing bridge cable as one unit. The electrical boxes will be evenly spaced along the lower railing and on top of the bridge at the highest point, with a maximum spacing of 100 feet. Installation of the lights will not require any permanent disturbance to the bridge structure or ground disturbance off the bridge.

The bridge lights will face away from bridge vehicular traffic and will be lit from dusk to early morning (between 12:00am and 2:00am) in commemoration of the Bay Bridge's 75th Diamond Anniversary. The light display will be controlled by the artist and will appear to be moving in a wave like and alternating flickering pattern, with the option of a static pattern as well. The light installation will begin in August 2012 and it is anticipated that the lights will be first illuminated in late 2012.

The LED lights will be installed over a period of six months during the evening/overnight hours (8:00pm to 5:00am weekdays and 9:00pm to 8:00am weekends), which will require nightly lane closures. The lights will be permanently removed removed from the West Span after two years, with light removal expected to begin in January 2015. Removal of the lights will also be done during the evening/overnight hours, requiring nightly lane closures, and will take approximately three months.

Each energy-efficient LED node when fully powered uses about one watt per hour. The Project will install 30,000 nodes, but each node will be on less than half the time, so this will equate to 15,000 watts per hour.

Avian Assessment

Direct Effects of Installation and Removal

In general, the installation of the lights should not disturb breeding birds to the point of abandonment, unless the work is to occur in such a way as to directly impact the nests of breeding individuals. If the lights are installed in late fall – early winter, the installation will fall outside the primary breeding season and not be a potential issue. If the activity of installing the lights occurs during the breeding season, it should not significantly increase human activity levels relative to existing conditions with respect to local birds, which are obviously habituated to the traffic and other anthropogenic activities normally associated with the bridge. If installation is to occur during the breeding season (February-September), it is recommended that a biological monitor be present during the installation of the lights. If an active nest that might be directly impacted (including disturbing adults to the point of nest abandonment) is detected, the Regulatory Resource Agencies (California Department of Fish and Game / United States Fish

and Wildlife Service) should be contacted to consult on avoidance. Potentially breeding birds include cormorants and peregrine falcon, however these birds breed primarily below the traffic bearing portions of bridge structures which lie below the project activity.

The removal of the lights should involve the same considerations as the installation. If the lights are removed after the avian breeding season (i.e., "late in 2013"), there would be no impacts to breeding birds.

Indirect Effects of Installed Lighting

The lighting should not have a significant impact on birds. Nocturnal migrants collide with towers and other structures that are lit with constant white light. These birds also collide with lit windows on buildings during migration. This phenomenon is most pronounced in eastern and central North America and, with respect to towers, typically occurs when guy wires are used to secure the towers. Strobe lights and colored lights (especially green) substantially reduce the collision rates on migrants with lit structures (Gauthreaux and Belser 2006). Collision rates increase with decreased visibility due to fog, drizzle etc. In this case, the lights are not single-source, nor are they static. The movement patterns associated with the lighting scheme should not lead to the attraction and disorientation (and collision) of migrants associated with single-source, constant white lighting. The addition of constant white lighting sources to the existing lighting on the bridge could slightly increase likelihood of collision, especially during foggy or stormy nights, for nocturnally migrating birds.

In a general sense, nocturnal migrants (especially passerines or songbirds), may be attracted to the horizon glow and overall lighting of populated areas. However, no negative effects of such attraction have been demonstrated. Under current conditions, given the amount of artificial light associated with development in the San Francisco Bay Area (including the current lighting on the Bay Bridge itself), the installation of the LED lights would not add significantly to the overall lighting in the region.

Similarly, the lighting should not affect waterbirds or shorebirds associated with the Bay, including birds breeding on the bridge. In general, these birds are well below the portions of the bridge to be lit by this project and are associated with water. Migrant shorebirds flying at bridge height should be able to easily detect and avoid the bridge in most conditions. Under foggy conditions, the lighting may even increase the probability of detection and avoidance by these birds.

Fish Assessment

Fish have only been exposed to artificial lighting at night for a relatively short time (in the last 100 years or so), until then the aquatic environment at night was only affected by the moon, stars, cloud cover, and biological luminescence (Nightingale et al. 2006). Fish can be potentially affected by artificial lighting at night in the following ways: changes to essential behaviors such as feeding, schooling, and migration, changes to predation risk, and affects on reproduction (Nightingale et al. 2006). The effects of the proposed Bay Bridge Lights project on federal Endangered Species Act listed steelhead (*Oncorynchus mykiss*) and green sturgeon (*Acipenser medirostris*), and state-listed longfin smelt (*Spirinchus thaleichthys*) are described below. We

anticipate that the only affects to fish would be associated with operation of the lights and not installation and removal: we estimated that approximately <0.005 lux1 of additional indirect light would reach the water surface from the Bay Bridge Lights project (note the Bay Bridge is already lit at night).

