Investing in the Future of California's Fisheries

"The California Fisheries Fund"

Business Framework

October, 2006

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Executive Summary

Many California fisheries are in trouble. Declining revenues and reduced access to fish populations are hampering fishermen and their businesses – and jeopardizing California's supply of local seafood, our working waterfronts, and the coastal communities that depend on them.

The challenge facing the state is addressing the underlying problems confronting fisheries, not just the symptoms. Many observers believe that lack of funding has been a significant impediment to fisheries reform. The Ocean Protection Council (OPC) has initiated the development of a revolving capital investment tool aimed at addressing this impediment by supporting transition to more stable and profitable fisheries in California and thus enhancing our public trust fishery and ocean ecosystem resources.

The California Fisheries Fund has several key elements:

- The primary objective of the Fund is to improve the conservation and financial performance of California's marine fisheries. Outcomes will include improved scientific information, enhanced stewardship of fish stocks and habitats, better fishery jobs, improved profitability, and revitalized coastal communities.
- One of the key reforms necessary to achieve this objective is to transition California fisheries governance so that fishermen, cooperatives, and/or communities receive dedicated, secure access privileges to public trust resources in exchange for commitments to achieve fishery management goals, sharing of the costs of research and management, and resource stewardship.
- There is strong evidence from the 8 US fisheries (as well as from the hundreds of fisheries around the world) that have undergone such transitions that economic performance, conservation performance, cost-sharing, safety, and job quality all improve substantially as a result of governance reform.
- The California Fisheries Fund will be a permanent source of capital for funding research and planning in support of essential fishery governance reform. The Fund will make customized investments that stabilize the regulatory environment and align improved ocean stewardship with fishermen's business interests. It is intended to 'kick-start' demonstrations of fisheries reform models. Examples of projects to be funded include targeted buyouts of vessels and permits, collaborative research to develop stock assessments and ecosystem-based fishery management plans, development of management measures, and planning for governance reform.
- The Fund will capitalize permanent locally based Fishery Foundations that enable fishermen to develop and implement research, local co-management entities and innovative market-based practices.

- In fisheries that have undergone governance transitions, a "bloom of innovation" typically occurs as fishermen shift from maximizing catch to attempting to maximize value. The Fund will invest in fishery business development and innovation resulting from governance reform. Examples include targeted vessel/permit buyouts, value-added seafood products, development of new markets and distribution channels for sustainable seafood, and local fishing harbor revitalization.
- The Fund will be established in two phases:
    - Start-up (2007 – 2010) – designed to demonstrate success in three targeted fisheries; and,
    - Expansion (2010) – taking the Fund to full operating scale and working with additional fisheries (estimate 10 to 12, dependent on the specific attributes and needs of candidate fisheries).
- The OPC will seed the capital base of the Fund with a $2,000,000 grant. This initial equity will be used to leverage an additional $6,000,000 in capital from private resources ($3,000,000 in grants and $3,000,000 in debt) – resulting in the $8,000,000 of capital required for the start-up phase of the Fund (2007 – 2010).
- Upon successful demonstration of reform strategies in selected demonstration fisheries, a second and final phase of capitalization will occur in 2010 that secures an additional $9,000,000 in capital from private sources ($2,000,000 in grants and $7,000,000 in debt), resulting in total Fund capital of $17,000,000.
- To minimize initial operating costs associated with the start-up of the Fund and expedite successful capitalization, an existing non-profit with relevant experience will 'incubate' and manage the Fund through the start-up phase of operation. After successful performance over the first three years, the Fund will 'spin-off' and be established as an independent non-profit.
- The Fund is based on a principle of risk sharing with participating fisheries and will incorporate repayment terms that reflect uncertainty and risk associated with fish populations, management, and overall successes.
- Given the uniqueness of approach, the financial modeling for the Fund and proposed operations have been structured using conservative assumptions, relatively large reserves, and other measures to allow for a higher level of risk tolerance in investment, capitalization, and operations while ensuring solvency and ongoing reserves.

The California Fisheries Fund will provide the State and stakeholders with an innovative tool to achieve conservation and economic benefits that will help sustain our working waterfronts and coastal communities, provide fishermen a long-term stake in the future of their fisheries, and ensure sound stewardship of our ocean resources. The Fund will be operational February, 2008.

Table of Contents

Background

The Ocean Protection Council approved a planning grant for Environmental Defense in September 2005 to investigate how capital might be used as part of a comprehensive state strategy to improve California fisheries. Environmental Defense secured the services of ShoreBank Enterprise Pacific (SEP), an established community development financial institution with extensive experience in fisheries, to undertake the assessment, feasibility, and planning effort. The planning grant is administered by the California Coastal Conservancy (CCC).

This work involved two phases: Needs assessment/concept development; and, Business plan development.

Phase one activities included assessment interviews with seafood and fishing industry leaders and academic experts up and down the coast. Specifically, we met with fishermen, processors, industry associations, agencies, university professors, community leaders, and non-profit institutions.

(The discussion paper developed during phase one is included as Appendix C. Readers are urged to use this companion document for background information in support of this plan. It contains additional detail regarding needs assessment, current operating environment, and underlying assumptions of the concept and final plan.)

Problem Statement and Current Operating Environment

In 2004, commercial fish landings in California totaled 300 million pounds, valued at $131.6 million. The California Department of Fish and Game's budget for Hunting, Fishing and Public Use, which includes commercial fisheries management, was $35.9 million, while revenues to the State from commercial fish licenses were just $3.7 million. The cost of drafting a Fisheries Management Plan for one fishery, which is required under the Marine Life Management Act, is on the order of $2 million. Currently, costs of managing California commercial fisheries exceed revenues (CDFG).

There are about 150 species of marine life managed by the state. As of 1999, there were 16 fisheries with Restricted Access Policies in place, meaning there are

limitations on the quantity of persons, vessels, fishing gear and/or catch in these fisheries and as of 2005, the Department of Fish and Game issued permits for 28 different fisheries. In 1999, ten fisheries (market squid, pacific sardine, chub mackerel, red sea urchin, albacore tuna, northern anchovy, rockfish, Dungeness crab, dover sole, and skipjack tuna) accounted for nearly 90% of landings by weight and ten fisheries (market squid, Dungeness crab, red sea urchin, albacore tuna, swordfish, rockfish, Chinook salmon, pacific sardine, spot prawn and sablefish) accounted for 77% of the value.

Initial estimates indicate the value of landings could increase by $27-93 million per year, if the catch was shared rather than competed for (based on comparisons of costs and earnings before and after transition to DAP management in other fisheries, modified from J. Wilen in *Evolving Property Rights in Marine Fisheries* D. Leal, Ed.. Rowman and Littlefield, 2005). The large range reflects uncertainty resulting from the lack of fishery specific data on costs, earnings, and prices in California fisheries. The increased value would come from a combination of targeting higher value fish, capturing fish in ways that improve quality, price increases, cost reductions, and where biologically appropriate, higher landings.

In fisheries that have undergone governance transition, capital costs are usually reduced because there is no longer a need to compete to maximize catch. Rather, under these management regimes, there are strong incentives to reduce fishing costs and maximize value by modifying fishing practices or timing to maximize product quality and value. Estimates for cost reductions and value increases associated with governance changes were derived from the primary fisheries economic literature; gaps were filled with estimates using professional judgment (see Appendix D for an assessment of the conservation and economic performance of fisheries before and after governance reform).

The State does not have the resources to implement the necessary management reforms and the public is paying most of the research and management costs. A $2 million initial investment in the California Fisheries Fund is a wise investment for California. It will leverage an additional $15 million in capital under the base scenario outlined in this plan and jumpstart management reform, thereby improving the financial and conservation performance of our fisheries and making them more self-sufficient economically.

The needs assessment revealed broad agreement on the need for fishery governance reform that can stabilize regulations and create a regulatory environment more conducive to investment, innovation, and conservation. The majority of individuals interviewed identified instability in management and the failure to tailor regulations and stock assessments to local conditions as the most pressing issues they face. Motivating investment and innovation requires confidence in data predictability and stable access to fisheries over the mid- and long-term.

In this current operating environment, traditional 'lending' and loan products targeting fishermen, seafood companies, and coastal communities will meet with limited demand and result in little benefit to California fishing families, their communities, fish populations, or ocean ecosystems. Specialized interventions--highly targeted and customized to prevailing local conditions--will be required.

Any successful response will require changing the 'value proposition' currently driving many California fisheries. We offer the following analogy:

> Landlords in poor communities rely on operating income (rents) for return on investment; they minimize investment in their property and hold operating costs down, to get their money back out as quickly as possible when they lack confidence in market conditions. The 'value proposition' is current cash flow rather than resale of the property for more than they paid. Properties are often abandoned when their potential for current income without capital investment is exhausted. The result is persistent decline in housing conditions, community well-being, and confidence in the future.

In the context of this analogy, we have concluded that most fishermen are behaving rationally given the existing economic incentives that they face; lack of predictability in the current regulatory regime and lack of assured access to future harvests conspire to make anything but a near-term perspective irrational. A focus on cash flows, driven by a race to maximize and accelerate catch within the context of increasingly stringent conservation regulations, fuels a cycle of disinvestment supported by regulatory practice and often results in unintended adverse environmental

consequences, such as bycatch/discard of incidentally caught species and habitat damage by gear used to maximize catch.

Our assignment has been to recommend ways that capital investment can drive improved economic and ocean ecosystem health in the California fisheries sector, and, because the California fisheries 'value proposition' is based on maintaining cash flow, rather than on the building of assets, we have concluded that there is scant opportunity for traditional debt instruments alone to achieve these goals.

Regulatory reform that provides more secure access to fisheries for communities, cooperatives, or individuals will be necessary to deliver the appreciable assets and confidence in the future that will be essential for improving California's fisheries.

Regulatory reform can also offer an alternative to the outdated and unnecessary *economy versus the environment* paradigm by offering solutions for improving both conservation and financial performance. Capital can play an important role in creating these necessary regulatory reforms and solutions for sustainable fisheries.

Theory of Change

The current operating environment forces California fishermen – despite their best efforts – to focus on survival instead of long-term sustainability and profitability. This business environment is harmful to California's oceans, fishermen, consumers, and the coastal communities and working waterfronts that depend on them.

Just as Community Development Financial Institutions (CDFIs) have been successful in improving social and economic conditions in distressed urban and rural markets, targeted capital investments can result in similar improvements in our fisheries. Like landlords in troubled urban communities, fishermen face a business environment that encourages them to focus on maximizing present income (catches) rather than the long-term value of their primary asset (healthy fish stocks).

Fishermen need predictable and stable access to fisheries and management that allows them to adopt new business models to help improve their financial security and to safeguard our state's invaluable marine ecosystems. The California Fisheries Fund can be a key driver of these reforms - acting as a sustainable source of capital for fisheries

attempting to transition towards a more secure future and healthier oceans for all Californians.

Key Elements of a Solution

- Create stability and predictability through pursuit of rational approaches for reform – i.e. changing the current 'value proposition' for fisheries
- Tailor solutions to local conditions – acknowledging and affirming the importance of localized involvement in stewardship and management
- Demonstrate then replicate – creating replicable models for other fisheries and communities
- Target for success – following strong, open-minded, and committed local leadership
- Share the financial risk of change with fishermen and communities – tied both to the degree of success or failure of reform measures and to ocean productivity
- Build political will – through securing consistent commitment from the State and other stakeholders to reform fisheries governance with the aim of creating economic incentives for stewardship
- Avoid the 'us versus them' debate – demonstrating that economy and environment are not mutually exclusive
- Support research and create incentives for stewardship – transitioning from precautionary to knowledge-based fishery management
- Support innovation in fisheries – resulting in higher value products, new markets, and improved market access
- Create metrics and generate measurable impacts – demonstrating tangible and measurable benefits for local economic well-being, safety, marine resources, and ocean ecosystems

- Create financial leverage – establishing permanent assets to support ongoing transition efforts

Impacts

As this theory of change suggests, at the core of any successful response is the need to challenge some fundamental assumptions of current fisheries management and examine the social and economic incentives that various kinds of management models create. Successful management will realign these incentives to support healthier fisheries, communities, and ocean ecosystems. This will require ongoing, constructive dialogue about elements of reform between fisheries management agencies and local stakeholders attempting transition.

The following chart highlights desired changes and potential impacts resulting from implementation of the California Fisheries Fund.

Current ***"Cash-flow Model"***	→	***Vision*** ***"Asset Building Model"***
No secure share of catch	→	Secure access privileges to co-management entities, cooperatives, or individuals.
Attempt to maximize one's share of catch	→	Attempt to maximize value of catch
Excess inputs into business	→	Plan business around share, reduce inputs
Shrinking season	→	Expanding season
Supply gluts, low prices	→	More stable market, higher prices
Little stewardship incentive	→	Stewardship incentive
Conservation often perceived as threat to livelihood	→	Conservation perceived as supporting livelihood, as adding value to asset
Burden of financial risk of change carried solely by fishermen	→	Burden of financial risk of change shared with Fund

Business Model

Mission

The California Fisheries Fund is a sustainable source of capital committed to financing fisheries reform that will result in more stable and profitable fisheries that enhance public trust fishery resources. This is achieved through delivering customized investments that help stabilize the regulatory environment at local and regional levels in ways that align fishermen's business interests with improved ocean stewardship.

Operating Principles

The five operating principles of the California Fisheries Fund are:

- *Design Tailored to Local Conditions:* Regulatory reform that results in secure privileges for communities, cooperatives, or individual fishermen to catch fish. The specific management model must be sensitive to and work in concert with the unique social, economic, and biological features of each fishery or region. These secure privileges will lay the groundwork for stability and predictability and act as a source of investor/investee confidence over longer terms.

- *Focus on Assets:* Shifting our collective mindset from an 'income' approach (e.g. focused on cash-flow) to an 'asset accumulation' approach (e.g. focused on building net worth through asset accumulation, including fish available for harvest) that captures and releases entrepreneurial energy, while at the same time ensuring the health of our ocean assets.

- *Stewardship Services:* Viewing science, enforcement, and management as costs of doing business – 'stewardship services' – and establishing mechanisms for internally financing these services specific to individual fisheries or geographic areas.

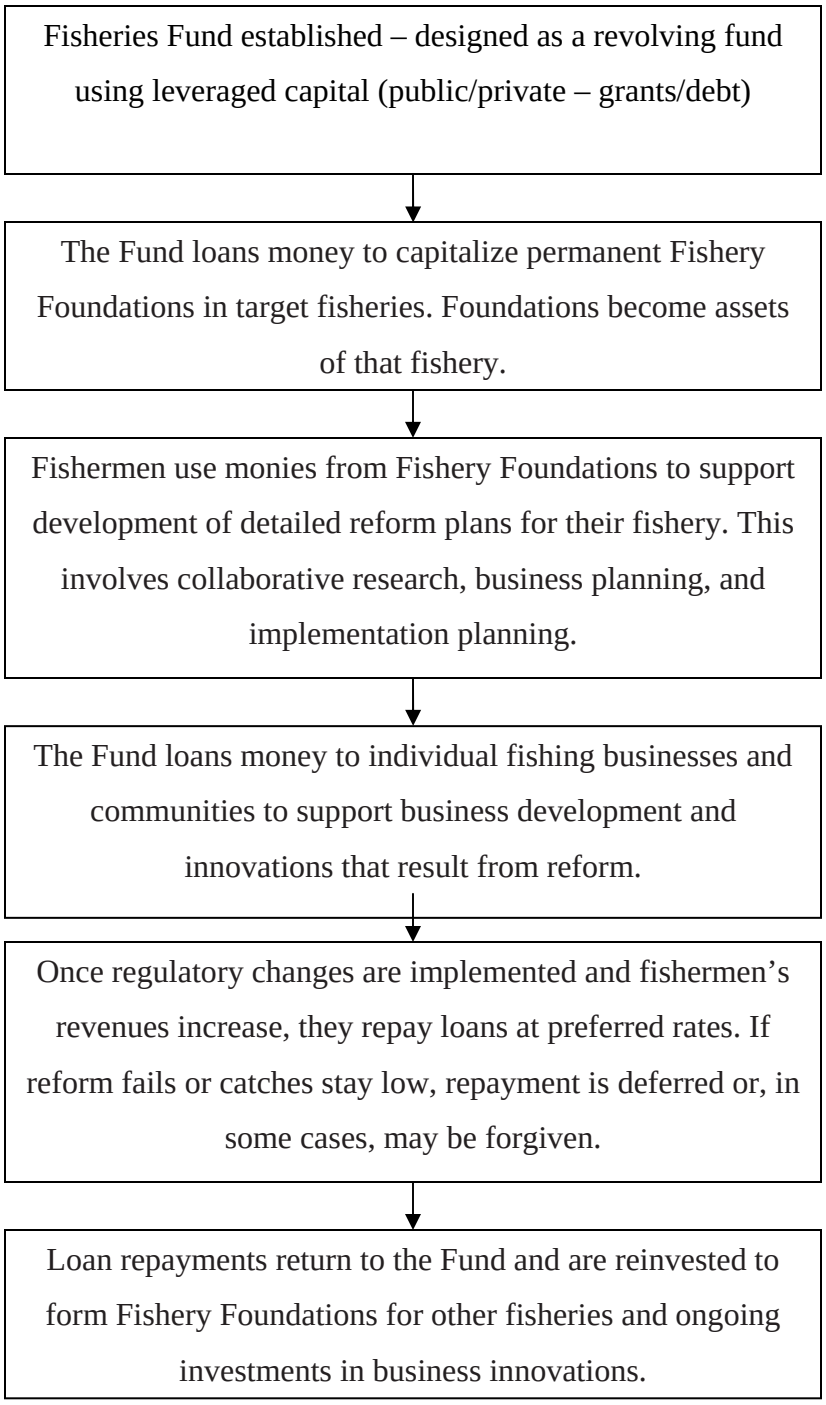
- *Self-Interest:* Linking the value of business assets directly to the 'environmental performance' of the resource – resulting in rational economic self-interest in maintaining sound stewardship and management.

- *Align with State's Emerging Ocean Governance:* Designed to align with current state policies and trends in ocean governance – specifically with regionalization, restricted access, cooperative research, and participatory democracy objectives embodied in the Marine Life Management Act, the Fish and Game Commission's Restricted Access Policy, and other policies and regulations.

