JOHN BRISCOE (053223)
LAWRENCE S. BAZEL (114641)
MAX ROLLENS (308984)
BRISCOE IVESTER & BAZEL LLP
155 Sansome Street, Seventh Floor
San Francisco, CA 94104
Tel (415) 402-2700
Fax (415) 398-5630
jbriscoe@briscoelaw.net
lbazel@briscoelaw.net
mrollens@briscoelaw.net

Attorneys for Point Buckler Club, LLC and John D. Sweeney

STATE OF CALIFORNIA

REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION

In the matter of: TENTATIVE ORDER ADOPTION OF CLEANUP AND ABATEMENT ORDER for: POINT BUCKLER ISLAND, SOLANO COUNTY	DECLARATION OF DAVID L. MAYER

I, David L. Mayer, declare as follows:

1. I am Past President and Principal Scientist of Tenera Environmental. I have extensive experience in marine, estuarine, and freshwater environmental studies. My resume is attached.

2. I have reviewed Appendix P of the document entitled "Point Buckler Technical Assessment of Current Conditions and Historic Reconstruction Since 1985", prepared by Siegel Environmental and dated May 12, 2016. Appendix P is entitled "An Assessment of Adverse Effects on Beneficial Uses Related to Listed Fish Species by Point Buckler Tidal Marsh Diking and Closure from Daily Tidal Connectivity". It is dated April 19, 2016, and was prepared by Bruce Herbold. I have the following comments on Appendix P.

3. I found Appendix P to be scientifically complete and well presented, however through no fault of Dr. Herbold it does not include an accurate assessment of the Island's fish habitat due mainly to our lack of scientific understanding of what is "good" marsh habitat and what us

"bad" marsh on Buckler Island. I have put quotation marks around the words good and bad to indicate that they are generally very subjective. In this case I believe we need to consider them objectively to avoid potential unintended harm caused by arguing from the general to the specific, as Dr. Herbold has done in his assessment. The truth is, as Delta-scientists, we are at the very earliest stages of research to understand the usefulness, good and the bad, of the Delta's shallow water habitat of its many sloughs and channels. We assume, as does Dr. Herbold that this habitat is good, and that more of it is better, as reasoned from his reference to ongoing efforts of restore the Delta's marshes and wetlands. The historical loss of this habitat seems to have set the stage for what many now perceive as a widespread decline in the Delta's ecological health and productivity.

4. But arguing that all of the Delta's sloughs and channels are good for the listed species lacks scientific certainty, in fact such an argument is hardly more than a lightly researched theory. Dr. Herbold correctly points this out in his citation of Dr. Grimaldo's recently initiated and ongoing research into the use of this habitat by longfin and Delta smelt larvae. Each of the listed species have several life stages from egg to reproductive adult, and each of these life stages have different prey and habitat requirements in order to maximize their growth and minimize mortality.

5. For salmon, there is no real conclusion about what is good or bad. Small shallow channels can be detrimental because of the dangers of predation, as well as stranding and temperature. We do not want to draw salmon into small channels where they become someone's lunch. Scientists are at the very beginning of our thinking about whether these small channels are good or bad for salmon. Point Buckler was not a salmon spawning area.

6. A similar discussion could be had about the life strategies of the listed species other than salmon, but unfortunately with much less scientific knowledge at out finger tips and a lot more educated guesses than proven fact.

7. I think it would be prudent to decide the site-specific goals of Point Buckler Island habitat restoration and maintenance planning with respect to each of the listed species and their unique life stages. I believe that in the process of assessing and developing such a set of goals and objectives, we can decide whether or not to open the Island channels and habitat, and whether the openings should be screened to keep fish out of potentially bad habitat, but allow nutrients to flow in

and out. There are many questions along this line that, if raised and discussed, might also serve to educate and illuminate our assessment of fish impact, and identify design and construction steps to minimize potential impacts.

8. I conclude as I began with a strong word of caution about assessing the good and bad of site-specific fish habitat conditions based our generalized and embarrassingly poor understanding of the listed species' habitat "requirements".

I swear under penalty of perjury of the laws of the State of California that the facts stated in this declaration are true.

DATED: July 8, 2016.

David L. Mayer

David L. Mayer, Ph.D.

President / Principal Scientist

Education

Ph.D. Fisheries and Quantitative Sciences, University of Washington, 1973
M.S.C. Environmental Biology, California State University, Hayward, 1970
B.A. Biology and Chemistry, California State University, San Jose, 1965