Indirect Effects of Installed Lighting

Steelhead

Both adult and juvenile steelhead swim past the Bay Bridge. Adult steelhead usually migrate from the ocean to tributaries in the South Bay where they spawn from late December through early April, with the greatest activity in January through March, when flows are sufficient to allow them to reach suitable habitat in far upstream areas. After hatching, juvenile steelhead remain in fresh water for one to four years before migrating to the ocean. The downstream juvenile migration occurs between February and May.

There is no specific literature on effects of artificial night lighting for steelhead, especially for the marine environment of the San Francisco Bay. The West Span of the Bay Bridge spans the deepest part of the channel leading into South San Francisco Bay, which likely will convey much of the water moving from the ocean into South San Francisco Bay. If this is the route taken by steelhead moving in as adults and out as juveniles from South San Francisco Bay to the sea, then adults and juveniles would be exposed in 2011/2012, and juveniles exposed in 2013. A potential effect of the Bay Bridget lights is to delay or alter the migration of juveniles out to sea past the bridge, or movement of adults into the south bay.

Movement of adults is unlikely to be affected by the Bay Bridge Light project. Adults are likely to be using water quality cues to move quickly into tributaries used for spawning. There is information indicating that changes in light levels (e.g., shading or lighting from docks) and strobe lights can disrupt juvenile steelhead movement (Johnson et al. 2005, Rondorf et al. 2010). Juvenile salmon swimming past docks encounter a dramatic change in light levels during the day, from bright light to shading, which seems to be the greatest impact affecting their movement and potential susceptibility to predation. Strobes deter fish from swimming into portions of dams or navigational locks where they may suffer increased risk of injury or mortality: these strobes are powerful, synchronously flashing (300 flashes per minute) lights, which are not equivalent to the light levels likely to reach the water from the Bay Bridge Lights project. Results of studies conducted on juvenile sockeye salmon in urban settings suggest that keeping direct lighting levels at <0.1 lx minimizes effects to outmigrating fish, and that shielding or redirecting lights can mitigate for effects (Tabor et al. 2004). In addition, ambient light conditions are already very bright in the bay area, and fish in urban settings may already be habituated to relatively bright night conditions.

Green Sturgeon

In the Sacramento River, green sturgeon spawn in late spring and early summer (Adams et al. 2002). Adults typically migrate into fresh water beginning in late February; spawning occurs

[1] Calculated using 12.3 lumens per node, for 5 strings on one suspension cable. Assumes light reaching the surface from each cable is not additive, using 250 ft as the approximate distance above the water.

March-July, with peak activity in April-June (Moyle et al. 1995). Juveniles spend 1-4 years in fresh and estuarine waters before migrating to the ocean (Beamesderfer and Webb 2002).

Green sturgeon are believed to spend the majority of their lives in nearshore oceanic waters, bays, and estuaries. Little information exists on green sturgeon, much of what exists is based on telemetry. Green sturgeon have been found to be more active at night than during the day when at sea (Erickson and Hightower 2007). However, in San Francisco Bay activity appeared to be independent of light level with no discernable peaks in activity at any particular time of day or light level (Kelly et al. 2007). It is unlikely that the Bay Bridge Lights project will have any effects on green sturgeon.

Longfin Smelt

Longfin smelt are a coastal/estuarine fish that moves into freshwater or slightly brackish waters of the delta and Sacramento/San Joaquin rivers to spawn in winter/spring (Baxter 1999). Longfin smelt are found throughout the San Francisco Bay (Baxter 1999). Long-term sampling in the San Francisco Bay has shown a consistent pattern of bathymetric distribution for longfin smelt, where juvenile longfin smelt tend to occur in greater abundance in deep-water habitats as they migrate into marine environments during summer months (Rosenfield and Baxter 2007).

Even less is known about effects of light on longfin smelt. The Bay Bridge Lights project would not affect spawning as spawning is not likely to occur in the project area. Lighting could potentially affect susceptibility of juvenile longfin smelt to predation (Kahler et al. 2000). However, lighting from the project is not anticipated to affect susceptibility of longfin smelt to predation as the light levels expected to reach the water are low (see above), and the bay already has high ambient light conditions.