How It Works

The Fund is intended to 'kick-start' demonstrations of fisheries reform models at local and regional scales. Based on successful demonstrations, the Fund will expand to invest in other fisheries.

The primary objective is to improve the conservation and financial performance of California's fisheries, protecting fish stocks and habitats, creating better jobs, improving profits, and revitalizing coastal communities. The following is a depiction of how the Fund will work:


Fisheries Fund established – designed as a revolving fund using leveraged capital (public/private – grants/debt)
The Fund loans money to capitalize permanent Fishery Foundations in target fisheries. Foundations become assets of that fishery.
Fishermen use monies from Fishery Foundations to support development of detailed reform plans for their fishery. This involves collaborative research, business planning, and implementation planning.
The Fund loans money to individual fishing businesses and communities to support business development and innovations that result from reform.
Once regulatory changes are implemented and fishermen's revenues increase, they repay loans at preferred rates. If reform fails or catches stay low, repayment is deferred or, in some cases, may be forgiven.
Loan repayments return to the Fund and are reinvested to form Fishery Foundations for other fisheries and ongoing investments in business innovations.

Essential to this model is the emergence of 'demonstration' fisheries – communities, fisheries, and individuals willing to embrace the challenges of implementing reform – that will be identified for initial investment from the Fund. A number of fisheries have expressed early interest in participation and are pursuing initial grant funding to assist them in basic organizing activities that will prepare them to seek investment from the Fund.

Given the need to tailor solutions to conditions in a particular community or region, it is expected that reform strategies will vary. The following example, for illustration only, is provided to outline steps a demonstration fishery might undertake; not all models will resemble this example:

- **Step 1:** Local leadership emerges and identifies ecosystem-based management as a desired framework for change. They initiate the process of involving stakeholders in discussions regarding design of a management plan, resulting in the formation of a local constituency interested in pursuing change.
- Leaders initiate discussions with agencies and resource providers on developing a co-management strategy. A planning grant is secured to cover initial costs of organizing and planning.
- Using cooperative partnerships to manage resources is a new approach; a co-management organization will need to be created as well as a plan for reform. Lack of sufficient capital may slow the process.
- **Step 2:** Organizational leaders approach the Fisheries Fund. Analysis of historic data and financial modeling shows that an investment of $1,500,000 is needed to establish a permanent Fishery Foundation appropriate to the scale and need of the specific fishery.
- Basic terms of capitalization for the Fishery Foundation are estimated at:
    - $1,500,000 loan, 3% interest rate, 10 year term
    - Interest only annual payments the first 4 years = $45,000

- Fully amortized annual payments the final 6 years = $273,486

- **Step 3:** The investment is approved. The fishery agrees to impose a landings fee; all proceeds remain with the fishery as a locally-managed asset. The 4% landings fee equals $325,000 annually, providing for both repayment of the loan and ongoing capitalization of the Fishery Foundation over the term of the loan.
- Disbursement of funds is phased to minimize initial risks. An existing non-profit acts as a 'pass through' for an initial disbursement of $200,000 until the co-management organization is formally established.
- Upon achieving initial benchmarks, funds are transferred to the co-management organization and remaining commitment for capitalization of the Fishery Foundation is finalized and disbursed.
- **Step 4**: The co-management organization successfully creates a long-term partnership with a university for collaborative research. The fishery leverages its Fishery Foundation for matching funds to compensate fishermen for research participation.
- **Step 5:** The Port District, in collaboration with the co-management organization, attempts to install shore-side infrastructure in response to growing market opportunity. The Fund provides a subordinated loan of $150,000 to the Port to complete the project.
- **Step 6:** Given more stable access to fish, fishermen approach the Fund for business loans to develop value-added products and/or the purchase of equipment that improves handling of product to increase market value. Five investments are made at an average of $50,000 per investment. A processor secures a $125,000 loan to upgrade equipment that improves product utilization.
- **Step 7:** As confidence rebuilds, the co-management organization initiates a 'succession' plan to provide training, develop leadership, and create opportunity for the next generation of fishermen and stewards.

Key Features

The following is a summary of the key design features of the California Fisheries Fund that correspond with our theory of change:

- *Sustainable Financing:* The Fisheries Fund will support management reform and transition of fisheries towards more localized management models consistent with existing and emerging state law and policy. The primary foundation of this concept is based on localized design, assets, self-interest, and stewardship services. Both public and private capital will be sought to establish the Fund. Given the scale of need and desire for permanence, the Fund will be established so that resources revolve, enabling the Fund to address additional fisheries based on success. Return on these investments and phasing of capital growth will allow the Fund to achieve the level of stability required for long-term success.

- *Investment Pipeline:* Grants from other sources will be necessary to help some fisheries prepare for investment. Grants to local communities and groups looking to organize towards reform will need to be secured from sources other than the Fund. Greater efficiencies and synergies will likely be achieved through close coordination of grant making with the investment strategy of the Fund, resulting in a 'pipeline' of investment opportunity for the Fund.

- *Demonstration:* The Fund will be established in two phases. During the start-up phase, up to three fisheries will be identified for initial investment from the Fund. These fisheries will work with appropriate agencies to develop management reform strategies. Based on lessons learned and successful demonstration, a second expansion phase will be implemented for reforming additional fisheries and expanding impact.

- *Capitalized Science and Management:* Fisheries will use capital from the Fund to secure the reform of the fishery to improve stewardship, profits, and investment climate. The proceeds of these investments will be used to capitalize change through the establishment of Fishery Foundations specific

to each fishery. These investments will 'kick start' the ability of a fishery to initiate the necessary scientific programs (e.g. collection of essential fishery information) and management reform steps (e.g. organizing and planning appropriate reform measures). Each fishery and Fishery Foundation will have a mechanism for self-financing to cover the on-going costs of proactive management and ensuring healthy stocks and habitat.

- *Investment Recovery:* Mechanisms appropriate for each fishery will be developed that allow for recovery of the initial investment from the Fisheries Fund and to provide ongoing support for the associated Fishery Foundation. It is anticipated that these investment recovery mechanisms will vary by fishery based on current fishery status, reasonable return windows, and the confidence of all parties in the positive impacts of management reform (i.e. customized terms specific to the needs of each fishery). Most important, risks will be shared with fishermen, codified in negotiated terms guiding investment recovery (i.e. investment recovery will be tied to the extent to which regulatory reform is achieved and to the response of fish populations to natural conditions and management measures).

- *Stewardship as an Asset:* It is anticipated that the 'beneficiaries' of the initial investment in specific fisheries will vary based on the management model and co-management infrastructure developed by that fishery. Participation will vary and, along with the required public agency representation, may include individual fishermen, groups of fishermen, communities, and other industry members or associations. A primary principle will be to establish the Fishery Foundation as a financial asset of the fishery that can be used to leverage additional resources for research and conservation activities.

- *Oversight:* Appropriate representation will be established for oversight of each Fishery Foundation to ensure both protection of the public trust and equitable distribution of access to the resource.

- *Transferability:* It is anticipated that parameters for establishing transferability of access privileges will be implemented specific to each

fishery. All models considered will have features designed to protect environmental and cultural values, including those of inter-generational succession and new entrants into a fishery consistent with California's Restricted Access Policy.

- *Support for Innovation:* In addition to 'seeding' the Fishery Foundations, the Fund will have the capacity to invest in other business activities of fishermen, processors and communities as transition to reform proceeds (e.g. product innovation, business development, market development).
- *Density of Impacts:* Investments of the Fund will be targeted to achieve 'density of impact' – multiple investments in priority areas or to priority individuals/sectors that build on each other to maximize benefits and chances for success.
- *Collaboration:* Successful implementation will require committed leadership and intensive collaboration among State and Federal agencies, fishermen, local entities, communities, and various industry groups and NGO's.

Fund Administration

Phasing

In an effort to minimize the risks associated with launching a new initiative, we have divided the development of the fund into two phases: start-up and expansion. From an operational perspective, this will allow the fund to demonstrate success prior to expansion of effort. It also results in low-overhead expenses over the first three years.

From a capitalization perspective, this will allow the fund to 'prove-up' the model, develop a track record of success, and be better positioned to secure the second phase of capital required.

Additionally, this phasing of growth allows the Fund to learn, along with the demonstration fisheries, how it can best support reform transition efforts. Lessons learned may offer opportunities for product refinement or improvements.

Management

In an effort to minimize start-up costs and expedite establishment of the Fund, an 'incubation' model is recommended. OPC staff are in discussions with an existing non-profit qualified to 'incubate' and manage the Fund during the first three years of operation (henceforth, the 'management entity'). This process is expected to be completed during the fourth quarter of 2006. A final management agreement with terms and conditions for performance will be delivered to the OPC for final approval.

It is anticipated that after successful performance over the first three years, the Fund will 'spin-off' and be established as a stand alone non-profit. This model of 'incubation' – using an experienced and qualified 'parent' non-profit to manage start-up and development of the Fund and its investment functions – will keep operating costs low during the start-up phase rather than fully capitalizing a new start-up entity. Additionally, it enables the Fund to take advantage of the track record, existing relationships, and management experience of an existing organization during the capitalization phase.

To ensure sound and prudent management of the investment process, the management entity will contract for services from an existing CDFI, with CDFI certification in good standing with the US Department of Treasury and a proven track record in environmentally-based economic development lending. Services will include underwriting the credit process, loan portfolio management, and risk management. Securing these services from an established organization with a strong track record and existing management systems will further reduce start-up costs.

A CDFI's capacity to accept risk depends on its capacity to manage risk. Risk management focuses on three areas: (1) the underwriting and approval process; (2) sustained performance of the portfolio over time; and (3) use of high-level standards for measuring risk and loss exposure. Appendix B. Risk Management, provides an overview of accepted industry standards for risk management.

Elements of the management agreement will include:

- *Oversight:* The management entity will be responsible for oversight and management of all aspects of start-up and operations for the Fund.

- *Accountability:* The management entity will be accountable to criteria associated with each source of funding, including public interest requirements associated with state funding.

- *Fund Advisory Committee:* The management entity will be required to establish a Fund Advisory Committee to provide governance and oversight during the incubation period. This Committee will include appropriate representation of various stakeholders including fishermen, management agencies, industry groups, NGO's, and community representatives.

- *Capitalization:* The management entity will be responsible for implementation of the capitalization strategy using existing relationships and past performance to expedite this process.

- *Reporting:* The management agreement will include reporting mechanisms for mission impacts and business performance. This will include the development of standard templates used in reporting.

- *Underwriting/Portfolio Management/Risk Management:* The organization selected to provide investment services and functions will be a certified CDFI with a proven track record in successful fund management and high quality systems, procedures, and protocols. The CDFI will be responsible for all credit functions including underwriting, credit recommendation process, portfolio management, and risk management.

- *Investment Decisions:* Investment decisions will be based on factors such as mission impacts and achieving core metrics, support services, character, environmental and community benefits, uses of funds, and overall financial feasibility. The credit recommendation process for Fishery Foundation loans will be vetted at the Advisory Committee level and a written recommendation from the Advisory Committee will be included in the Credit Memo. All other investments will go directly through the established credit committee process of the underwriting entity. All credit

practices will adhere to industry standards regarding confidentiality of business information.

Products

The Fund is designed to deliver three primary products: Fishery Foundation Loans; Infrastructure Loans; and Business Loans. The following is a brief description of these loan products. Rates and terms presented are averages used in development of the financial model. Given anticipated variations in risk, asset quality, and financial performance – loan terms, conditions, and loan loss reserve rates will vary for each product.

Product 1 – Fishery Foundation Loans:

- Loan proceeds will capitalize permanent Fishery Foundations in selected fisheries. Fishery Foundations will use capital to support development of detailed reform plans for their fishery, including fishery research, business planning, and implementation planning.
- Repayment terms are from self-taxed landings fees or other mechanisms developed by the fishery.
- Terms are a maximum 10 years and may include deferred or interest only periods as projects are developed and implemented and resulting reform practices are implemented (i.e. four years interest only payments, fully amortized over remaining six years).
- There is a 1% loan origination fee. Rates are anticipated to be below market rates to recognize the unknown capacity to generate income and broad environmental and economic benefits to the community. Average interest rate is estimated to be 3%.
- Loan loss reserve for this product line is 25% of Fishery Foundation Loans outstanding. This high level of reserve is intended to account for the innovative nature of the product.

Product 2 – Infrastructure Loans:

- Activities undertaken by Ports, communities, and other organizations in support of reform may require investment in infrastructure at the fishery level. Commercial and public agency lenders may not make loans due to real or perceived risks. Activities may include things such as improvements in off-loading capacity, ice machine capacity, minor cold storage, or processing.
- It is anticipated these loans should support higher interest rates than Fishery Foundation loans because they are supported by transition activities resulting from regulatory reform. Average interest rate is estimated at 6%. There is a 1% loan origination fee.
- Repayment terms will be negotiated based on cash-flow analysis and income streams. Terms are a maximum ten years and may include deferred or interest only periods as needed.
- Loan loss reserve projected for this product line is 10% of Infrastructure Loans outstanding given the types and net-worth of entities seeking investment.

Product 3 – Business Loans

- We anticipate that increased confidence in a fishery undergoing transition, based on reform that creates stability and predictability, will result in a bloom of innovation. Business loans will be made available to finance efforts by individual businesses to add value to seafood or achieve other goals consistent with the purposes of the Fund. Business development activities may include things such as equipment, product innovations, and market development. Commercial and public agency lenders may not make loans due to real or perceived risks.
- Loans should support higher interest rates than Fishery Foundation and Infrastructure loans as these are supported by a transitioning fishery.

Average interest rate is estimated at 8%. There is a 1% loan origination fee.

- Repayment terms will be negotiated based on cash-flow analysis and income streams. Terms are a maximum of five years.
- Loan loss reserve projected for this product line is 15% of Business Loans outstanding.

Coordination

Successful collaborations and partnerships will be essential for ensuring that the Fund achieves its mission and accomplishes the delivery of necessary financial services. Implementation will require the Fund to strategically identify, select, and partner with other individuals and organizations such as specialized consultants, NGOs, institutes, academic institutions, private companies and government agencies. Partner selection will correspond to the Fund's priorities, products, and phased-growth.

The Fund is structured and designed as a capital tool to invest in change; it will rely on others to provide direct services and assistance. It is expected that intensive collaboration will be required during the start-up phase, particularly to support fisheries and communities developing transition strategies. There are numerous efforts and initiatives underway or in the planning stages that could fill this role.

It is hoped that the strategic collaborations and partnerships will:

- Provide information, resources, and direct assistance to fisheries and communities interested in developing transition strategies;
- Provide a pipeline for investment opportunity;
- Provide ongoing support to transitioning fisheries, ensuring long-term success; and
- Provide additional vehicles that support successful deployment of the Fund's product line (i.e., product development technical assistance offered by a university).

Successful collaborations and partnerships have the following characteristics. The Fund will use these 'terms of engagement' to guide its development of strategic relationships:

- Collaborations and partnerships are based on trust – allowing for clear and honest communication;
- They deliver mutual benefits to all parties that are tangible, measurable, and clearly defined;
- They are structured, formalized, and documented with clearly-defined expectations regarding outcomes, roles, responsibilities, and reporting; and
- They are relationships that are closely managed and continually cultivated.

A supporting document will be developed during the operational start-up of the Fund that details the partnership approach, identifies potential collaborators, and provides templates for partnership agreements.

Communications and Outreach

The first phase of outreach was completed during the development of the Discussion Paper (Appendix C) and of this business framework. In the second phase of the Fund's operation, the cultivation of leaders and of potential projects that the Fund can finance -- and the provision of assistance to fisheries to increase the probability of success -- will require extensive outreach and a consistent and sustained communication strategy. A detailed communication strategy will be developed during the operational start-up phase.

The communications strategy will be designed to deploy a variety of tools, approaches, and messages specific to each target audience. As the Fund grows, costs associated with communications are expected to increase. The communication strategy will focus on the following primary stakeholders:

- Potential fisheries and communities interested in pursuing reform – focused on building a pipeline of potential investments;

- Foundations and other financial supporters – focused on establishing a diverse base of financial support and regional expertise;
- Public agencies and strategic partners – focused on identifying areas for collaboration;
- Seafood Industry – focused on sharing stories of conservation and community support behind seafood produced by fisheries supported by the Fund;
- Broader population and end consumers – focused on creating recognition, market opportunities, and enhancing support for change.

Financial Modeling and Metrics

Model and Business Outcomes

A detailed financial model has been developed and is included as Appendix A. This model will be used for both fund operation and for analyzing prospective fisheries. The model includes three scenarios – low, base, and high levels of capitalization – and was designed to allow for future flexibility in analyzing prospective fisheries for investment. Emphasis was placed on determining whether the Fund could be financially feasible and also on understanding how various levels of investment could impact the ability of the Fund to achieve its mission and goals.

Two detailed case studies of Fishery Foundation loans, which are the cornerstone and catalyst of local reform, were developed to test and analyze the overall feasibility of the Fund model. For two fisheries, twenty years of data for one individual species was collected and analyzed along with anecdotal information of these fisheries regarding trends and anomalies caused by various market and environmental events. (The model allows for multiple species or species products per fishery, if relevant.) This type of information is critical for accurately interpreting landings trends, which are affected by multiple factors.

Projections of future performance were developed using projected growth rate assumptions for both pounds landed and the price per pound. The assumptions were based on the anecdotal information noted above and the actual average growth rate for

pounds landed and prices per pound for the past five years. Conservative growth rates were used to ensure the feasibility of repaying Foundation loans, regardless of fishery reform success. Given evidence that various kinds of fishery reform result in much improved financial performance, we believe the case studies strongly support the financial feasibility of the Fund.

This financial model will allow the Fund to collect data and work with prospective fisheries to appropriately structure investments. Based on overall capital need, the model can be used to establish appropriate terms for the investment by identifying a fishery's ability to repay the Fund using various scenarios for fishery performance (like landings and value) and types of mechanisms identified to create a repayment stream.

Of the three scenarios analyzed and presented in the financial model, the Base scenario is recommended for use because mission impacts and objectives are achieved under this scenario. It appears to be the most realistic scenario with respect to market conditions, need, and projected ability to secure necessary capital. Below is a brief summary of the three scenarios:

- Low scenario provides insufficient funding for even modest activity. Results in financial losses for Fund. Assumes start-up capital of $5,000,000 and expansion phase capital of $7,000,000 (total $12,000,000). The overall scale and equity level of this scenario is also projected to increase the cost of funds (Program Related Investments - PRI's at 3% - 10 yr terms), negatively impacting cash-flow ability and overall risk tolerance.