Experience

Dr. Mayer has extensive experience in freshwater, estuarine, and marine environmental studies. He specialized in aquatic temperature and flow regimes and their effects on ecological systems beginning with his doctoral research analyzing and modeling the relationships of water temperatures and hydrodynamics in northern Puget Sound aquatic communities. He participated in the San Francisco Bay-Delta Interagency Ecological Program's estuarine ecology work team. He has also applied his expertise and experience in research and problem solving to freshwater issues associated with water intake location, screening technology, and discharge effects. Dr. Mayer provides project oversight for Contra Costa Water District's fish monitoring program at all of CCWD's intakes as well as providing consulting services for various CCWD projects including the Levee Replacement Project, Aquatic Vegetation Management Project, Los Vaqueros Reservoir Assessment, Mallard Reservoir Assessment, Mallard Slough Dredging Project, and the Rock Slough Fish Screen Project. Dr. Mayer has devoted the majority of his professional career and expertise to numerous thermal and hydraulic effects studies for California's major utility companies: SCE, Dynegy, GenOn, and PG&E and recently for several proposed desalination projects including the Bay Area Regional Desalination Project (Mallard Slough Pump Station), City of Santa Cruz, Marin Water District, Poseidon at Carlsbad and Huntington Beach, and West Basin Municipal Water District in southern California. Dr. Mayer is on the Board of Directors for CalDesal, an advocacy group formed to advance the use of desalination in an effort to meet California's water challenges.

Dr. Mayer's project results and conclusions, several involving multiple years of research, have been submitted to the SWRCB and the California Energy Commission (CEC). He has testified before the RWQCB (Central Coast, San Francisco, Los Angeles, and San Diego regions) in formal hearings and workshops on the results of water quality, thermal and ecological modeling, and aquatic resources impact studies. He appeared as an expert witness on the biological effects resulting from expansion of the Moss Landing Power Plant. He has also testified on the effects of diversions on flows, water temperatures, and fisheries in defense of EBMUD's U.S. Bureau of Reclamation contract for American River water.

1975 – Present ***President*****, Tenera Environmental, Inc., Lafayette, California**

- **Contra Costa Water District, Fish Monitoring and Consulting**

  Dr. Mayer provides project oversight for Contra Costa Water District's fish monitoring program at all of CCWD's intakes as well as providing consulting services for various CCWD projects including the Levee Replacement Project, Aquatic Vegetation Management Project, Los Vaqueros Reservoir Assessment, Mallard Reservoir Assessment, Mallard Slough Dredging Project, and the Rock Slough Fish Screen Project. He worked with CCWD engineers to design the fish monitoring sampling gear at the new Middle River Intake. He authored the Rock Slough Fish Screen Facility's fish monitoring study plan, which was subsequently approved by the Resource Agencies. Dr. Mayer also provided project oversight for the Bay Area Regional Desalination Project's pilot plant's fish entrainment project.

- **Sacramento/San Joaquin Delta, GenOn's Contra Costa and Pittsburg Power Plants**

Dr. Mayer directed Tenera's thermal effects studies at the Contra Costa and Pittsburg power plants. These studies involved assessment of the adult fish, ichthyoplankton, and zooplankton populations in the vicinity of the power plant cooling water discharges. He has also directed experiments to test the effects of water temperature on predator avoidance behavior of juvenile Chinook salmon and striped bass as well as the monitoring of the migratory behavior of adult salmon and striped bass using sonic tags and long-range underwater tracking.

- **Dynegy's Moss Landing and Morro Bay Power Plants**

  Dr. Mayer has directed and designed studies for determining impacts of cooling water intake and discharge on larval, juvenile, and adult forms of fishes at Moss Landing and Morro Bay Power Plants. The entrainment studies entailed slough, harbor, and offshore plankton sampling to determine both the amount of larvae entrained as well as their abundance in local source waters. In addition to these duties, Dr. Mayer was also involved in regular hearings, technical work group meetings, and oversight of all aspects of the project. The Moss Landing project was approved and constructed. At Morro Bay, benthic, rocky intertidal, and sandy beach biological studies were also conducted. These projects have also offered the opportunity to work with USFWS, CDFG, and other agencies to remain in compliance with the federal ESA.

- **316(a) and 316(b) Demonstrations – PG&E's Diablo Canyon Power Plant**

  Dr. Mayer designed and directs the ongoing Diablo Canyon thermal effluent studies of discharge water effects on natural populations and habitats of the surrounding area. Additionally, Dr. Mayer designed and directed larval entrainment and adult/juvenile impingement studies at Diablo Canyon Power Plant. This involved the design of an extensive plankton sampling program as well as the development of innovative analysis techniques for treating the data collected. Under his directorship, a unique application of a proportional withdrawal approach for estimating impacts to local larval populations was implemented for the first time in an open ocean environment. In addition, the more commonly used Adult Equivalent Loss and Fecundity Hindcasting approaches were estimated for these data and compared with current fishery harvest statistics.

- **Expert Witness Testimony**

  Dr. Mayer provides expert witness testimony as part of the NPDES permit renewal process and the California Energy Commission's Application for certification process. Dr. Mayer conducted water quality modeling efforts in assessment of EBMUD's planned water diversions and prepared expert testimony of the plaintiff's water quality modeling evidence.

Professional Affiliations

Estuarine Ecology Team of the Sacramento/San Joaquin Interagency Ecological Program

San Francisco Bay-Delta Interagency Ecological Studies Food Chain Group

American Society of Naturalists, Western Society of Naturalists, Pacific Fisheries Biologists

American Institute of Fisheries Research Biologists

CalDesal, member Board of Directors