Overall Summary

Effects of the Bay Bridge Lights project are not likely to affect avian species directly during installation unless nests are impacted during the breeding season. Indirect effects of lighting are also not expected to affect avian species or listed fish in the project area. The Bay Bridge in its current condition already has a relatively significant amount of lighting. The additional lighting from this project is not anticipated to have any additional affects to listed avian or fish species.

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Scott B. Terrill, Ph.D.

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AREAS OF EXPERTISE

- Bird ecology
- Endangered Species Act consultation/compliance
- Environmental impact assessment (NEPA/CEQA)
- Regulatory permitting/compliance

EDUCATION

- Ph.D. Biology/Ecology, State Univ. of New York, 1986
- M.S. Zoology, Arizona State Univ., 1981
- B.S. Zoology, Arizona State Univ., 1978

PRIOR PROFESSIONAL EXPERIENCE

- Associate Adjunct Professor, San Jose State University 1995-Present
- Research Director, Coyote Creek Riparian Station 1991-1995
- Adjunct Professor, State University of New York 1988-1990
- Assistant Professor, Siena College, New York 1988-1990
- Alexander von Humboldt Research Fellow, Max-Planck-Institut, Germany, Present
- Chair, Scientific Advisory Committee, San Francisco Bay Bird Observatory, Present

KEY PROJECTS

- Bear River Ridge Wind Farm Habitat Conservation Plan
- San Jose WPCP opportunities and constraints analysis
- Yolo County HCP
- NOAA marine sanctuaries management plan
- San Joaquin River improvement project biotic study

KEY PUBLICATIONS

Berthold, P. & S. B. Terrill. 1991. Recent advances in studies of bird migration. Annual Review of Ecology and Systematics 22:357-78.

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Complete list of publications available upon request

PROFESSIONAL PROFILE

Scott is a Vice President and Principal, and oversees operations in our North Coast office, based in Arcata. Scott also directs our firm's research activities.

Scott is an internationally recognized ornithologist with extensive experience in avian ecology and behavior; he has made major contributions to the study of bird migration and movements. His field expertise ranges from the Antarctic to far northern Alaska, including three oceans, and he is an acknowledged expert in avian ecology. He also has a strong background in vertebrate community ecology and population biology. He leads our ornithologists on numerous special-status species investigations, and their work history includes over 500 burrowing owl and raptor projects.

Scott directs the company's full range of wildlife division projects, which can begin with identifying and investigating special-status species, creating effective and innovative mitigation measures, and ending with writing the biological sections of environmental impact reports and statements (EIR/EISs). Scott has lent his expertise to numerous large-scale EIRs, natural environment studies, constraints analyses, environmental risk assessments, hazardous-waste clean ups, and Endangered Species Act consultations. In his 18 years with the company, he has successfully managed more than 1000 projects, and his expertise spreads across all major habitats in western North America, including marine and estuarine habitats.

Examples of Scott's projects include: assessing and mitigating cumulative impacts of selenium in agricultural drain water on wildlife; more than seven years monitoring of bird use and risk at agricultural drain water basins and associated mitigation habitats in California's San Joaquin Valley; monitoring potential effects of oceanic dumping of dredge spoils on marine birds and mammals; restoring over 2000 acres of wetlands in the San Joaquin Valley; overseeing biological characterization, risk assessment, and long-term monitoring of endangered species in remediated wetlands at Concord Naval Weapons Station; conducting biotic characterizations of Fallon and Lemoore naval air stations; and completing the wildlife components of the Measure A+B transportation upgrades under the Santa Clara Valley Transportation Authority in Santa Clara County, which included successfully implementing measures to avoid take of protected species during construction on the multibillion dollar projects. Currently, he is Principal-in-Charge of a Caltrans on-call environmental services contract of over 15 transportation projects. He is also Project Manager on the Yolo County Habitat Conservation Plan.

Scott's expertise is most recently extending to renewable energy. He is Principal-in-Charge of many projects, including: the Bear River Ridge Wind Farm Habitat Conservation Plan; a bird and bat movement and mortality assessment at the Collinsville Montezuma Hills Wind Resource Area for the California Energy Commission; the King City Wind Farm site assessment and resource agency consultation; the Pacific Gas & Electric WaveConnect wave-energy project off Eureka, California; an environmental assessment framework for marine renewable energy projects for the Department of Energy; preparation of a "white paper" on developing wave energy in Coastal California; and other renewable projects in California, Oregon, Washington, and Hawaii.

Sharon H. Kramer, Ph.D.