- Base scenario provides sufficient funding for reasonable projected activity that best matches need. Results in solvent fund – with a 15 year life and ending positive capital balance (approximately $5,000,000) – making longer term operation feasible. Assumes start-up capital of $8,000,000 and expansion phase capital of $9,000,000 (total $17,000,000). The overall scale and equity level of this scenario provides a more reasonable cost of funds (PRI's at 2% - 10 yr terms). This scenario appears most realistic in

terms of current market conditions, need, and projected ability to secure necessary capital.

- High scenario offers optimum funding for high level of risk tolerance and maximum flexibility of operations, including highest levels of financial activity and reform impacts. This scenario results in a solvent fund – with a 15 year life and ending positive capital balance. Assumes start-up capital of $11,500,000 and expansion phase capital of $11,000,000 (total $22,500,000). The overall scale and equity level of this scenario provides an even more reasonable cost of funds (PRI's at 1% - 10 yr terms). However, this scenario appears to be unrealistic in terms of current market conditions, need, and projected ability to secure necessary capital.

Critical assumptions used in developing the financial model include:

- Management of Fund start-up will be established at an existing parent non-profit ('management entity'). The management entity will obtain underwriting and portfolio management services through a contract with a qualified economic and environmental lender. This minimizes start-up costs and maximizes chances for success.
- Phasing of activity (start-up phase and expansion phase) will limit initial lending activity to three fisheries with feasible business and reform plans (three Fishery Foundation loans and multiple related infrastructure and/or business loans). This will allow the Fund opportunity to mature, initiate any necessary refinements, and demonstrate success prior to expansion.
- After the three year start-up phase, the Fund will establish independent operations as a stand alone non-profit. Projections include one-time costs associated with spin-off; staff; and low overhead and operating expenses.
- The expansion phase will open lending activity to additional fisheries with qualified business and reform plans, disbursing multiple new Fishery Foundation loans and related infra-structure and/or business loans.

- Prudent loss reserve percentages based on loans outstanding were established based on the varying levels of risk associated with each of the three product lines. The model was built with plenty of cushion to absorb losses (either due to human causes or environmental variation). It is not expected that losses will be as high as projected, but given the innovative nature of the Fund it is prudent to err on the side of caution. As the Fund matures, the loan loss reserve percentages are expected to be reduced, making more working capital available.
- Model is based on low leverage (debt to equity ratio) and cost of funds, with operational and capital phasing to allow for proving up performance prior to expanding to scale. In the unlikely event of failure, the Fund can cut its losses with equity, pay off the debt (PRI's), and determine the best distribution of any remaining equity. In this scenario, no additional equity or PRI's would be sought and no additional lending would occur. Continued management of loans outstanding would be performed by the management entity and portfolio contractor.
- Fund start-up requires low leverage and low cost of funds (i.e., grants and low interest PRI's) based on general risks associated with any new initiative. During the expansion phase higher leverage will be acceptable based on the lower risk that comes with proven success. Continued low cost of funds will be required in the expansion phase based on continued below market pricing of loans.
- An outside evaluation component has been built into year three that will inform decisions on how best to proceed in the expansion stage. Annual audit expenses have also been included.

Capitalization

The capitalization strategy is based on the traditional leverage model of equity and debt used by most revolving loan funds.

The Fund's capital base will consist of:

- Equity in the form of grants from public and private sources; and
- Debt in the form of Program Related Investments (PRI's) – PRI's are preferred term loans from foundations, corporations, or social investors.

Capitalization is divided into two phases to allow for successful demonstration of desired impacts prior to taking the fund to full operating scale and to minimize the risks associated with new initiatives. Specifically, this phasing achieves a number of objectives:

- The Fund was intentionally designed with a conservative debt to equity ratio during the start-up phase, allowing for a higher tolerance for risk and the ability to absorb losses if necessary without jeopardizing the ability to repay PRI investors.
- It allows the fund time to demonstrate success and 'prove up,' increasing its future chances at securing full capitalization in 2010 ($17,000,000);
- Initial investments by the fund will provide it with necessary information regarding overall risk tolerance and identify any refinements needed. As the fund matures, its ability to assume a higher ratio of debt to equity increases.

Elements of the start-up phase of capitalization include:

- The OPC will seed the capital base of the Fund with a $2,000,000 grant.
- This initial equity will be used to leverage an additional $6,000,000 in capital from private resources ($3,000,000 in grants and $3,000,000 in debt).
- $8,000,000 of total capital is required for the start-up phase of the Fund. Start-up phase capitalization is expected to be completed by December 2007.

Upon successful demonstration of reform strategies in selected demonstration fisheries, a second and final phase of capitalization will occur in 2010.

Elements of the expansion phase of capitalization include:

- Securing an additional $9,000,000 in capital from private sources ($2,000,000 in grants and $7,000,000 in debt).
- Total capitalization of fund at $17,000,000 is expected in 2010.

Core Metrics

The establishment of a tangible and consistent set of baseline metrics for evaluating mission impacts and business performance is essential for defining success. It is expected that core metrics regarding mission impacts will be developed over the next few months in consultation with various State agencies and other stakeholders.

Core performance targets and indicators are to be developed for the Fisheries Fund and each Fishery Foundation addressing:

- Financial performance
- Economic performance
- Community/social performance
- Environmental performance

In addition to metrics regarding mission performance, a detailed set of measures relevant to monitoring loan fund performance will be developed. These will include product outputs (i.e. increase in number of transactions over baseline, increase in amount of funds invested, etc) and internal performance outcomes (i.e. investment earnings, delinquencies, loss rates, loss reserves, ratio of debt to equity, etc).

The majority of these measures are typical for the prudent management of loan funds. The financial model contains standard critical measurements for business performance. The qualified organization selected to provide underwriting and portfolio management services will have established systems to base these measures on. Final business performance measures will be developed over the next few months in consultation with the State.

It is our intent that these measurement tools will also be used to establish annual performance goals and objectives.

Timeline

The following is a timeline of expected activities during the start-up phase:

Start	Completed	Activity
	11/06	Business plan presented to OPC
10/06	1/07	Identify management entity and negotiate management and funding parameters
10/06	1/07	Initiate preliminary discussions with potential funders
11/06	2/07	Secure $2 million seed funding
1/07	5/07	Develop and conclude necessary management agreements. Finalize core metrics
1/07	9/07	Initiate first phase of capitalization strategy. Two initial commitments secured
3/07	9/07	Develop and finalize required program material (communications, applications, etc)
3/07	9/07	Engage in preliminary discussions with potential demonstration fisheries
6/07	2/08	Finalize capitalization, final agreements secured. Fund capitalized
7/07	2/08	Required operational and reporting systems developed and finalized
	2/08	California Fisheries Fund fully operational

Benefits to the State

The California Fisheries Fund has the potential to be an important tool for achieving the mandates and goals of California's Marine Life Management Act, Marine Life Protection Act, and the Ocean Protection Council.

Marine Life Management Act

Marine Life Management Act (MLMA) implementation will benefit from the capitalization of stewardship activities such as the gathering of essential fishery information, preparation of stock assessments, and the implementation of fishery management models at the regional and local levels.

These activities will result in a more stable regulatory environment and more secure access to fish. In the case of essential fishery information that moves fisheries from data-poor to data-moderate and data-rich conditions, it will inspire confidence in

fishery managers, fishermen, and the seafood industry and may increase access to fish if justified by credible scientific analysis.

Successful implementation of the Fisheries Fund will also sustain management reforms and conservation actions by providing opportunity for expanded economic benefits through investing in value-added seafood products (e.g. 'certified sustainable') and the creation of new distribution channels and markets for such products.

Marine Life Protection Act

The Marine Life Protection Act (MLPA) implementation will also benefit. The same management model reforms that will improve the regulatory environment and support an environment favorable for investment will also create a positive feedback loop that strengthens incentives for continued stewardship. Research indicates that fishermen operating within many such management models support Marine Protected Areas if the models are developed in the context of localized management decisions and targeted science. The Fisheries Fund will establish local platforms for collaborative research and information gathering.

Ocean Protection Council

The California Fisheries Fund will also help the Ocean Protection Council carry out the fisheries elements of its Strategic Plan and demonstrate the application of Ecosystem-Based Management principles.

One of the principle tenets of Ecosystem-Based Management is to base decisions on good information and to use adaptive management techniques (i.e. to base management on learning). The Fishery Foundations established with capital from the Fisheries Fund will serve as a community asset and support localized research, fishery organizations, and reform measures. Lack of targeted on-going research specific to individual fisheries or areas remains a large impediment to fishery reform. Increased fishery research is needed to complement the increasing amount of Marine Protected Area research in California waters.

The Fishery Foundations will allow more fishery scientists and fishermen to become engaged in monitoring through collaborative research arrangements --

stimulating the collection of essential fishery information-- some of which overlap with Marine Protected Area monitoring programs and some of which are unique to fishery monitoring. Essential fishery information is the basis for adaptive management of fisheries.

The Fisheries Fund will also make use of another Ecosystem-Based Management principle: addressing the human dimensions of fisheries management. By investing in people, communities, product and market development, and fisheries governance reform, the Fisheries Fund will aim to align economic and social incentives with conservation and sustainability, thus providing financial incentives for fishermen as 'stewards' and improving the prospects for preserving the fishing culture of coastal communities by generating more revenues and investments.

Policy Implications

While it is impossible to predict all the future implications of establishing the Fund, some potential policy implications have been identified. It is expected that demonstration fisheries will be working closely with the state and will be undertaking legal reviews specific to their fisheries regarding currently available options for co-management structures.

There are many examples of co-management structures being used throughout the world. Standards and criteria based on a broad set of desired outcomes and impacts will likely assist the State and specific fisheries in developing models for reform. These criteria and standards will ensure consistency as reform occurs and ensure that the public interest purposes of the Fund are achieved.

Criteria and standards would cover such things as governance of Fishery Foundations and co-management institutions (including representation of all appropriate interests); economic measures that ensure equitable distribution of privileges; access criteria; transferability of privileges; environmental performance; reporting; and metrics used to define and evaluate success.

California state policy already allows the implementation of designated access management regimes such as limited entry and individual fishing quota programs and

sets forth guidance for them (Guide to the Marine Life Management Act). However, consultation with the Department of Fish and Game and the Fish and Game Commission on the need for new policies, regulations, or guidance may be necessary if more specific criteria and standards for designated access privilege systems and co-management are deemed necessary.

All Fisheries Fund projects shall be consistent with and supportive of the goals and objectives of MLMA and other relevant state fisheries laws and policies.

Risks

During development of this plan, special attention has been paid to identifying and mitigating risk wherever possible. The following is a brief summary of key risk points identified during the planning process. It is expected that additional risks may be identified during start-up and implementation phases.

- *Risk 1:* Inability to garner commitment from the State -- State commitment will be needed in order to demonstrate fisheries governance reform with the aim of creating economic incentives for stewardship and adding value to fishery landings as a complement to local participation, as well as potentially establishing standards and criteria for co-management.

  Mitigation: Intensive collaboration amongst State and Federal agencies, local entities, communities, and various industry groups and individuals will be required. An executive order, resolution, or new legislation that renews the commitment of the state to fisheries management and conservation, without adding unnecessary layers of mandates or bureaucracy may be helpful. Committed and consistent leadership will be needed to address the numerous “turf” issues that will likely arise. This will require ongoing constructive dialogue about elements of reform between fisheries management agencies and local stakeholders as well as a commitment to collaboration and agreement on leadership roles. Implementation of necessary policies or regulations arising from this

dialogue will be facilitated by the understandings and accommodations encouraged by the dialogue.

- *Risk 2:* Inability to sufficiently leverage additional capital during either the start-up or expansion phases of plan.

  Mitigation: There are inherent risks in any model that requires leverage and a diverse set of funders. Given the current state of fisheries, there is much interest in seeking and supporting solutions. The fact that the Fund will provide both environmental and economic benefits helps broaden the potential base of support. An initial commitment by the State provides a solid base for seeking additional support.

- *Risk 3:* Insufficient number of communities and fisheries to undertake and attempt fisheries reform strategies. The current environment in our fisheries is filled with mistrust and frustration.

  Mitigation: A number of fisheries have expressed early interest in participation. It is expected that as success occurs, the momentum will build and additional fisheries and communities will seek participation. Clear and consistent communications on expectations for the role, use, and phasing of the Fund will be established. If there is insufficient demand, the Fund can unwind with remaining assets distributed equitably.

- *Risk 4:* Unexpected delays prior to or during the start-up phase could negatively impact desire of fisheries to participate. Many communities are struggling to identify new ways to solve their fisheries issues. Additionally, the ability to successfully leverage capital may be hampered, with potential investors becoming unclear of the State's overall commitment and unable to judge the level of risk of investment.

Mitigation: A commitment by the State to undertake a process for demonstrating reform and earmarking funds to initiate capitalization of the fund will send a strong early message that will encourage communities and potential investors.

- *Risk 5:* Failure of one or more demonstration fisheries could negatively impact the Fund's progress or success during start-up phase.

  Mitigation: The Fund will engage consultants and/or partners to assist the demonstration fisheries. However, in the event of initial failure, the Fund design was phased based on an assumption that an extended timeline may be required for initial fisheries to demonstrate success. Fund is also capitalized in a prudent manner (conservative debt to equity ratio), and at a scale, that in the event the demonstration(s) fail over a longer time horizon, the Fund could absorb any losses with equity and repay the initial PRI investors.

- *Risk 6:* A natural environmental event occurs that negatively impacts a fishery's ability to repay the Fund.

  Mitigation: The best available science will be applied to project potential landings based on anticipated ocean productivity and other environmental conditions prior to financing a project. The Fund was structured on a principal of shared risk with fisheries undergoing transition. The financial model was built with the assumption that the Fund may have to absorb heavy losses based on natural events. Additionally, the capitalization structure (conservative debt to equity ratio) allows for flexibility in renegotiating terms with fisheries, while staying in 'safe harbor' with Fund investors.

- *Risk 7:* Establishing Fishery Foundations could in certain circumstances result in an environment where developing and

implementing necessary reforms becomes a lengthy and onerous process, with stakeholders unable to overcome their differences.

Mitigation: The process followed during development of the Fishery Foundations must be robust and in certain cases may require facilitation assistance to establish clear guidelines for managing the process in an effective and efficient manner. During the start-up phase, emphasis will be placed on creating partnerships designed to provide direct assistance, education, and relevant information.

Appendix A. Financial Model

CALIFORNIA FISHERY FUND

THEORY OF CHANGE AND CRITICAL ASSUMPTIONS

STATUS QUO

1	Risk to fish populations and ecosystems	Continued emphasis on maximizing access will result in continued pressure to maximize catch.
2	Declining fishery economic values	Current management practices will continue to result in declining economic value of fisheries due to excessive capital investments and costs associated with attempts to maximize catch, failure to plan business due to regulatory uncertainty, and low prices resulting from supply gluts.
=>	STATUS QUO	Risk to marine environment and fragile California fishery economy.

FISHERY FUND

1	Co-Management	Empowering local fishery involvement in scientific research and management will catalyze fishery reform.
2	Fishery Foundations	Fishery Foundations of permanent capital at the fishery level will act as catalysts to organizing local scientific research and reform efforts.
3	Capital Leverage	Fishery Foundations properly capitalized with seed investments from the Fishery Fund will leverage additional grants and program related investments directly into the Fishery Foundations.
4	Loan Product 1: Fishery Foundation	Loans capitalize Fishery Foundations, used to support detailed reform plans, scientific research, business planning, and implementation. • Repayment streams are from self-taxed landing fees or other mechanisms. • Terms include interest only periods as research projects are developed and resulting reform practices are implemented. • Terms are a maximum of 10 years. • Rates are appropriately below market to recognize unknown capacity to generate income and broad environmental and economic benefits to the community
5	Loan Product 2: Infrastructure	Investments at the fishery level supporting activities undertaken by Ports, communities, and others such as: collective shifts to new types of gear; port infrastructure; improved off-loading capacity; etc. • Commercial lenders may not make loans due to real or perceived high risk. • Loans should support higher interest rates than Fishery Foundation loans, as they are supported by transition activities resulting from reform.
6	Loan Product 3: Business	Increased confidence in fishery resulting from reform will require investment at the individual fishing business level for general business development, product innovations, market development, and other activities that add value. • Commercial lenders may not make loans due to real or perceived high risk. • Loans should support higher interest rates than Fishery Foundation and Infrastructure loans, as these are supported by a transitioned fishery.
7	Fund phasing: Start-Up	This will include: • Raising initial equity and program related investments (PRI's). Low leverage and cost of funds required based on risk. • Minimize start-up expenses by establishing Fund at a "parent" non-profit, for overall management during an "incubation" stage. • Management entity obtains loan underwriting and portfolio management services through a contract with a qualified economic and environmental lender (CDFI). • Limiting initial lending activity to up to three fisheries with qualified business and reform plans. • Disbursing up to three Fishery Foundation loans and multiple related Infrastructure and/or Business loans. • Contracting for independent evaluation of the Fishery Fund's reform impact and financial performance.
8	Fund phasing: Expansion	This will include: * • Raising additional equity and PRI's. Higher leverage based on success. Continued low cost of funds required based on continued below-market pricing of loans. • Establishing independent operations as a stand alone non-profit. • Expanding lending activity to all California fisheries with qualified business and reform plans. • Disbursing multiple new Fishery Foundation loans and related Infrastructure and/or Business loans.
=>	FISHERY REFORM	Healthy marine environment and robust California fishery economy. Local communities and fishermen as stewards of the environment.

* If demonstration unsuccessful, there is a financial option for a wind-down phase, including:
- No additional equity or PRI's into the Fishery Fund. No additional lending to three demonstration fisheries.
- Continued management by parent-nonprofit and portfolio management by qualified contractor.
- Repayment of initial PRI's

CALIFORNIA FISHERY FUND

FINANCIAL PROJECTION ASSUMPTIONS

LOW Insufficient funding for even modest activity. Results in financial losses for Fishery Fund.

BASE Sufficient funding for reasonable, projected activity. Results in solvent Fishery Fund with15 year life and ending positive capital balance.

HIGH Optimum funding for high level of risk tolerance and maximum flexibility of operations, including highest levels of financial acitivity and reform impacts. Results in solvent Fishery Fund with 15 year life and ending positive capital balance.

