

# California Fish and Wildlife Strategic Vision Project

## Science Working Group Issues Framework

Revised 4 October 2011

ISSUE	PROBLEM	Strategic Objectives	GOAL	Tactical Solutions (EXAMPLE(S) OF WAYS TO ACHIEVE GOAL)	TIE(S) TO DFG STRATEGIC INITIATIVES
		<p><b>1. Improve the scientific capacity of the California Department of Fish and Game (DFG) to assure that process of science and information derived from scientific studies provides basis for, guides policy development by, and guides resources management carried out by DFG</b></p>		<ul style="list-style-type: none"> <li>a. Identify and assess the current scientific capacity and capability of DFG.                             <ul style="list-style-type: none"> <li>i. Create database of current employees with procedural (e.g., permit processing and issue; coordination of issues and needs among offices and external organizations) and substantive (e.g., assess needs for directed scientific studies; develop plans for scientific studies; conduct or collaborate in directed scientific studies) scientific roles in development and implementation of department policy.</li> <li>ii. Establish a matrix that describes the interactive hierarchical structure of California agencies and extant offices within DFG that use guidance from science in their oversight of, obligations for, and authorities for conservation and management of California's natural resources, and identify overlaps and potential gaps to allow streamlining of efficiency.</li> </ul> </li> <li>b. Enhance the scientific capacity of DFG.                             <ul style="list-style-type: none"> <li>i. Recruit, hire, and retain personnel with expertise in designing scientific studies, conducting rigorous data collection, understanding and developing scientific models, analyzing data obtained from research and monitoring, and reporting and interpreting scientific studies generated from DFG staff and outside collaborators.                                     <ul style="list-style-type: none"> <li>1. Provide for the continuing education of</li> </ul> </li> </ul> </li> </ul>	

				<p>technical staff (including attendance of appropriate scientific conferences).</p> <ol style="list-style-type: none"> <li>2. Establish basic requirements and appropriate incentives for personnel to publish in peer-reviewed scientific journals and deliver reports of similar quality.</li> <li>3. Establish mechanisms that enhance recruitment of personnel from University of California and California State University campuses.</li> <li>4. Encourage technical personnel to pursue advanced degrees.</li> <li>5. Establish standards for personnel performance, review, and advancement that consider scientific contributions and application of science.</li> </ol> <p>ii. Establish appropriate scientific program offices and entities, including</p> <ol style="list-style-type: none"> <li>1. <i>An Office of Resource and Population Assessment</i> (in support of scientifically rigorous modeling efforts).</li> <li>2. <i>A Research Branch</i> (to promote scientifically rigorous studies and other data collection efforts).</li> <li>3. <i>A Monitoring Branch</i> as either stand-alone entity with direct integration with the <i>Research Branch</i> or as a sub-group of the <i>Research Branch</i>.</li> <li>4. An independent multidisciplinary <i>Science Advisory Panel (i.e., SAP; or a Science and Biostatistics Committee)</i> to provide</li> </ol>	
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				<p>independent scientific review and guidance on DFG planning products, management plans, monitoring designs, and focused studies (see 2.ii).</p> <ul style="list-style-type: none"> <li>– Ensure that the SAP adopts multidisciplinary approaches that include contributions from appropriate disciplines of population biology, oceanography, ecology, economics, statistics, modeling, and social sciences.</li> <li>– Ensure that the SPS coordinates the review of efforts with other federal and state review capacities.</li> </ul> <p>iii. Develop mechanisms to allow and facilitate collaborative partnerships between DFG personnel and scientists from other state and federal agencies, academic institutions, and other entities.</p> <p>iv. Establish methods, guidelines, and policies for collecting, analyzing, and archiving data and other information generated by research, monitoring, and modeling efforts by DFG personnel.</p> <ol style="list-style-type: none"> <li>1. Coordinate/integrate methods, guidelines, and policies with other scientific data collection and archiving efforts to the extent possible.</li> </ol> <p>v. Enhance and re-establish partnerships with academic institutions and other credible scientific organizations and stakeholders.</p> <ol style="list-style-type: none"> <li>1. Identify needed capacity of partners (e.g., waterfowl endowment at UCD).</li> <li>2. Collaborate with University of California and</li> </ol>	
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				<p>California State University systems to facilitate modification and development of University curricula to help with DFG scientific needs.</p> <p>3. Encourage and facilitate partnerships with stakeholders (e.g., consumptive and non-consumptive resource users) to effect cost-saving efficiencies in scientific data collection.</p> <p>4. Streamline MOU and scientific collection permitting processes.</p>	
		<p><b>2. Enhance scientific credibility of DFG</b></p>		<p>a. Proscribe a paradigm for conduct and use of science in development of policy and implementation of resource management.</p> <p>    i. Integrate the scientific method into research, monitoring and management activities of DFG by rigorous design and testing of null hypotheses and incorporation of other sources of scientific information as appropriate (e.g., descriptive studies, traditional ecological knowledge, strong inference, social science).</p> <p>    ii. Require a procedural step of effects analysis or risk assessment in all agency determinations that rely on the use of information derived from scientific studies or use other sources of reliable knowledge.</p> <p>    iii. Define <i>Best Available Science</i> and standards for its application that conform to federal standards (statutory and common law).</p> <p>b. Develop <i>Science and Biostatistics Committee Model</i> for DFG (see 1.b.ii.4)</p> <p>c. Develop <i>Scientific Integrity Policy</i> to proscribe ethical rules</p>	

				<p>of conduct for scientists, science program managers and other senior supervisors and procedures for investigating conflicts of interest and disciplining misconduct.</p> <p>d. Develop <i>Science Quality Assurance Plan</i> to guide scientific efforts to produce timely, credible, objective results.</p> <ul style="list-style-type: none"> <li>i. <i>Quality Assurance</i>: Rigorous internal and external review of study proposals.</li> <li>ii. <i>Quality Control</i>: Rigorous administrative and peer review of completed studies.</li> </ul> <p>e. Establish mechanisms to promote rigorous, thorough, independent scientific review of DFG resource management, scientific studies and reports, and monitoring program. (see 1.b.ii.4).</p>	
		<p><b>3. Integrate science (as defined as best available science; 2.i.3) from all relevant disciplines into development of policy</b></p>		<p>a. Modify decision-making processes to facilitate integration across disciplinary and administrative boundaries (i.e., balancing test for sufficient time versus efficiency; e.g. one-year status review under CES).</p> <p>b. Ensure independence of scientific programs from political influence.</p>	