Senior Associate Fish Ecologist

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AREAS OF EXPERTISE

- Ecology of fishes
- Riverine, coastal and estuarine ecosystems
- Habitat conservation planning
- Endangered Species Act consultation/compliance

EDUCATION

- Ph.D. Marine Biology, UC San Diego, Scripps Institution of Oceanography, 1990
- M.S. Zoology, Univ. of Hawaii, Manoa, 1983
- B.A. Aquatic Biology, UC Santa Barbara, 1979

PRIOR PROFESSIONAL EXPERIENCE

- Senior Aquatic Ecologist & Principal, Stillwater Sciences, 2000-2007
- Regional Science Coordinator, National Marine Fisheries Service, 1997-2000
- Resource Specialist, Metropolitan Water District of Southern California, 1996
- Fish/Wildlife Biologist, U.S. Fish and Wildlife Service, Pacific HCP, 1994-1995
- Science Associate, California Sea Grant College Research Program, 1993-1994
- Postdoctoral Researcher, Australian Institute of Marine Science, 1991-1993

KEY PUBLICATIONS

Golightly, R. T., S. H. Kramer, and C. D. Hamilton. 2011. Assessment of natural resource and watershed condition: Redwood National and State Parks, Whiskeytown National Recreation Area, and Oregon Caves National Monument. Natural Resource Report NPS/NRPC/WRD/NRR—2011/335. National Park Service, Fort Collins, Colorado

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Complete list of publications available upon request

PROFESSIONAL PROFILE

Sharon is an experienced fish ecologist heading up our fish ecology division and North Coast office, operating out of Arcata, California. Sharon's expertise spans over 25 years and focuses on aquatic ecology and fisheries biology in the Pacific Northwest, California, Australia, and Hawaii. Her academic research included studies of larval and juvenile fish energetics, distribution patterns, survival and growth of fishes in shallow water marine and estuarine habitats, use of shallow-water eelgrass, mud, and sand flat habitat as nursery habitat for juvenile fishes on the Great Barrier Reef, and juvenile salmonid habitat utilization. Sharon's recent professional research and work has focused on integrating watershed and coastal processes and the freshwater, estuarine, and coastal ecology of fishes, including listed salmonids and tidewater goby.

Since joining H. T. Harvey & Associates in 2007, Sharon has been involved in a variety of projects, with a focus on environmental effects of renewable energy projects. She developed study plans and provided strategic input for the Federal Energy Regulatory Commission (FERC) licensing process for Ocean Power Technology's Reedsport Wave Energy Park. She recently completed a Department of Energy market acceleration project with RE-Vision to develop an environmental assessment framework for wave and tidal renewable energy projects. She was also involved in developing the marine biological baseline, effects assessment and monitoring and adaptive management for PG&E's Humboldt WaveConnect Project FERC Pilot License Application. Most recently, she was part of a larger team developing a monitoring protocol framework for the Bureau of Ocean Energy Management for marine hydrokinetic projects including offshore wind. In addition, she has been integral in developing the Habitat Conservation Plan (HCP) for the Bear River Wind Project, focusing on minimizing and mitigating project effects on marbled murrelets.

She recently completed 3-years of fish monitoring of levee repair projects on the Sacramento River and Delta focusing on Chinook salmon and steelhead habitat utilization, watershed condition assessments of three national park units, and monitoring and restoration permitting associated restoration of the Salt River in the Eel River Estuary. She has also developed an alternative assessment and conceptual design for the removal of San Clemente Dam on the Carmel River addressing impacts to steelhead passage, and is involved in fish aspects of the South Bay Salt Pond Restoration Program, from development of fish monitoring plans to biological assessments.

Before joining HTH, Sharon opened and managed the Arcata office of a North Coast consulting firm: as a Principal, she managed over 20 scientists mostly involved in the FERC hydro-relicensing process. She has extensive experience with salmonids and habitat, including work on instream flows in the McKenzie River, OR and work on the San Joaquin River Restoration Objectives and Strategies conducted during the pre-settlement process for the San Joaquin River Restoration Program. She was the principal investigator for the Napa River Estuary Fisheries Monitoring Program for the U.S. Army Corps of Engineers. Sharon previously worked for the National Marine Fisheries Service (NMFS) as a regional science coordinator and fisheries biologist, managing and developing aquatic conservation strategies for salmonids in multi-species HCPs including the Pacific Lumber Company Headwaters HCP. Additionally, she provided scientific guidance to NMFS on regional planning strategies for salmonid recovery, including the development of guidelines for forest practices.