		LOW	BASE	HIGH
1 Capital: Equity (grants)				
Equity Amount ($)				
	2007	3,000,000	5,000,000	7,000,000
	2008			
	2009			
Phase 2: Expansion	2010	1,000,000	2,000,000	3,000,000
	2011			
	2012			
	2013			
	2014			
	2015			
	2016			
	2017			
	2018			
	2019			
	2020			
	2021			
2 Capital: Debt (program related investments)				
Average BalloonTerm (years)		10	10	10
Average Rate (%)		3.0%	2.0%	1.0%
Annual Debt Amount Raised ($)				
	2007	2,000,000	3,000,000	4,500,000
	2008			
	2009			
Phase 2: Expansion	2010	6,000,000	7,000,000	8,000,000
	2011			
	2012			
	2013			
	2014			
	2015			
	2016			
	2017			
	2018			
	2019			
	2020			
	2021			

CALIFORNIA FISHERY FUND

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3 Lending

Product #1: Fishery Foundation

	LOW	BASE	HIGH
Average Loan Size $	1,000,000	1,500,000	2,000,000
Average Rate %	1.0%	3.0%	5.0%
Average Closing Fee %	1.0%	1.0%	1.0%
Average Interest Only Period (Years)	4	4	4
Average Loan Term (Years, Fully Amortizing)	6	6	6
Total Term (Years) - Should be <= 10	10	10	10
Prudent Loss Reserve %	30.0%	25.0%	20.0%

Loans per Year #	LOW	Actual Loss Prior Year O/S (%)	BASE	Actual Loss Prior Year O/S (%)	HIGH	Actual Loss Prior Year O/S (%
2007	1		1		1	
2008	1		2		2	
2009						
Total # of CA Fisheries	8		10		12	
% that applies and qualifies for Fishery Foundation Loan	70%		80%		90%	
End Total # of CA Fisheries with Fishery Foundations	6		8		11	
Remaining Fisheries to Fund	4		5		8	

Phase 2: Expansion — Manually input Remaining during Phase 2	LOW	Actual Loss Product O/S (%)	BASE	Actual Loss Product O/S (%)	HIGH	Actual Loss Product O/S (%)
2010	2		2		3	
2011	1		2		3	
2012	1		1		2	
2013		15.0%				
2014				10.0%		
2015						
2016		10.0%				5.0%
2017				10.0%		
2018		5.0%				
2019						5.0%
2020						
2021						
Phase 2 Total, should = Remaining Fisheries	4		5		8	

CALIFORNIA FISHERY FUND

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Product #2: Infrastructure

	LOW	BASE	HIGH
Average Infrastructure / Foundation	1	2	3
Average Lag time after Foundation (years)	3	2	1
Average Loan Size	250,000	400,000	550,000
Average Rate	6.0%	6.0%	6.0%
Average Closing Fee %	1.0%	1.0%	1.0%
Average Loan Term (Fully Amortizing)	10	10	10
Prudent Loss Reserve %	15.0%	10.0%	5.0%

	LOW		BASE		HIGH	
	Number of Loans	Actual Loss Product O/S (%)	Number of Loans	Actual Loss Product O/S (%)	Number of Loans	Actual Loss Product O/S (%)
	2007 -		-		-	
	2008 -		-		3	
	2009 -		2		6	
Phase 2:						
Expansion	2010 1		4		-	
	2011 1		-	0.0%	9	0.0%
	2012 -	5.0%	4		9	
	2013 2		4		6	
	2014 1		2	5.0%	-	
	2015 1		-		-	2.0%
	2016 -	5.0%	-		-	
	2017 -		-		-	
	2018 -		-		-	
	2019 -		-		-	
	2020 -		-		-	
	2021 -		-		-	
	6		16		33	

CALIFORNIA FISHERY FUND

FINANCIAL PROJECTION ASSUMPTIONS

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		LOW		BASE		HIGH	
Product #3: Business							
	Average Business / Foundation	4		5		6	
	Average Lag time after Foundation (years)	3		2		1	
	Average Loan Size	75,000		100,000		150,000	
	Average Rate	8.0%		8.0%		8.0%	
	Average Closing Fee %	1.0%		1.0%		1.0%	
	Average Loan Term (Fully Amortizing)	7		5		5	
	Prudent Loss Reserve %	20.0%		15.0%		10.0%	
	Number of Loans		Actual Loss Product O/S (%)		Actual Loss Product O/S (%)		Actual Loss Product O/S (%)
	2007	-		-		-	
	2008	-		-		6	
	2009	-		5		12	
Phase 2: Expansion	2010	4		10		-	
	2011	4		-		18	
	2012	-		10		18	
	2013	8	10.0%	10	5.0%	12	
	2014	4		5		-	3.0%
	2015	4	5.0%	-		-	
	2016	-		-	2.0%	-	
	2017	-		-		-	2.0%
	2018	-		-		-	
	2019	-		-		-	
	2020	-		-		-	
	2021	-		-		-	
		24		40		66	

CALIFORNIA FISHERY FUND

FINANCIAL PROJECTION ASSUMPTIONS

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		LOW		BASE		HIGH	
4	Operations						
	Average Interest Earnings on Cash & Inv	2.0%		2.0%		2.0%	
	Annual Expense Increase	3.0%		3.0%		3.0%	
Start-up		Base Year		Base Year		Base Year	
	Start-up Systems Development (07)	25,000		25,000		25,000	
	Government Relations and Board Management Contract (07, 08, 09)	85,000		85,000		85,000	
	Fishery Financing TA, Loan Underwriting, and Portfolio Management Contract (07, 08, 09)	60,000		60,000		60,000	
	Evaluation Consultant (09)	50,000		50,000		50,000	
	Audit (every year)	12,500		12,500		12,500	
Expansion			FTE		FTE		FTE
	Spin-off Costs (2010)	75,000		75,000		75,000	
	Personnel & Benefits (2010 and after)	275,000	4.0	275,000	4.0	275,000	4.0
	Equipment Expense (2010 and after)	15,000		15,000		15,000	
	Travel (2010 and after)	20,000		20,000		20,000	
	Occupancy & Other (2010 and after)	30,000		30,000		30,000	

CALIFORNIA FISHERY FUND

SCENARIO COMPARISON

	LOW			BASE			HIGH	
BALANCE SHEET	2007	2010	2021	2007	2010	2021	2007	2010	2021
ASSETS									
Cash	3,862,500	7,918,067	(2,874,194)	6,425,000	8,388,224	4,476,615	9,505,000	9,034,866	19,257,199
Fishery Foundation Loans	1,000,000	4,000,000	-	1,500,000	7,500,000	-	2,000,000	12,000,000	-
Fishery Foundation Reserves	(300,000)	(1,200,000)	-	(375,000)	(1,875,000)	-	(400,000)	(2,400,000)	-
Net Fishery Foundation Loans	700,000	2,800,000	-	1,125,000	5,625,000	-	1,600,000	9,600,000	-
Infrastructure Loans	-	231,182	149,110	-	2,155,415	188,661	-	4,041,832	425,680
Infrastructure Reserves	-	(34,677)	(22,366)	-	(215,541)	(18,866)	-	(202,092)	(21,284)
Net Infrastructure Loans	-	196,505	126,743	-	1,939,873	169,795	-	3,839,740	404,396
Business Loans	-	266,686	-	-	1,154,088	-	-	1,568,191	-
Business Reserves	-	(53,337)	-	-	(173,113)	-	-	(156,819)	-
Net Business Loans	-	213,349	-	-	980,975	-	-	1,411,372	-
Total Gross Loans	1,000,000.00	3,209,853	126,743	1,500,000	8,545,848	169,795	2,000,000	14,851,112	404,396
Total Loss Reserves	(300,000.00)	(1,288,014)	(22,366)	(375,000)	(2,263,655)	(18,866)	(400,000)	(2,758,911)	(21,284)
Net Total Loans	700,000.00	1,921,839	104,377	1,125,000	6,282,193	150,928	1,600,000	12,092,202	383,112
Total Assets	4,562,500	9,839,905	(2,769,817)	7,550,000	14,670,418	4,627,543	11,105,000	21,127,068	19,640,311
LIABILITIES AND NET ASSETS									
Debt	2,000,000	8,000,000	-	3,000,000	10,000,000	-	4,500,000	12,500,000	-
Beginning Net Assets	-	1,952,284	(2,261,212)	-	3,718,863	4,953,590	-	6,327,881	19,654,443
Operating Results	(437,500)	(1,112,378)	(508,605)	(450,000)	(1,048,446)	(326,047)	(395,000)	(700,813)	(14,132)
Capital Grants	3,000,000	1,000,000	-	5,000,000	2,000,000	-	7,000,000	3,000,000	-
Ending Net Assets	2,562,500	1,839,905	(2,769,817)	4,550,000	4,670,418	4,627,543	6,605,000	8,627,068	19,640,311
Total Liabilities and Net Assets	4,562,500	9,839,905	(2,769,817)	7,550,000	14,670,418	4,627,543	11,105,000	21,127,068	19,640,311

CALIFORNIA FISHERY FUND

SCENARIO COMPARISON

	LOW			BASE			HIGH		
	2007	2010	2021	2007	2010	2021	2007	2010	2021
INCOME STATEMENT									
REVENUES									
Interest on Loans	5,000	47,603	12,436	22,500	329,631	26,090	50,000	850,443	56,725
Interest on Cash & Investments	60,000	63,046	(48,940)	100,000	71,727	88,176	140,000	31,300	366,716
Interest Expense	(30,000)	(150,000)	-	(30,000)	(130,000)	-	(22,500)	(85,000)	-
Net Interest Income	35,000	(39,351)	(36,504)	92,500	271,357	114,266	167,500	796,743	423,441
Loss Allocation	(300,000)	(688,014)	17,446	(375,000)	(1,002,384)	49,234	(400,000)	(1,128,898)	51,974
Net Financing Income	(265,000)	(727,366)	(19,058)	(282,500)	(731,027)	163,500	(232,500)	(332,154)	475,415
Loan Fees	10,000	43,647	-	15,000	111,240	-	20,000	60,000	-
Earned Income	(255,000)	(683,719)	(19,058)	(267,500)	(619,787)	163,500	(212,500)	(272,154)	475,415
Grants & Contributions	-	-	-	-	-	-	-	-	-
Total Revenue	(255,000)	(683,719)	(19,058)	(267,500)	(619,787)	163,500	(212,500)	(272,154)	475,415
Start-up Systems Development	25,000	-	-	25,000	-	-	25,000	-	-
Management Contract	85,000	-	-	85,000	-	-	85,000	-	-
Lending / Portfolio Contract	60,000	-	-	60,000	-	-	60,000	-	-
Evaluation Consultant	-	-	-	-	-	-	-	-	-
Audit	12,500	13,659	18,907	12,500	13,659	18,907	12,500	13,659	18,907
Spin-off Costs	-	75,000	-	-	75,000	-	-	75,000	-
Personnel & Benefits	-	275,000	380,664	-	275,000	380,664	-	275,000	380,664
Equipment Expense	-	15,000	20,764	-	15,000	20,764	-	15,000	20,764
Travel	-	20,000	27,685	-	20,000	27,685	-	20,000	27,685
Occupancy & Other	-	30,000	41,527	-	30,000	41,527	-	30,000	41,527
Total Operating Expenses	182,500	428,659	489,547	182,500	428,659	489,547	182,500	428,659	489,547
Operating Results	(437,500)	(1,112,378)	(508,605)	(450,000)	(1,048,446)	(326,047)	(395,000)	(700,813)	(14,132)
Capital Grants	3,000,000	1,000,000	-	5,000,000	2,000,000	-	7,000,000	3,000,000	-
Change in Net Assets	2,562,500	(112,378)	(508,605)	4,550,000	951,554	(326,047)	6,605,000	2,299,187	(14,132)

CALIFORNIA FISHERY FUND

SCENARIO COMPARISON

	LOW			BASE			HIGH		
	2007	2010	2021	2007	2010	2021	2007	2010	2021
CRITICAL MEASUREMENTS									
CAPITAL									
Net Asset / Total Assets (%)	56%	19%	100%	60%	32%	100%	59%	41%	100%
Debt / Net Assets	0.78	4.35	-	0.66	2.14	-	0.68	1.45	-
Ending Debt Balance	2,000,000	8,000,000	-	3,000,000	10,000,000	-	4,500,000	12,500,000	-
Ending Equity Balance	2,562,500	1,839,905	(2,769,817)	4,550,000	4,670,418	4,627,543	6,605,000	8,627,068	19,640,311
LENDING									
CUMULATIVE ACTIVITY									
# of Foundation Loans Closed	1	4	6	1	5	8	1	6	11
# of Infrastructure Loans Closed	-	1	6	-	6	16	-	9	33
# of Business Loans Closed	-	4	24	-	15	40	-	18	66
Total # of Loans Closed	1	9	36	1	26	64	1	33	110
CUMULATIVE ACTIVITY									
$ of Fishery Foundation Loans Closed	1,000,000	4,000,000	6,000,000	1,500,000	7,500,000	12,000,000	2,000,000	12,000,000	22,000,000
$ of Infrastructure Loans Closed	-	250,000	1,500,000	-	2,400,000	6,400,000	-	4,950,000	18,150,000
$ of Business Loans Closed	-	300,000	1,800,000	-	1,500,000	4,000,000	-	2,700,000	9,900,000
Total $ of Loans Closed	1,000,000	4,550,000	9,300,000	1,500,000	11,400,000	22,400,000	2,000,000	19,650,000	50,050,000
PORTFOLIO SIZE									
# of Foundation Loans O/S	1	4	-	1	5	-	1	6	-
# of Infrastructure Loans O/S	-	1	4	-	6	6	-	9	6
# of Business Loans O/S	-	4	-	-	15	-	-	18	-
Total # of Loans in Portfolio	1	9	4	1	26	6	1	33	6
Total Loss Reserve (%)	30%	29%	15%	25%	21%	10%	20%	16%	5%
Actual Annual Losses ($)	-	-	-	-	-	-	-	-	-
Cumulative Losses ($)	-	-	1,309,194	-	-	1,780,787	-	-	1,133,481
OPERATIONS									
FTE's	-	4.0	4.0	-	4.0	4.0	-	4.0	4.0
Self-sufficiency	15%	12%	-8%	23%	33%	26%	35%	57%	97%
Cumulative Op Performance	(437,500)	(2,160,095)	(6,769,817)	(450,000)	(2,329,582)	(2,372,457)	(395,000)	(1,372,932)	9,640,311
Cumulative Capital Grants	3,000,000	4,000,000	4,000,000	5,000,000	7,000,000	7,000,000	7,000,000	10,000,000	10,000,000
Net Assets	2,562,500	1,839,905	(2,769,817)	4,550,000	4,670,418	4,627,543	6,605,000	8,627,068	19,640,311
FISHERY AND ECOSYSTEM INDICATORS*									

*Will be finalized in consultation with State and Stakeholders

CALIFORNIA FISHERY FUND

LOW SCENARIO

FINANCIAL STATEMENTS

LOW: Insufficient funding for even modest activity. Results in financial losses for Fishery Fund.

BALANCE SHEET	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ASSETS															
Cash	3,862,500	3,342,525	3,152,284	7,918,067	6,650,522	5,911,999	4,843,000	4,741,387	4,792,511	5,311,507	3,769,875	4,031,036	3,843,573	(2,447,005)	(2,874,194)
Fishery Foundation Loans	1,000,000	2,000,000	2,000,000	4,000,000	4,837,470	5,510,778	4,354,187	3,695,839	2,868,348	1,583,179	747,391	38,413	-	-	-
Fishery Foundation Reserves	(300,000)	(600,000)	(600,000)	(1,200,000)	(1,451,241)	(1,653,233)	(1,306,256)	(1,108,752)	(860,504)	(474,954)	(224,217)	(11,524)	-	-	-
Net Fishery Foundation Loans	700,000	1,400,000	1,400,000	2,800,000	3,386,229	3,857,545	3,047,931	2,587,087	2,007,843	1,108,225	523,173	26,889	-	-	-
Infrastructure Loans	-	-	-	231,182	442,385	379,076	797,710	942,507	1,014,872	876,313	729,208	573,030	407,219	265,419	149,110
Infrastructure Reserves	-	-	-	(34,677)	(66,358)	(56,861)	(119,656)	(141,376)	(152,231)	(131,447)	(109,381)	(85,954)	(61,083)	(39,813)	(22,366)
Net Infrastructure Loans	-	-	-	196,505	376,027	322,215	678,053	801,131	862,641	744,866	619,827	487,075	346,136	225,606	126,743
Business Loans	-	-	-	266,686	497,292	422,139	831,905	938,286	948,367	685,194	458,391	270,978	68,010	-	-
Business Reserves	-	-	-	(53,337)	(99,458)	(84,428)	(166,381)	(187,657)	(189,673)	(137,039)	(91,678)	(54,196)	(13,602)	-	-
Net Business Loans	-	-	-	213,349	397,834	337,711	665,524	750,628	758,694	548,155	366,713	216,783	54,408	-	-
Total Gross Loans	1,000,000	1,400,000	1,400,000	3,209,853	4,160,090	4,517,471	4,391,509	4,138,847	3,629,178	2,401,246	1,509,713	730,747	400,544	225,606	126,743
Total Loss Reserves	(300,000)	(600,000)	(600,000)	(1,288,014)	(1,617,057)	(1,794,523)	(1,592,294)	(1,437,785)	(1,202,409)	(743,439)	(425,277)	(151,674)	(74,685)	(39,813)	(22,366)
Net Total Loans	700,000	800,000	800,000	1,921,839	2,543,033	2,722,948	2,799,215	2,701,062	2,426,770	1,657,807	1,084,437	579,073	325,859	185,793	104,377
Total Assets	4,562,500	4,142,525	3,952,284	9,839,905	9,193,555	8,634,946	7,642,215	7,442,449	7,219,281	6,969,313	4,854,312	4,610,109	4,169,433	(2,261,212)	(2,769,817)
LIABILITIES AND NET ASSETS															
Debt	2,000,000	2,000,000	2,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	6,000,000	6,000,000	6,000,000	-	-
Beginning Net Assets		2,562,500	2,142,525	1,952,284	1,839,905	1,193,555	634,946	(357,785)	(557,551)	(780,719)	(1,030,687)	(1,145,688)	(1,389,891)	(1,830,567)	(2,261,212)
Operating Results	(437,500)	(419,975)	(190,241)	(1,112,378)	(646,350)	(558,609)	(992,731)	(199,767)	(223,168)	(249,967)	(115,001)	(244,203)	(440,676)	(430,645)	(508,605)
Capital Grants	3,000,000	-	-	1,000,000	-	-	-	-	-	-	-	-	-	-	-
Ending Net Assets	2,562,500	2,142,525	1,952,284	1,839,905	1,193,555	634,946	(357,785)	(557,551)	(780,719)	(1,030,687)	(1,145,688)	(1,389,891)	(1,830,567)	(2,261,212)	(2,769,817)
Total Liabilities and Net Assets	4,562,500	4,142,525	3,952,284	9,839,905	9,193,555	8,634,946	7,642,215	7,442,449	7,219,281	6,969,313	4,854,312	4,610,109	4,169,433	(2,261,212)	(2,769,817)

CALIFORNIA FISHERY FUND

LOW SCENARIO

FINANCIAL STATEMENTS

LOW: Insufficient funding for even modest activity. Results in financial losses for Fishery Fund.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
INCOME STATEMENT															
REVENUES															
Interest on Loans	5,000	15,000	20,000	47,603	94,953	113,162	134,790	163,264	167,008	144,336	105,562	72,171	43,159	22,900	12,436
Interest on Cash & Investments	60,000	77,250	66,851	63,046	158,361	133,010	118,240	96,860	94,828	95,850	106,230	75,398	80,621	76,871	(48,940)
Interest Expense	(30,000)	(60,000)	(60,000)	(150,000)	(240,000)	(240,000)	(240,000)	(240,000)	(240,000)	(240,000)	(210,000)	(180,000)	(180,000)	(90,000)	-
Net Interest Income	35,000	32,250	26,851	(39,351)	13,315	6,173	13,030	20,124	21,836	186	1,792	(32,432)	(56,220)	9,771	(36,504)
Loss Allocation	(300,000)	(300,000)	-	(688,014)	(329,043)	(199,585)	(666,602)	154,509	141,337	172,134	318,163	236,233	76,989	34,872	17,446
Net Financing Income	(265,000)	(267,750)	26,851	(727,366)	(315,728)	(193,412)	(653,572)	174,633	163,173	172,320	319,955	203,802	20,769	44,643	(19,058)
Loan Fees	10,000	10,000	-	43,647	33,647	10,000	47,293	23,647	23,647	-	-	-	-	-	-
Earned Income	(255,000)	(257,750)	26,851	(683,719)	(282,081)	(183,412)	(606,278)	198,280	186,820	172,320	319,955	203,802	20,769	44,643	(19,058)
Grants & Contributions															
Total Revenue	(255,000)	(257,750)	26,851	(683,719)	(282,081)	(183,412)	(606,278)	198,280	186,820	172,320	319,955	203,802	20,769	44,643	(19,058)
OPERATING COSTS															
Start-up Systems Development	25,000														
Management Contract	85,000	87,550	90,177												
Lending / Portfolio Contract	60,000	61,800	63,654												
Evaluation Consultant			50,000												
Audit	12,500	12,875	13,261	13,659	14,069	14,491	14,926	15,373	15,835	16,310	16,799	17,303	17,822	18,357	18,907
Spin-off Costs				75,000											
Personnel & Benefits				275,000	283,250	291,748	300,500	309,515	318,800	328,364	338,215	348,362	358,813	369,577	380,664
Equipment Expense				15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002	19,572	20,159	20,764
Travel				20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597	25,335	26,095	26,878	27,685
Occupancy & Other				30,000	30,900	31,827	32,782	33,765	34,778	35,822	36,896	38,003	39,143	40,317	41,527
Total Operating Expenses	182,500	162,225	217,092	428,659	364,269	375,197	386,453	398,046	409,988	422,287	434,956	448,005	461,445	475,288	489,547
Operating Results	(437,500)	(419,975)	(190,241)	(1,112,378)	(646,350)	(558,609)	(992,731)	(199,767)	(223,168)	(249,967)	(115,001)	(244,203)	(440,676)	(430,645)	(508,605)
Capital Grants	3,000,000	-	-	1,000,000	-	-	-	-	-	-	-	-	-	-	-
Change in Net Assets	2,562,500	(419,975)	(190,241)	(112,378)	(646,350)	(558,609)	(992,731)	(199,767)	(223,168)	(249,967)	(115,001)	(244,203)	(440,676)	(430,645)	(508,605)

CALIFORNIA FISHERY FUND

LOW SCENARIO

FINANCIAL STATEMENTS

LOW: Insufficient funding for even modest activity. Results in financial losses for Fishery Fund.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CRITICAL MEASUREMENTS															
CAPITAL															
Net Asset / Total Assets (%)	56%	52%	49%	19%	13%	7%	-5%	-7%	-11%	-15%	-24%	-30%	-44%	100%	100%
Debt / Net Assets	0.78	0.93	1.02	4.35	6.70	12.60	(22.36)	(14.35)	(10.25)	(7.76)	(5.24)	(4.32)	(3.28)	-	-
LENDING															
# of Foundation Loans Closed	1	1	0	2	1	1	0	0	0	0	0	0	0	0	0
# of Infrastructure Loans Closed	0	0	0	1	1	0	2	1	1	0	0	0	0	0	0
# of Business Loans Closed	0	0	0	4	4	0	8	4	4	0	0	0	0	0	0
Total # of Loans Closed	1	1	0	7	6	1	10	5	5	0	0	0	0	0	0
# of Foundation Loans O/S	1	2	2	4	5	6	6	6	6	5	4	4	2	1	-
# of Infrastructure Loans O/S	-	-	-	1	2	2	4	5	6	6	6	6	5	4	4
# of Business Loans O/S	-	-	-	4	8	8	16	20	24	20	16	16	8	4	-
Total # of Loans in Portfolio	1	2	2	9	15	16	26	31	36	31	26	26	15	9	4
Total Loss Reserve (%)	30%	30%	30%	29%	28%	28%	27%	26%	25%	24%	22%	17%	16%	15%	15%
Actual Annual Losses ($)	-	-	-	-	-	22,119	868,831	-	94,040	286,835	-	37,370	-	-	-
Cumulative Losses ($)	-	-	-	-	-	22,119	890,950	890,950	984,990	1,271,824	1,271,824	1,309,194	1,309,194	1,309,194	1,309,194
OPERATIONS															
FTE's				4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Self-sufficiency	15%	20%	31%	12%	31%	31%	23%	59%	56%	49%	65%	38%	22%	19%	-8%
Cumulative Op Performance	(437,500)	(857,475)	(1,047,716)	(2,160,095)	(2,806,445)	(3,365,054)	(4,357,785)	(4,557,551)	(4,780,719)	(5,030,687)	(5,145,688)	(5,389,891)	(5,830,567)	(6,261,212)	(6,769,817)
Cumulative Capital Grants	3,000,000	3,000,000	3,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Net Assets	2,562,500	2,142,525	1,952,284	1,839,905	1,193,555	634,946	(357,785)	(557,551)	(780,719)	(1,030,687)	(1,145,688)	(1,389,891)	(1,830,567)	(2,261,212)	(2,769,817)

FISHERY AND ECOSYSTEM INDICATORS*

*Will be finalized in consultation
with State and Stakeholders

CALIFORNIA FISHERY FUND

BASE SCENARIO

FINANCIAL STATEMENTS

BASE: Sufficient funding for reasonable, projected activity. Results in solvent Fishery Fund with 15 year life and ending positive capital balance.

BALANCE SHEET	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ASSETS															
Cash	6,425,000	4,576,275	3,586,342	8,388,224	6,833,056	4,868,529	4,377,201	5,148,122	7,443,566	9,916,055	8,906,323	10,290,824	11,256,799	4,408,787	4,476,615
Fishery Foundation Loans	1,500,000	4,500,000	4,500,000	7,500,000	10,268,346	11,066,337	10,342,977	8,100,008	6,391,266	4,398,897	2,183,316	908,172	-	-	-
Fishery Foundation Reserves	(375,000)	(1,125,000)	(1,125,000)	(1,875,000)	(2,567,086)	(2,766,584)	(2,585,744)	(2,025,002)	(1,597,816)	(1,099,724)	(545,829)	(227,043)	-	-	-
Net Fishery Foundation Loans	1,125,000	3,375,000	3,375,000	5,625,000	7,701,259	8,299,753	7,757,232	6,075,006	4,793,449	3,299,172	1,637,487	681,129	-	-	-
Infrastructure Loans	-	-	739,782	2,155,415	1,959,676	3,231,429	4,362,501	4,386,307	3,793,818	3,164,786	2,496,956	1,787,936	1,144,746	681,004	188,661
Infrastructure Reserves	-	-	(73,978)	(215,541)	(195,968)	(323,143)	(436,250)	(438,631)	(379,382)	(316,479)	(249,696)	(178,794)	(114,475)	(68,100)	(18,866)
Net Infrastructure Loans	-	-	665,804	1,939,873	1,763,708	2,908,286	3,926,251	3,947,676	3,414,436	2,848,307	2,247,261	1,609,143	1,030,271	612,904	169,795
Business Loans	-	-	415,280	1,154,088	871,217	1,395,429	1,640,938	1,440,887	935,172	368,779	28,072	-	-	-	-
Business Reserves	-	-	(62,292)	(173,113)	(130,683)	(209,314)	(246,141)	(216,133)	(140,276)	(55,317)	(4,211)	-	-	-	-
Net Business Loans	-	-	352,988	980,975	740,535	1,186,114	1,394,797	1,224,754	794,896	313,462	23,861	-	-	-	-
Total Gross Loans	1,500,000	3,375,000	4,393,792	8,545,848	10,205,503	12,394,153	13,078,280	11,247,436	9,002,782	6,460,942	3,908,609	2,290,272	1,030,271	612,904	169,795
Total Loss Reserves	(375,000)	(1,125,000)	(1,261,270)	(2,263,655)	(2,893,737)	(3,299,041)	(3,268,135)	(2,679,766)	(2,117,474)	(1,471,520)	(799,735)	(405,837)	(114,475)	(68,100)	(18,866)
Net Total Loans	1,125,000	2,250,000	3,132,522	6,282,193	7,311,766	9,095,112	9,810,145	8,567,671	6,885,308	4,989,423	3,108,873	1,884,435	915,796	544,803	150,928
Total Assets	7,550,000	6,826,275	6,718,863	14,670,418	14,144,822	13,963,641	14,187,346	13,715,792	14,328,874	14,905,477	12,015,197	12,175,259	12,172,596	4,953,590	4,627,543
LIABILITIES AND NET ASSETS															
Debt	3,000,000	3,000,000	3,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	7,000,000	7,000,000	7,000,000	-	-
Beginning Net Assets		4,550,000	3,826,275	3,718,863	4,670,418	4,144,822	3,963,641	4,187,346	3,715,792	4,328,874	4,905,477	5,015,197	5,175,259	5,172,596	4,953,590
Operating Results	(450,000)	(723,725)	(107,412)	(1,048,446)	(525,596)	(181,181)	223,706	(471,554)	613,082	576,603	109,719	160,062	(2,663)	(219,006)	(326,047)
Capital Grants	5,000,000	-	-	2,000,000	-	-	-	-	-	-	-	-	-	-	-
Ending Net Assets	4,550,000	3,826,275	3,718,863	4,670,418	4,144,822	3,963,641	4,187,346	3,715,792	4,328,874	4,905,477	5,015,197	5,175,259	5,172,596	4,953,590	4,627,543
Total Liabilities and Net Assets	7,550,000	6,826,275	6,718,863	14,670,418	14,144,822	13,963,641	14,187,346	13,715,792	14,328,874	14,905,477	12,015,197	12,175,259	12,172,596	4,953,590	4,627,543

CALIFORNIA FISHERY FUND

BASE SCENARIO

FINANCIAL STATEMENTS

BASE: Sufficient funding for reasonable, projected activity. Results in solvent Fishery Fund with 15 year life and ending positive capital balance.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
INCOME STATEMENT															
REVENUES															
Interest on Loans	22,500	90,000	173,805	329,631	470,990	566,419	670,412	662,382	557,815	422,769	284,459	176,042	101,603	54,772	26,090
Interest on Cash & Investments	100,000	128,500	91,526	71,727	167,764	136,661	97,371	87,544	102,962	148,871	198,321	178,126	205,816	225,136	88,176
Interest Expense	(30,000)	(60,000)	(60,000)	(130,000)	(200,000)	(200,000)	(200,000)	(200,000)	(200,000)	(200,000)	(170,000)	(140,000)	(140,000)	(70,000)	-
Net Interest Income	92,500	158,500	205,330	271,357	438,755	503,080	567,783	549,926	460,778	371,640	312,781	214,168	167,420	209,908	114,266
Loss Allocation	(375,000)	(750,000)	(136,270)	(1,002,384)	(630,082)	(405,305)	(38,865)	(664,054)	562,292	627,251	231,895	393,899	291,362	46,374	49,234
Net Financing Income	(282,500)	(591,500)	69,060	(731,027)	(191,327)	97,776	528,918	(114,128)	1,023,069	998,891	544,675	608,067	458,782	256,283	163,500
Loan Fees	15,000	30,000	40,620	111,240	30,000	96,240	81,240	40,620	-	-	-	-	-	-	-
Earned Income	(267,500)	(561,500)	109,680	(619,787)	(161,327)	194,016	610,158	(73,507)	1,023,069	998,891	544,675	608,067	458,782	256,283	163,500
Grants & Contributions															
Total Revenue	(267,500)	(561,500)	109,680	(619,787)	(161,327)	194,016	610,158	(73,507)	1,023,069	998,891	544,675	608,067	458,782	256,283	163,500
OPERATING COSTS															
Start-up Systems Development	25,000														
Management Contract	85,000	87,550	90,177												
Lending / Portfolio Contract	60,000	61,800	63,654												
Evaluation Consultant			50,000												
Audit	12,500	12,875	13,261	13,659	14,069	14,491	14,926	15,373	15,835	16,310	16,799	17,303	17,822	18,357	18,907
Spin-off Costs				75,000											
Personnel & Benefits				275,000	283,250	291,748	300,500	309,515	318,800	328,364	338,215	348,362	358,813	369,577	380,664
Equipment Expense				15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002	19,572	20,159	20,764
Travel				20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597	25,335	26,095	26,878	27,685
Occupancy & Other				30,000	30,900	31,827	32,782	33,765	34,778	35,822	36,896	38,003	39,143	40,317	41,527
Total Operating Expenses	182,500	162,225	217,092	428,659	364,269	375,197	386,453	398,046	409,988	422,287	434,956	448,005	461,445	475,288	489,547
Operating Results	(450,000)	(723,725)	(107,412)	(1,048,446)	(525,596)	(181,181)	223,706	(471,554)	613,082	576,603	109,719	160,062	(2,663)	(219,006)	(326,047)
Capital Grants	5,000,000	-	-	2,000,000	-	-	-	-	-	-	-	-	-	-	-
Change in Net Assets	4,550,000	(723,725)	(107,412)	951,554	(525,596)	(181,181)	223,706	(471,554)	613,082	576,603	109,719	160,062	(2,663)	(219,006)	(326,047)

CALIFORNIA FISHERY FUND

BASE SCENARIO

FINANCIAL STATEMENTS

BASE: Sufficient funding for reasonable, projected activity. Results in solvent Fishery Fund with 15 year life and ending positive capital balance.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CRITICAL MEASUREMENTS															
CAPITAL															
Net Asset / Total Assets (%)	60%	56%	55%	32%	29%	28%	30%	27%	30%	33%	42%	43%	42%	100%	100%
Debt / Net Assets	0.66	0.78	0.81	2.14	2.41	2.52	2.39	2.69	2.31	2.04	1.40	1.35	1.35	-	-
LENDING															
# of Foundation Loans Closed	1	2	0	2	2	1	0	0	0	0	0	0	0	0	0
# of Infrastructure Loans Closed	0	0	2	4	0	4	4	2	0	0	0	0	0	0	0
# of Business Loans Closed	0	0	5	10	0	10	10	5	0	0	0	0	0	0	0
Total # of Loans Closed	1	2	7	16	2	15	14	7	0	0	0	0	0	0	0
# of Foundation Loans O/S	1	3	3	5	7	8	8	8	8	7	5	5	3	1	-
# of Infrastructure Loans O/S	-	-	2	6	6	10	14	16	16	16	16	14	10	10	6
# of Business Loans O/S	-	-	5	15	15	25	30	25	25	15	5	-	-	-	-
Total # of Loans in Portfolio	1	3	10	26	28	43	52	49	49	38	26	19	13	11	6
Total Loss Reserve (%)	25%	25%	22%	21%	22%	21%	20%	19%	19%	19%	17%	15%	10%	10%	10%
Actual Annual Losses ($)	-	-	-	-	-	-	69,771	1,252,423	-	18,703	439,890	-	-	-	-
Cumulative Losses ($)	-	-	-	-	-	-	69,771	1,322,194	1,322,194	1,340,898	1,780,787	1,780,787	1,780,787	1,780,787	1,780,787
OPERATIONS															
FTE's				4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Self-sufficiency	23%	26%	74%	33%	56%	82%	136%	63%	1385%	-11517%	129%	182%	99%	56%	26%
Cumulative Op Performance	(450,000)	(1,173,725)	(1,281,137)	(2,329,582)	(2,855,178)	(3,036,359)	(2,812,654)	(3,284,208)	(2,671,126)	(2,094,523)	(1,984,803)	(1,824,741)	(1,827,404)	(2,046,410)	(2,372,457)
Cumulative Capital Grants	5,000,000	5,000,000	5,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000
Net Assets	4,550,000	3,826,275	3,718,863	4,670,418	4,144,822	3,963,641	4,187,346	3,715,792	4,328,874	4,905,477	5,015,197	5,175,259	5,172,596	4,953,590	4,627,543

FISHERY AND ECOSYSTEM INDICATORS*

*Will be finalized in consultation with State and stakeholders

CALIFORNIA FISHERY FUND

HIGH SCENARIO

FINANCIAL STATEMENTS

HIGH: Optimum funding for high level of risk tolerance and maximum flexibility of operations, including highest levels of financial acitivity and reform impacts. Results in solvent Fishery Fund with 15 year life and ending positive capital balance.

BALANCE SHEET	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ASSETS															
Cash	9,505,000	4,956,343	1,565,006	9,034,866	285,426	(5,130,618)	(4,407,469)	1,336,678	7,836,253	14,102,596	15,071,693	19,444,397	23,387,753	18,335,808	19,257,199
Fishery Foundation Loans	2,000,000	6,000,000	6,000,000	12,000,000	17,706,824	20,812,295	19,872,000	18,004,068	15,161,041	10,828,153	7,465,923	4,722,674	1,602,943	-	-
Fishery Foundation Reserves	(400,000)	(1,200,000)	(1,200,000)	(2,400,000)	(3,541,365)	(4,162,459)	(3,974,400)	(3,600,814)	(3,032,208)	(2,165,631)	(1,493,185)	(944,535)	(320,589)	-	-
Net Fishery Foundation Loans	1,600,000	4,800,000	4,800,000	9,600,000	14,165,459	16,649,836	15,897,600	14,403,255	12,128,832	8,662,522	5,972,738	3,778,140	1,282,354	-	-
Infrastructure Loans	-	1,525,801	4,445,543	4,041,832	8,190,623	11,917,400	13,670,333	12,027,846	10,284,054	8,432,709	6,467,177	4,606,382	3,082,754	1,465,151	425,680
Infrastructure Reserves	-	(76,290)	(222,277)	(202,092)	(409,531)	(595,870)	(683,517)	(601,392)	(514,203)	(421,635)	(323,359)	(230,319)	(154,138)	(73,258)	(21,284)
Net Infrastructure Loans	-	1,449,511	4,223,266	3,839,740	7,781,092	11,321,530	12,986,816	11,426,453	9,769,851	8,011,073	6,143,818	4,376,063	2,928,616	1,391,893	404,396
Business Loans	-	747,504	2,077,359	1,568,191	3,259,275	4,409,131	4,452,530	2,870,946	1,302,755	285,992	-	-	-	-	-
Business Reserves	-	(74,750)	(207,736)	(156,819)	(325,928)	(440,913)	(445,253)	(287,095)	(130,276)	(28,599)	-	-	-	-	-
Net Business Loans	-	672,754	1,869,623	1,411,372	2,933,348	3,968,218	4,007,277	2,583,852	1,172,480	257,392	-	-	-	-	-
Total Gross Loans	2,000,000	6,922,264	10,892,889	14,851,112	24,879,898	31,939,584	32,891,693	28,413,560	23,071,163	16,930,988	12,116,556	8,154,203	4,210,970	1,391,893	404,396
Total Loss Reserves	(400,000)	(1,351,040)	(1,630,013)	(2,758,911)	(4,276,823)	(5,199,242)	(5,103,170)	(4,489,301)	(3,676,686)	(2,615,865)	(1,816,543)	(1,174,854)	(474,726)	(73,258)	(21,284)
Net Total Loans	1,600,000	5,571,224	9,262,876	12,092,202	20,603,075	26,740,342	27,788,523	23,924,259	19,394,477	14,315,123	10,300,012	6,979,349	3,736,244	1,318,636	383,112
Total Assets	11,105,000	10,527,567	10,827,881	21,127,068	20,888,501	21,609,724	23,381,054	25,260,937	27,230,730	28,417,719	25,371,705	26,423,745	27,123,997	19,654,443	19,640,311
LIABILITIES AND NET ASSETS															
Debt	4,500,000	4,500,000	4,500,000	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000	8,000,000	8,000,000	8,000,000	-	-
Beginning Net Assets		6,605,000	6,027,567	6,327,881	8,627,068	8,388,501	9,109,724	10,881,054	12,760,937	14,730,730	15,917,719	17,371,705	18,423,745	19,123,997	19,654,443
Operating Results	(395,000)	(577,433)	300,314	(700,813)	(238,566)	721,223	1,771,330	1,879,883	1,969,793	1,186,989	1,453,986	1,052,040	700,252	530,446	(14,132)
Capital Grants	7,000,000	-	-	3,000,000	-	-	-	-	-	-	-	-	-	-	-
Ending Net Assets	6,605,000	6,027,567	6,327,881	8,627,068	8,388,501	9,109,724	10,881,054	12,760,937	14,730,730	15,917,719	17,371,705	18,423,745	19,123,997	19,654,443	19,640,311
Total Liabilities and Net Assets	11,105,000	10,527,567	10,827,881	21,127,068	20,888,501	21,609,724	23,381,054	25,260,937	27,230,730	28,417,719	25,371,705	26,423,745	27,123,997	19,654,443	19,640,311

CALIFORNIA FISHERY FUND

HIGH SCENARIO

FINANCIAL STATEMENTS

HIGH: Optimum funding for high level of risk tolerance and maximum flexibility of operations, including highest levels of financial acitivity and reform impacts. Results in solvent Fishery Fund with 15 year life and ending positive capital balance.

INCOME STATEMENT	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
REVENUES															
Interest on Loans	50,000	275,674	592,135	850,443	1,302,743	1,872,955	2,139,206	2,010,786	1,665,433	1,274,783	915,788	636,922	388,815	176,511	56,725
Interest on Cash & Investments	140,000	190,100	99,127	31,300	180,697	5,709	(102,612)	(88,149)	26,734	156,725	282,052	301,434	388,888	467,755	366,716
Interest Expense	(22,500)	(45,000)	(45,000)	(85,000)	(125,000)	(125,000)	(125,000)	(125,000)	(125,000)	(125,000)	(102,500)	(80,000)	(80,000)	(40,000)	-
Net Interest Income	167,500	420,774	646,262	796,743	1,358,440	1,753,663	1,911,593	1,797,637	1,567,166	1,306,508	1,095,340	858,356	697,702	604,266	423,441
Loss Allocation	(400,000)	(951,040)	(278,973)	(1,128,898)	(1,517,913)	(922,419)	96,072	480,293	812,614	302,769	793,602	641,689	463,994	401,469	51,974
Net Financing Income	(232,500)	(530,266)	367,289	(332,154)	(159,472)	831,245	2,007,666	2,277,930	2,379,781	1,609,277	1,888,942	1,500,045	1,161,696	1,005,734	475,415
Loan Fees	20,000	115,058	150,117	60,000	285,175	265,175	150,117	-	-	-	-	-	-	-	-
Earned Income	(212,500)	(415,208)	517,406	(272,154)	125,703	1,096,420	2,157,783	2,277,930	2,379,781	1,609,277	1,888,942	1,500,045	1,161,696	1,005,734	475,415
Grants & Contributions															
Total Revenue	(212,500)	(415,208)	517,406	(272,154)	125,703	1,096,420	2,157,783	2,277,930	2,379,781	1,609,277	1,888,942	1,500,045	1,161,696	1,005,734	475,415
OPERATING COSTS															
Start-up Systems Development	25,000														
Management Contract	85,000	87,550	90,177												
Lending / Portfolio Contract	60,000	61,800	63,654												
Evaluation Consultant			50,000												
Audit	12,500	12,875	13,261	13,659	14,069	14,491	14,926	15,373	15,835	16,310	16,799	17,303	17,822	18,357	18,907
Spin-off Costs				75,000											
Personnel & Benefits				275,000	283,250	291,748	300,500	309,515	318,800	328,364	338,215	348,362	358,813	369,577	380,664
Equipment Expense				15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002	19,572	20,159	20,764
Travel				20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597	25,335	26,095	26,878	27,685
Occupancy & Other				30,000	30,900	31,827	32,782	33,765	34,778	35,822	36,896	38,003	39,143	40,317	41,527
Total Operating Expenses	182,500	162,225	217,092	428,659	364,269	375,197	386,453	398,046	409,988	422,287	434,956	448,005	461,445	475,288	489,547
Operating Results	(395,000)	(577,433)	300,314	(700,813)	(238,566)	721,223	1,771,330	1,879,883	1,969,793	1,186,989	1,453,986	1,052,040	700,252	530,446	(14,132)
Capital Grants	7,000,000	-	-	3,000,000	-	-	-	-	-	-	-	-	-	-	-
Change in Net Assets	6,605,000	(577,433)	300,314	2,299,187	(238,566)	721,223	1,771,330	1,879,883	1,969,793	1,186,989	1,453,986	1,052,040	700,252	530,446	(14,132)

CALIFORNIA FISHERY FUND

HIGH SCENARIO

FINANCIAL STATEMENTS

HIGH: Optimum funding for high level of risk tolerance and maximum flexibility of operations, including highest levels of financial acitivity and reform impacts. Results in solvent Fishery Fund with 15 year life and ending positive capital balance.

CRITICAL MEASUREMENTS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CAPITAL															
Net Asset / Total Assets (%)	59%	57%	58%	41%	40%	42%	47%	51%	54%	56%	68%	70%	71%	100%	100%
Debt / Net Assets	0.68	0.75	0.71	1.45	1.49	1.37	1.15	0.98	0.85	0.79	0.46	0.43	0.42	-	-
LENDING															
# of Foundation Loans Closed	1	2	0	3	3	2	0	0	0	0	0	0	0	0	0
# of Infrastructure Loans Closed	0	3	6	0	9	9	6	0	0	0	0	0	0	0	0
# of Business Loans Closed	0	6	12	0	18	18	12	0	0	0	0	0	0	0	0
Total # of Loans Closed	1	11	18	3	30	29	18	0	0	0	0	0	0	0	0
# of Foundation Loans O/S	1	3	3	6	9	11	11	11	11	10	8	8	5	2	-
# of Infrastructure Loans O/S	-	3	9	9	18	27	33	33	33	33	30	24	24	15	6
# of Business Loans O/S	-	6	18	18	36	48	48	48	30	12	-	-	-	-	-
Total # of Loans in Portfolio	1	12	30	33	63	86	92	92	74	55	38	32	29	17	6
Total Loss Reserve (%)	20%	16%	13%	16%	15%	14%	13%	14%	14%	13%	13%	13%	10%	5%	5%
Actual Annual Losses ($)	-	-	-	-	-	-	-	133,576	-	758,052	5,720	-	236,134	-	-
Cumulative Losses ($)	-	-	-	-	-	-	-	133,576	133,576	891,628	897,348	897,348	1,133,481	1,133,481	1,133,481
OPERATIONS															
FTE's				4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Self-sufficiency	35%	50%	156%	57%	88%	151%	526%	4497%	-610%	585%	-468%	-825%	1004%	566%	97%
Cumulative Op Performance	(395,000)	(972,433)	(672,119)	(1,372,932)	(1,611,499)	(890,276)	881,054	2,760,937	4,730,730	5,917,719	7,371,705	8,423,745	9,123,997	9,654,443	9,640,311
Cumulative Capital Grants	7,000,000	7,000,000	7,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
Net Assets	6,605,000	6,027,567	6,327,881	8,627,068	8,388,501	9,109,724	10,881,054	12,760,937	14,730,730	15,917,719	17,371,705	18,423,745	19,123,997	19,654,443	19,640,311

FISHERY AND ECOSYSTEM INDICATORS*

*Will be finalized in consultation with State and stakeholders

CALIFORNIA FISHERY FUND
FISHERY FOUNDATION LOAN CASE STUDIES
FUND FEASIBILITY ANALYSIS

	Base
Fishery Foundation Loan Amount:	$ 1,500,000
Interest Only Period Annual Payments:	$ 45,000
Amortization Period Annual Payments:	$ 273,486

Historical Data: Top Products per Fishery

		2000	2001	2002	2003	2004	2005	Five Year Avg. Annual Growth Rate	Projected Growth Rate	Projected 2010	BASE Projected Tax	Projected Annual Rev
Fishery 1:												
Species 1												
	Pounds:	706,234	705,502	682,697	700,569	928,302	928,302	6.4%	2.0%	1,024,920		
	Price per Pound:	$ 6.38	$ 6.38	$ 4.94	$ 7.15	$ 7.14	$ 7.14	4.4%	2.0%	$ 7.88		
	Value per Product:	$ 4,507,200	$ 4,502,528	$ 3,375,098	$ 5,011,364	$ 6,629,297	$ 6,629,297	11.1%		$ 8,081,076	4.0%	$ 323,243
Species 2												
	Pounds:	-	-	-	-	-	-	#DIV/0!	0.0%	-		
	Price per Pound:	$ -	$ -	$ -	$ -	$ -	$ -	#DIV/0!	0.0%	$ -		
	Value per Product:	$ -	$ -	$ -	$ -	$ -	$ -	#DIV/0!		$ -	0.0%	$ -
Species 3												
	Pounds:	-	-	-	-	-	-	#DIV/0!	0.0%	-		
	Price per Pound:	$ -	$ -	$ -	$ -	$ -	$ -	#DIV/0!	0.0%	$ -		
	Value per Product:	$ -	$ -	$ -	$ -	$ -	$ -	#DIV/0!		$ -	0.0%	$ -
	FISHERY TOTAL	$ 4,507,200	$ 4,502,528	$ 3,375,098	$ 5,011,364	$ 6,629,297	$ 6,629,297			$ 8,081,076		$ 323,243
Fishery 2:												
Species 1												
	Pounds:	8,925,658	8,925,658	8,486,681	8,880,231	10,869,349	10,869,349	4.4%	1.0%	11,423,795		
	Price per Pound:	$ 0.92	$ 0.92	$ 0.80	$ 0.76	$ 0.62	$ 0.62	-7.2%	0.0%	$ 0.62		
	Value per Product:	$ 8,215,120	$ 8,215,120	$ 6,748,678	$ 6,735,493	$ 6,760,650	$ 6,760,650	-3.5%		$ 7,105,511	4.0%	$ 284,220
Species 2												
	Pounds:	-	-	-	-	-	-	#DIV/0!	0.0%	-		
	Price per Pound:	$ -	$ -	$ -	$ -	$ -	$ -	#DIV/0!	0.0%	$ -		
	Value per Product:	$ -	$ -	$ -	$ -	$ -	$ -	#DIV/0!		$ -	0.0%	$ -
Species 3												
	Pounds:	-	-	-	-	-	-	#DIV/0!	0.0%	-		
	Price per Pound:	$ -	$ -	$ -	$ -	$ -	$ -	#DIV/0!	0.0%	$ -		
	Value per Product:	$ -	$ -	$ -	$ -	$ -	$ -	#DIV/0!		$ -	0.0%	$ -
	FISHERY TOTAL	$ 8,215,120	$ 8,215,120	$ 6,748,678	$ 6,735,493	$ 6,760,650	$ 6,760,650			$ 7,105,511		$ 284,220

Appendix B. Risk Management

ATTACHMENT B
Risk Management and Underwriting

An organization's capacity to accept risk depends on its capacity to manage risk. Risk management focuses on three areas: (1) the underwriting and approval process; (2) sustained performance of the portfolio over time; and (3) use of high-level standards for measuring risk and loss exposure.

The organization selected to provide underwriting and portfolio management services to the California Fishery Fund will be a certified CDFI in good standing with US Department of Treasury and have high quality management systems, policies, and practices. The following provides a brief summary of a high industry standard risk management system. A final system used by the California Fishery Fund will include modifications based on desired mission impacts and accepted risk tolerance.

- *Underwriting and Review Criteria:* A Credit Policy details criteria for loan review and approval. The policy is enforced by a Risk Manager, with exceptions granted on a case by case basis by a Credit Committee. Major components of the underwriting and review criteria are summarized below:

Criteria	**Description**
Applications	Signed original applications are required and can be submitted electronically or in hard copy. Assistance is available with completing the standard application package.
Verifications	Verifications of incomes, credit history, balance sheets, tax filings and other material claims are made. Discrepancies are cause for explanation.
Credit History	Prospective borrowers' credit histories are verified. Derogatory information is not cause for decline, but it is cause for explanation and, usually, corrections either prior to closing or as a performance condition. The Fund notes but does not use credit scores as a deciding factor in its credit decisions.
Debt Service Coverage	Ability to repay, consistent with the forecast financial performance, must be demonstrated. Secondary sources of repayment are considered, but are not required. A Debt Service Credit Ratio of at least 1.05 is required after stabilization and completion of any deferral period.
Collateral Coverage	There is no minimum collateral coverage requirement. The Fund looks more to cash flows than collateral in making its credit decisions. Security for loans is required when available.

Guarantees	For profit corporate borrowers, or any principal with an ownership interest of 20% or more is required to personally guarantee the corporate note.
Collateral Valuation	Liquidation discounts for collateral assets are formulaic and based on the type/age/location of collateral, ranging from 20% to 60%.
Environmental Risk	All borrowers are required to expose any environmental threat or hazard associated with their specific undertaking. Risk is assessed and mitigated as necessary.

- *Roles and Responsibilities:* Qualified lenders lead the underwriting process, assisted by credit analysts and supervised by a Chief Credit Officer. Lenders are relationship and structuring managers. Credit analysts spread financials, forecast performance, identify and mitigate risks, and assist the lender in producing a Credit Memo. All lenders meet regularly to review pipeline and collaborate on underwriting issues they are confronting. A Risk Manager reviews and approves all Credit Memos before they are forwarded to a Credit Committee. A Portfolio Manager maintains the official records of the Credit Committee; enters approved loans, with any conditions, into the loan management system, and coordinates closing, documentation, and disbursement of proceeds.

- *Write-Offs and Charge-Offs:* Policy requires that any loan more than 90 days past due be placed on non-accrual status. Whenever any portion of a loan is deemed uncollectible, in part or in whole, a full or partial charge-off against the Allowance for Loan Losses is made to assure that asset values are stated as accurately as possible even though partial recovery may be possible at some time in the future. The Credit Committee must approve a charge-off. Management recommends when borrowers' outstanding balance(s) should be charged-off to the loss reserve account. A charge-off does not imply any lessening of efforts to collect the loan in full. Management has responsibility for all loan workouts and collection efforts. Factors such as the amount of debt, the probability of collection and the time involved must be considered when determining a course of action and pursuing collection and follow-up. Whenever any portion of a loan is charged-off, all accrued but unpaid interest is reversed against current income and the loan placed on non-accrual. In cases where a loan has been placed on non-

accrual and some portion of the principal has been charged-off, any payments received are applied to principal. In cases where a loan has been placed on non-accrual but has not been charged-off, payments may be applied first to interest and the balance, if any, to principal. When a loan is placed on non-accrual any interest received is recognized on a cash basis.

- *Policy Regarding Portfolio Review:* The loan portfolio is audited annually for quality and adherence to policy. Results are reported to the organizations Board of Directors. Deficiencies are tracked for correction, and reported quarterly to governing bodies until correction has been completed and documented. In addition, the Risk Manager reviews the portfolio quarterly for compliance with policy and borrower covenants, file integrity, and overall risk. If warranted, specific files are downgraded based on objective assessment consistent with protocol (see above). On a monthly basis, the Risk Manager produces trended portfolio quality reports covering: (1) concentrations; (2) risk rating trends; (3) delinquencies; (4) problem assets and repair status; (5) watch list assets and repair status; (5) loan loss reserve exposure and adequacy; (6) non-earning assets; and (6) material non-compliance with loan covenants and conditions. These reports are delivered to management and the Credit Committee.

- *Methodology for Portfolio Review:* The methodology for portfolio review is driven by (1) regulated bank standards; (2) third party annual audits; (3) a subjective risk rating system designed to define risk; (4) application of the rating system to the portfolio and its components files on an ongoing and dynamic basis; and (5) quarterly internal portfolio reviews focused on compliance with policy and loan terms, file and collateral integrity, and adequacy of file management. Different levels of review are reported monthly, quarterly and annually to management and Board. This methodology is deployed to motivate performance on the part of lenders, analysts, and portfolio management staff.

- *Methodology for Risk Rating:* A risk rating system is used as a means to consistently and objectively evaluate the strengths and weakness of credit applications and portfolio loans. The system is not designed as a methodology for

approving or denying credit. Other factors such as mission, support services, character, community benefit and source of funding are considered as part of the final credit decision. The system serves as a tool to summarize particular strengths or weaknesses of the borrower or Applicant as determined by the loan officer. Weaker rated applications and loans are recognized as having a greater credit risk and therefore are reviewed in light of portfolio performance expectations, current embedded risk and the adequacy of the loan loss reserve. Each Credit Memo includes a Risk Rating Summary. Ratings that are particularly weak are fully discussed in the Credit Memo, including mitigating factors. The Risk Rating System employs numeric scores (1=high, 7=low) for each of the following risk categories:

- Operating Margins/Cash Flow;
- Balance Sheet;
- Management and Credit History;
- Collateral and Source of Repayment;
- Industry, Market and Competitive Advantage; and
- Financial Statements and Controls.

Each loan is assigned a numeric grade at closing and monitored quarterly for upgrades or downgrades, consistent with its score based on performance, external factors, or events impacting overall risk.

- *Reports Required from Borrowers:* Monitoring of the loan portfolio is a major aspect of successful community development lending. The objectives of monitoring are: (1) Early identification of problems; (2) Maintenance of accurate records on each customer; (3) Protection against delinquencies on each customer; (4) Proactive identification of future customer needs; (5) Monitoring and assessment of community development impact; and (6) Preservation of capital and reputation. Loan monitoring activities include the following:

- Meetings with borrowers at regular intervals to review company performance, future goals, and earnings. These meetings may also include discussions on broader operational and management issues, as a means of managing any inherent risks.
- Financial statement review, comparing and analyzing actual performance to budget. Inability to achieve forecast financial goals is an indication of future problems, typically resulting in a downgrade to the risk rating.
- Determining if selected performance goals or financial milestones are being achieved, particularly if additional funding is a condition of these measurements.
- Monitoring of industry and market conditions affecting key portfolio segments (wood products, fisheries, select agricultural and food products, tourism, real estate).

All loan agreements require the borrower to provide interim financial statements in accordance with the suggested frequency based on the Risk Grade. All customers and guarantors are required to submit financial statements and copies of tax returns annually. Basic financial reporting generally includes the balance sheet, income statement, cash flow statement, and aging of accounts receivable and payable, while other information may include:

- Staff changes
- Capital acquisitions, expenditures, and new indebtedness
- Litigation, new liens, or evidence of tax payments
- Violations of loan agreement covenants
- Loans or advances to owners and others, officer compensation
- Job and payroll reports

Non-financial loan covenants (insurance, taxes, hiring practices, etc.) are reviewed at least annually. Borrowers experiencing cash flow difficulties are required to provide proof of quarterly required tax payments (including FICA). The frequency of customer contact and review of their financials is driven by the loan risk rating and any conditions placed on the loan, either through the credit memorandum approval process, terms and conditions letter, and/or any adjustments made to the credit subsequent to closing.

- *Corrective Action and Enforcement:* Internal practice should be zero tolerance for non-compliance with the provisions of loan documentation. Forbearance is available in the course of normal business but is always documented to ensure the integrity of the asset. Penalty fees are applied and capitalized in instances of chronic non-compliance. Work outs and restructuring is not encouraged, but are available in the interests of maximizing forecast outcome achievements of the borrower. Enforcement is always a last resort, and usually follows protracted indifference to the agreements between the parties. When all other avenues are exhausted, enforcement measures are referred to the Applicant's General Counsel for action.

Appendix C. Fisheries Fund Discussion Paper – June, 5, 2006

Investing in the Future of California's Fisheries

"The California Fisheries Fund"

Discussion Paper

June 5, 2006

Comments on this discussion document and proposed concept are strongly encouraged. Those interested in providing input should contact Rod Fujita of Environmental Defense at (510) 658-8008 rfujita@environmentaldefense.org or Mike Dickerson of ShoreBank Enterprise at (360) 642-4265 mdickerson@sbpac.com

Table of Contents

Background

Many California fisheries are in trouble. Declining revenues and reduced access to fish populations as a result of increasingly stringent conservation regulations are hampering fishermen and their businesses. The challenge facing the state is to address the underlying problems facing fisheries, not just the symptoms. Because many observers believe that lack of funding has been a significant impediment to fisheries reform, the Ocean Protection Council approved a planning grant for Environmental Defense in September 2005 to investigate how capital might be used as part of a comprehensive state strategy to improve California fisheries. Environmental Defense secured the services of ShoreBank Enterprise Pacific, an established community development financial institution with extensive experience in nearshore Pacific fisheries, to undertake the assessment, feasibility, and planning effort. The planning grant is administered by the California Coastal Conservancy. ***The desire of the parties involved is to develop a capital investment tool that supports transition towards more stable and profitable fisheries in California and enhances our public trust fishery resources.*** The concept we present here has the potential to achieve this goal, as well as help fulfill the mandates of the Marine Life Management Act and Marine Life Protection Act.

The goal is to support transition toward more stable and profitable California fisheries.

This work involves two phases: 1) Needs Assessment and Concept Development; and 2) Business Plan Development. This document represents work being performed during Phase One. Phase Two work will commence after securing broad-based input into the concepts presented in this document. During Phase One, assessment interviews were held with seafood and fishing industry leaders and academic experts in San Diego, La Jolla, Santa Barbara, Avila Beach, Morro Bay, Monterey, San Francisco, Half Moon Bay, Bolinas, and Bodega Bay. Specifically, we met with fishermen, processors, industry associations, agencies, university professors, community leaders, and non-profit institutions. A standardized set of interview questions was used to ensure consistency in information collection. Additionally, numerous documents relevant to California fisheries and policy were reviewed.

The overall purpose was to assess the need for various types of capital and more generally, ***to assess opinions on the priority needs of specific California fisheries.*** Future interviews are scheduled to be conducted in other coastal communities, including the Northern California communities of Fort Bragg, Arcata, Eureka, and Crescent City. Follow-up meetings will also be scheduled to secure ongoing feedback as this work proceeds. We encourage anyone interested in providing input into this process to contact the project principals.

Individuals interviewed to date are being asked to review and comment on these draft findings and initial concept. It is anticipated that as this process proceeds, specific elements included in this document will be modified to reflect input received. The project principals would also like to acknowledge and thank all of those who have provided valuable insight and given freely of their time and ideas.

Needs Assessment

Our initial needs assessment has revealed that there is broad agreement on the need for fishery governance reform that can stabilize regulations and create a regulatory environment conducive to investment, innovation, and conservation. The majority of individuals interviewed identified instability in management and the failure to tailor regulations and stock assessments to local conditions as the most pressing issues they face. ***Motivating investment and innovation requires confidence in predictable and stable access to fisheries over the mid- and long-terms.***

In many instances, current management approaches do not deliver predictability, stability, or confidence. In this operating environment, traditional "lending" and loan products targeting fishermen, seafood companies, and coastal communities will meet with limited demand and result in little benefit to California fishing families, their communities, fish populations, or ocean ecosystems. ***Specialized interventions, highly targeted and customized to prevailing local conditions, will be required.***

Investment and innovation require predictable and stable access to fisheries.

The needs assessment led to several other key findings:

- Fisheries are in a state of flux and reform is needed. In many ways, our current management structures make capital investment, innovation, and stewardship "irrational behavior."
- Overall, fishery landings plummeted from billions of pounds to millions of pounds in the last thirty years (the peak was 1.3 billion pounds in 1976, dropping to 650 million pounds in 2000 – a 50% decrease). The economic performance of California's fisheries has also declined. From 1990 to 2000, employment in the fishery sector dropped 11%, wages fell 20%, and the contribution of fisheries to the Gross State Product dropped by 28% - adding up to a loss of over $160 million.
- Fisheries reform has been impeded by lack of resources. Policies such as the Marine Life Management Act and the State's Restricted Access Policy are under-funded and not supported with sufficient science, political will, or information on biological, social, and economic impacts of reform options. The lack of a strong State commitment to reform that will lead to more secure access to fisheries, coupled with ongoing confusion and suspicion of such reforms within the industry and among diverse stakeholders, has led to lack of consensus and impetus for reform.
- Numerous types of management reform show promise, but none are perfect – one size does not fit all – requiring that ***specific management reform measures must be tailored to fit each fishery, each region, and/or each fishing community.***

Coastal communities are at risk of losing vibrant working waterfronts and the cultural heritage of fishing.

- In addition to regulatory issues, many of California's fisheries face additional pressures including consolidations of the product value chain (vertical integration of the seafood processing industry), commodity pricing (low prices resulting from supply gluts), changing market forces, and an escalating media focus on various issues (e.g. environment, food safety, etc).

- Failure to overcome the mistrust, aggression, and antagonism associated with many fisheries debates will eliminate chances for any long-term success.

Concept Development

To address these issues, we recommend designing a fund to capitalize change that is targeted, relevant, and responsive to local variations. We offer an analogy of how capital can be used to change a "value proposition" that is based on our own experiences.

The work of ShoreBank over the past 30 years has focused on troubled urban communities which some people call "ghettos." As an organization that uses capital as a change agent, ShoreBank is well acquainted with how people behave when it comes to investing. Landlords in poor communities rely on operating income (rents) for return on investment; they minimize investment in their property, and hold operating costs down, to get their money back out as quickly as possible because they lack confidence in market conditions. The "value proposition" is current cash flow and not resale of the property for more than they paid. Properties are often abandoned when their potential for current income without capital investment is exhausted. The result is persistent decline in housing conditions, community well-being, and confidence in the future.

ShoreBank has helped to finance change in its urban markets by incrementally shifting the mindset of landlords from near term *income* to longer term *assets* by financing major improvements to old, dilapidated apartments with loan products customized to the market conditions of specific communities. By targeting its diverse (for profit and not for profit) investments to specific areas of its target neighborhoods, and by making multiple investments and efforts in the same communities, ShoreBank has succeeded in shifting the "value proposition" toward appreciation in real estate value and away from near term profits. This reverses the cycle of decline that has doomed many American inner cities, and now nearby suburbs, to the pejorative status of "ghetto." California fishermen, fishing families and fishing communities, largely as a result of current management systems and market pressures, are in a downward cycle of "ghetto" economics.

In the context of this analogy, ***we have concluded that most fishermen are behaving rationally given the existing economic incentives that they face*** -- lack of predictability in the current regulatory regime and lack of assured access to future harvests conspire to make anything but a near term perspective irrational. A focus on cash flows, driven by a race to maximize and accelerate catch within a context of increasingly stringent conservation regulations, fuel a cycle of disinvestment supported by regulatory practice.

It was the federal Community Reinvestment Act that delivered the regulatory reforms necessary to begin to shift the cycle of "ghetto" economics. Adopted by Congress in 1977, the Community Reinvestment Act is intended to encourage banks to meet the credit needs of the communities in which they operate, including low- and moderate-income neighborhoods. It further requires that each bank's record in helping meet the credit needs of its entire community be evaluated and made public.

Our assignment has been to recommend ways that capital investment can drive improved economic and ocean ecosystem health in the California fisheries sector. Because the California fisheries "value proposition" is based on maintaining cash flow, rather than on the building of assets, we have concluded that there is scant opportunity for traditional debt instruments alone to achieve these goals.

Bold steps and cooperative approaches are required to improve both the conservation and financial performance of our fisheries.

Regulatory reform that provides more secure access to fisheries for communities, cooperatives, or individuals will be necessary to deliver the appreciable assets and confidence in the future that will be essential for improving California's fisheries. It is also regulatory reform that can offer an alternative to the outdated and unnecessary *economy versus the environment* paradigm by offering solutions for improving both conservation and financial performance. Capital can play an important role in creating these necessary regulatory reforms.

Implications for a Solution

Our assessment indicates a need to develop a regulatory environment conducive to innovation, investment, and improvement of the conservation and financial

performance of California fisheries. The assessment suggests that use of a traditional revolving loan fund concept (debt financing to existing businesses) would not be responsive to the priority needs of many California fisheries. The project principals believe a more sophisticated funding concept – one that capitalizes reform and shares in the risk of change – is required to make the best use of capital investment to improve the financial performance of California fisheries AND the health of ocean ecosystems.

Achieving reform will require more than establishing an investment fund alone. We would emphasize that establishment of the investment fund will not replace the need for ongoing grant support from various sources to fisheries and communities. In many communities, grants may be needed to improve the local capacity for undertaking regulatory reform and establishing a good climate for successful investment.

Improving profitability, protecting the environment, and providing community benefit can work together.

Implications for establishing an investment fund include:

- *Pursue Rational Approaches to Reform:* ***Focus must be on identifying management models that deliver the stability and predictability (e.g. confidence) that make capital investment, innovation, adding value, and stewardship "rational behavior."*** Many fisheries around the world (including some in the U.S.) have been reformed successfully, resulting in reduced costs, increased value, and improved financial and conservation performance. Exploration of opportunities for demonstrating management reform will place an emphasis on cooperation, maximizing flexibility, and aligning incentives with desired social, economic, and environmental goals.
- *Create Stability and Predictability:* Any attempt to support the fishing industry – with the aim of preserving working waterfronts and retaining the fishing heritage of coastal communities – ***must include stability and predictability of the regulatory environment as part of the value proposition and outcome.***

- *Support Research:* Research needs to be better funded, targeted, and carried out in a more participatory and pertinent fashion. Lack of essential fishery information has been an important obstacle to improved access to the nearshore fishery (due to the catch-control rule of the Nearshore Fishery Management Plan) and will limit the transition from precautionary to knowledge-based fishery management generally. Both basic and applied science must be integrated to support fisheries management. Management reforms should be designed to create incentives for stewardship – and the financial capacity for the fishing industry to fund stewardship – including investment in relevant monitoring and research programs.

- *Share the Financial Risk:* Sharing the financial risks of change with fishermen and communities willing to undertake transition will be required. A California Fisheries Fund will likely *initially* include investment terms not generally associated with "debt" like: (1) shared risk; (2) longer recovery periods than are typical of conventional investments; and (3) subsidy to allow for below market rate returns. Investing in change, such as is being proposed, will require that risk sharing must be directly tied to the degree of success or failure of reform measures and to ocean productivity.

- *Support Innovation:* An approach that combines the support of fisheries science with management reform, and then supports the business innovations that "bloom" as a result of reform, will achieve longer-term impacts and have greater appeal to a broader set of stakeholders and resources.

- *Build Political Will:* Successful implementation will require a commitment from the State to reform fisheries governance with the ***aim of creating economic incentives for stewardship and adding value to fishery landings*** as a complement to local participation.

- *Avoid the "Us versus Them" Debate:* Improving profitability, maximizing value, providing community and social

The pathway to change must be paved with affirmative acknowledgement of the importance of localized involvement in stewardship and management.

benefits, and protecting our fisheries resources and ocean ecosystems are not mutually exclusive.

- *Design Localized Solutions:* ***A monolithic state-wide solution is not appropriate.*** Success will come through marshalling resources and efforts in various targeted regional approaches, finding and cultivating results-driven and solution-oriented individuals, and then providing them with relevant information and tools from which to build.

- *Target for Success:* Initial focus on certain state regulated fisheries where successful reform is likely in order to provide effective opportunities for collaboration and demonstration.

- *Demonstrate then Replicate:* Given regional variations, a meaningful demonstration(s) of how capital can assist in transitioning management and unify historically competing interests is required. Basic principles can then be used to ***create replicable models for other fisheries and/or communities.***

- *Generate Measurable Impacts:* Increasing opportunity for securing private resources and long-term financial support at a significant enough scale to achieve meaningful improvement of California's fisheries will require a focused effort. This effort must be able to demonstrate tangible and measurable benefits for local economic well-being, safety, marine resources, and ocean ecosystems.

Initial targets for demonstrating reform models must include strong, open-minded and committed leadership

- *Create Leverage:* Shrinking government monies for research and management require ***development of an approach that can leverage private resources to support transition efforts.***

Financial Concept

At the core of any successful response to the decline of California fisheries is the need to challenge some fundamental assumptions of current fisheries management and examine the social and economic incentives that various kinds of management models

create. ***Successful management will realign these incentives to support healthier fisheries, communities, and ocean ecosystems.*** This will require a constructive dialogue about elements of reform between the Ocean Protection Council, fisheries management agencies, and all other stakeholders.

The four cornerstones of a foundation for a meaningful response will include:

- *Localized Design:* Regulatory reform that results in secure privileges for communities, cooperatives, or individual fishermen to catch fish. The specific management model must be sensitive to and work in concert with the unique social, economic, and biological features of each fishery or region. These ***secure privileges will lay the groundwork for stability and predictability, and act as a source of investor/investee confidence over longer terms.***

- *Focus on Assets:* Shifting our collective mindset from an "income" approach (e.g. focused on cash-flow) to an ***"asset accumulation" approach*** (e.g. focused on building net worth through asset accumulation, including fish available for harvest) that captures and releases entrepreneurial energy, while at the same time ensuring the health of our ocean assets.

Cultivating leadership, innovation and investment will maximize the probability of success and replication.

- *Self-Interest:* Linking the value of business assets directly to the "environmental performance" of the resource – ***resulting in rational economic self-interest in maintaining sound stewardship and management.***

- *Stewardship Services:* Viewing science and management as costs of doing business – ***"stewardship services" – and establishing mechanisms for internally financing these services*** specific to individual fisheries or geographic areas.

Design of the Fisheries Fund

While additional work will be required to develop the specific operational design of the fund and assess its feasibility, the project principals believe that the following

elements will emerge as key components of a Fisheries Fund (see Figure 1 on page 15 for a depiction of the proposed design and flow of capital).

- *Sustainability:* A Fisheries Fund that supports management reform and transition of fisheries towards more localized management models. The primary foundation of this concept is comprised of localized design, assets, self-interest, and stewardship services. Both public and private capital will be sought to initially establish the Fund. ***Given the scale of need, the Fund will be established so that resources revolve***, enabling the Fund to address additional fisheries based on success. Return on these investments will allow the Fund to achieve a level of stability required for long-term success.

- *Project Pipeline:* It is anticipated that grants from other sources will be necessary to prepare some fisheries for investment. Grants to local communities and groups looking to begin organizing towards reform will need to be secured from other sources such as the Ocean Protection Trust Fund and private foundations. Greater efficiencies and synergies will likely be achieved through close coordination of grant making with the investment strategy of the Fund – resulting in a "pipeline" of opportunity for the Fund.

- *Initial Capitalization:* Upon acceptance of a final business plan, the Ocean Protection Council will be asked to consider approval of a $2,000,000 grant from the Ocean Protection Trust Fund to be used as equity to seed the Fisheries Fund. This ***initial equity will be used to leverage additional capital from private resources*** (both additional grants and debt in the form of program related investments and preferred terms loans) that will enable the fund to be established at an appropriate scale (to be determined in subsequent phases of planning).

Investment recovery mechanisms specific to each fishery will enable the Fishery Fund to "revolve."

- *Collaboration:* Successful implementation will require intensive collaboration with other State and Federal agencies, local entities, communities, and various industry groups. ***Committed leadership will be needed to address the numerous "turf" issues that will likely arise.***

- *Demonstration:* Criteria will be established to identify not more than two or three fisheries to initially work with appropriate agencies to develop management reform strategies. These fisheries will have initial access to resources from the Fund. ***Based on lessons learned and successful demonstration, a process for reforming additional fisheries will be implemented.***

- *Capitalized Science and Management:* Fishermen will use capital from the Fisheries Fund to secure the reform of specific fisheries to improve stewardship, profits, and investment climate. The proceeds of these investments will be used to capitalize change through the ***establishment of Stewardship Management Pools specific to each fishery.*** These investments will "kick start" the ability of fisheries to initiate the necessary scientific programs (e.g. collection of essential fishery information) and management reform steps (e.g. organizing and planning appropriate reform measures). Each fishery and Stewardship Management Pool will have a mechanism for self-financing to cover the on-going costs of proactive management and ensuring healthy stocks and habitat.

The Stewardship Management Pools will be governed to ensure protection of the public trust and equitable distribution of access to the resource.

- *Investment Recovery:* Mechanisms appropriate for each fishery will be developed that allow for recovery of the initial investment from the Fisheries Fund and subsequently provide ongoing support for the associated Stewardship Management Pool. It is anticipated these ***investment recovery mechanisms will vary by fishery*** based on current fishery status, reasonable return windows, and the confidence of all parties in the positive impacts of management reform (i.e. customized terms specific to needs of each fishery). ***Most important, risks will be shared with fishermen***, codified in negotiated terms guiding investment recovery (e.g., investment recovery will be tied to the extent to which regulatory reform is achieved and to the response of fish populations to natural conditions and management measures).

- *Stewardship as an Asset:* It is anticipated that the "beneficiaries" of the initial investment in specific fisheries will vary based on the management model and infrastructure developed by that fishery. Participation will vary and along with the required public agency representation, may include individual fishermen, groups of fishermen, communities, and other industry members or associations. ***A primary principle will be to establish the Stewardship Management Pools as a financial asset of the specific fishery that can be used to leverage additional resource for research and conservation activities (i.e. once pool is established, it can be used as match to leverage additional grant support for research).***

- *Localized Oversight:* Appropriate representation will be established for oversight of each Stewardship Management Pool to ***ensure both protection of the public trust and equitable distribution of access to the resource.***

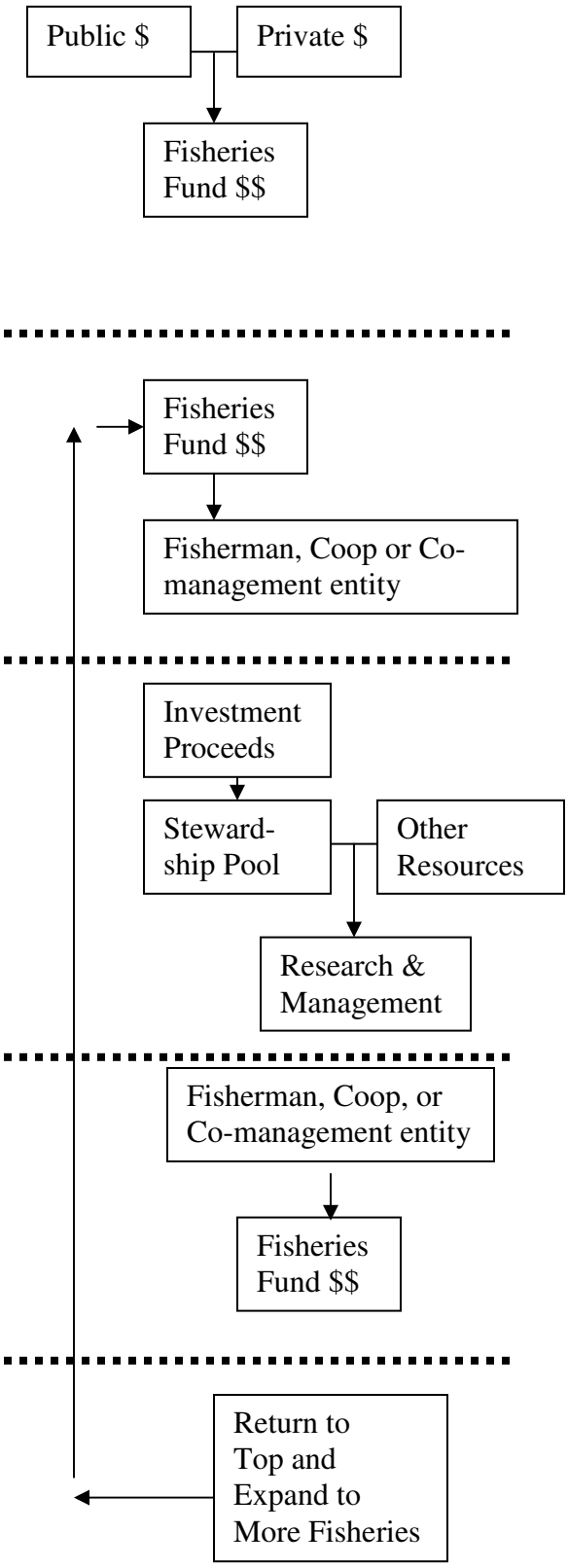
- *Transferability:* Parameters for establishing ***transferability of access privileges will be established specific to each fishery.*** All models considered will have features designed to protect cultural values, including those of inter-generational succession and new entrants into a fishery.

- *Support for Innovation:* In addition to "seeding" the specific Stewardship Management Pools, the ***Fisheries Fund will have the capacity to invest in other business activities of fishermen, processors and communities*** as transition to reform proceeds (i.e. product innovation, business development, market development).

The Fisheries Fund will add substantial value to the Ocean Protection Council and other agencies responsible for implementing marine policies.

- *Density of Impacts:* Investments of the Fisheries Fund will be targeted to achieve ***"density of impact"*** (multiple investments in priority areas or to priority individuals/sectors that build on each other to maximize benefits and chances for success).

Figure 1
THE CALIFORNIA FISHERIES FUND
FLOW OF CAPITAL



Sources of Capital - State money invested into the California Fisheries Fund as a grant and used to leverage additional private grants and program related investments (PRI's) to capitalize the fund at the appropriate level. The Fund will be designed as a "revolving fund." The result will be a corpus of money that supports transition of fisheries by capitalizing reform, local stewardship and ongoing business innovation.

Uses of Capital – Demonstration fisheries are identified to work with agencies and initiate process for organizing and planning reform. Based on local management and organizing model determined – regarding access, privileges, and value – the Fisheries Fund will invest in individuals or cooperatives who in turn receive a determined "share" of the fishery.

Transfer Proceeds – The proceeds of the exchange (the investment amount, minus Fund costs), are directed to a Stewardship Pool dedicated to the target fishery and used to leverage additional financial support for research, fisheries management, and best available science. Control of use of the Fund is shared with those individuals or cooperatives participating in the fishery.

Recovery of Capital – Recovered investments on shared risk terms are realized from investees (cooperatives and/or individuals) and revolved back into Fisheries Fund. Investments made into individual businesses for innovation and growth will also be recovered based on terms established when investment is made.

Reuse of Capital – As capital is recovered, funds will be reused to invest in additional fisheries and fishing businesses. Initial PRI investors in the fund will be repaid based on the established terms of their investment.

Change

While specific outcomes and impacts will be identified and established as part of the business planning process, it is anticipated that the following changes could result from implementation of the Fisheries Fund.

Current ***"Cash-flow Model"***		***Vision*** ***"Asset Building Model"***
No secure share of catch	→	Secure access privileges to cooperatives, co-management entities or individuals.
Attempt to maximize one's share of catch	→	Attempt to maximize value of catch
Excess inputs into business	→	Plan business around share, reduce inputs
Shrinking season	→	Season expands
Supply gluts, low prices	→	More stable market, higher prices
No stewardship incentive	→	Stewardship incentive
Conservation often perceived as threat to livelihood	→	Conservation perceived as adding value to asset
Burden of financial risk of change carried by fishermen	→	Burden of financial risk of change shared with Fund

State Policy Implications

The Fisheries Fund has the potential to be an important tool for achieving the mandates and goals of California's Marine Life Management Act, Marine Life Protection Act, and the Ocean Protection Council.

Marine Life Management Act implementation will benefit from the capitalization of stewardship activities such as the gathering of essential fishery information, preparation of stock assessments, and the implementation of fishery management models at the regional and local levels.

These activities will result in a more stable regulatory environment and more secure access to fish. In the case of essential fishery information that moves fisheries from data-poor to data-moderate and data-rich conditions, it will inspire confidence in fishery managers, fishermen, and the seafood industry and may increase access to fish if justified by credible scientific analysis. Successful implementation of the Fisheries Fund will also sustain management reforms and conservation actions by providing opportunity for expanded economic benefits through investing in value-added seafood products (i.e. certified sustainable) and the creation of new distribution channels and markets for such products.

Marine Life Protection Act implementation will also benefit. The same management model reforms that will improve the regulatory environment and create an environment favorable for investment will also create strong incentives for continued stewardship. Research indicates that fishermen operating within many such management models support Marine Protected Areas if they are devised in the context of localized management decisions and targeted science.

The Fisheries Fund will establish a platform for collaborative research and information gathering.

The Fisheries Fund will also help the Ocean Protection Council demonstrate the application of Ecosystem-Based Management principles. One of the principle tenets of Ecosystem-Based Management is to base decisions on good information and to use adaptive management (i.e. to base management on learning). The Stewardship Management Pools established with capital from the Fisheries Fund will serve as a community asset and support localized research, fishery organization, and reform measures. Lack of targeted on-going research specific to individual fisheries or areas remains a large impediment to fishery reform. Increased fishery research is needed to complement the increasing amount of Marine Protected Area research in California waters.

The Stewardship Management Pools will allow more fishery scientists and fishermen to become engaged in monitoring through collaborative research arrangements, stimulating the collection of essential fishery information – some of which overlaps with

Marine Protected Area monitoring programs and some of which is unique to fishery monitoring. Essential fishery information is the basis for adaptive management of fisheries.

The Fisheries Fund will also make use of another Ecosystem-Based Management principle: addressing the human dimensions of fisheries management. By investing in people, communities, product and market development, and fisheries governance reform, the Fisheries Fund will aim to align economic and social incentives with conservation and sustainability, thus providing financial incentives for fishermen as "stewards" and improving the prospects for preserving the fishing culture of coastal communities by generating more revenues and investments.

Next Steps

These findings and draft concept establishing the initial parameters for pursuing development of a Fisheries Fund will be presented to the Ocean Protection Council. If it meets with their approval, the project principals will undertake additional feasibility work and begin preparation of a business plan for implementation and operation of the fund. It is expected that the business plan will be completed and presented to the Ocean Protection Council by September 2006.

Establish initial fund parameters and seek approval of draft concept from the Ocean Protection Council.

The following is a summary of expected activities and projected timeline:

- *Establish Initial Broad Objectives and Impacts (June 2006):* Continue to secure input from all interested parties. Confirm the elements of the concept paper and ensure all involved parties are in basic agreement.
- *Research, Reconnaissance, and Analysis (June-July 2006):* Continue collection and analysis of available relevant information specific to California fisheries (effort, landings, value, markets, infrastructure, etc). Continue discussions with key players, including: State, Ports, and other relevant local agencies; Industry (advocacy groups, fisherman, processors, off-loaders, markets); Recreational fishery groups; environmental groups and relevant

science-based institutions; California based Community Development Financial Institutions; and other interests. The purpose of these activities is to define strategic opportunities that will inform the business planning process going forward.

- *Refine Objectives (July 2006):* Upon completing reconnaissance, refine initial objectives and land on specific targets and desired impacts. Reconnect with key parties and secure consensus for moving forward.

Assessment and planning throughout summer 2006, deliver final business plan to the Ocean Protection Council by September 2006.

- *Model (July-August 2006):* Develop model that will best meet proposed objectives. Include: Structure; Governance; Management; Operations: Products; Expected Portfolio Profile; Financial Projections; Risk Analysis; Capitalization Strategy; and Timeline.
- *Final Business Plan (September 2006):* Present final business plan to Ocean Protection Council at September 2006 meeting.

Appendix D. Reform Examples

ATTACHMENT D – REFORM EXAMPLES

A Review of the Conservation and Economic Impacts of Fisheries Governance Reform

STATUS OF FISHERIES MANAGEMENT TODAY

Fisheries are usually managed as common property, open-access resources, making them vulnerable to the "tragedy of the commons" as described by Garrett Hardin (*8*). Common property is property held collectively by a group of people. In the case of domestic fish populations, this group of common rights holders is typically an entire nation; when fish populations occur outside national exclusive economic zones, the entire human population is the property holder. The common property arrangement creates competition between fishermen for the available catch, which is limited by nature; because individual shares of the catch are not specified, many fishermen compete to maximize their catch. Under this system, individual fishermen have incentives to catch as much as possible before other fishermen have decimated the populations. To do so, fishermen invest in excessive fishing capital, such as bigger and faster boats, and adjust their fishing practices in socially detrimental ways for example, by fishing under dangerous ocean conditions. Powerful fishing fleets, advanced fish-finding technology, and gear capable of catching large numbers of fish (and damaging ocean habitats) are all logical outcomes of competition for fish in a commons. Additionally, new entrants will seek access to the fishery and expansion of the fishery will occur as long as it is individually profitable (or at least perceived as such). These incentives remain until the populations of fish have been reduced to the level where all profits have disappeared and economic rents[1] are completely dissipated.

The situation described above is referred to as the "race for fish". While the "race for fish" often creates severe economic, biological, and safety problems, traditional fisheries management has generally failed to address this problem. In fact, one of the most common management methods, the imposition of a total allowable catch (TAC),

[1] Defined as the difference between the price and production cost of the good. For a natural resource, like fisheries, this is often referred to as resource rent or the productive value of the natural resource (long-run profits earned when the property owner limits inputs to an economically efficient level).

only exacerbates the economic problem. Faced with an overall catch limit (TAC), the incentive of individual fishermen to fish as fast as possible before the TAC is reached is significantly increased. Therefore, the fishery proceeds even more quickly and more wastefully. The results are economically inefficient fisheries in which there is too much capital and effort, deployed over seasons that are artificially shortened, catching fish that are not as valuable, sometimes damaging habitats, and often inadvertently taking seabirds, mammals, small fish, and non-targeted species as unintended victims of this race. Economic distress in turn tends to exacerbate conservation problems, because conservation measures such as marine reserves, bycatch controls, and catch reductions are perceived as threats to livelihood rather than as investments in the future. The race for fish is thus responsible for not only many of the environmental problems plaguing the worlds' oceans, but also for the fact that living ocean resources are not generating any net economic surplus, and actually result in a net economic loss. This impoverishes fishermen, as well as the environment.

Analysis shows just how economically inefficient world capture fisheries are, and roughly what the benefits of ending the "race to fish" might be. Applying estimates of cost reductions and revenue increases observed in fisheries that under management reforms that end the race for fish to California fisheries, we estimate that total revenue from all California fisheries could increase by $27 – 93 million per year from 2004 levels ($140 million), resulting in an increased net present value of $53 million to $1.9 billion. Peak revenues were $315 million in 1980. The broad ranges reflect a high degree of uncertainty and variability in cost and earnings estimates.

This analysis is necessarily incomplete, because it only includes the direct costs of overcapitalization and poor fish quality. It does not include indirect costs that are difficult to calculate, but are most likely very high: the ecosystem values being lost from excessive by-kill, the excess management costs incurred by having to contain the impacts of excessive latent fishing effort, and the value of habitat lost or degraded by fishing in the "race to fish".

The extent of inadequate protection of ecosystem values and underproduction of potential economic surplus differs from fishery to fishery, and between management

regimes. Some of the state's fisheries are dispersed over wide areas, while others are concentrated in relatively small areas. Some are based on high volumes of catch, while others are much lower in volume. Each of these situations has spawned management structures unique in design, enforcement, and performance, ranging from lack of regulation to complex gear restrictions, seasonal restrictions, closures, limited entry (permits), and other measures. However, most fisheries have not yet managed to solve the common property problem.

MINIMIZING IMPACTS, MAXIMIZING PROFITS

Given that the common property problem and the "race to fish" are the root causes of both environmental problems and poor income generation from the rich resources of the oceans, what are the possible solutions? The most effective solutions revolve around replacing the perverse incentives operating under "race to fish" conditions with incentives aimed at conservation and generating value from the worlds' oceans. As it turns out, there are several tried and true ways to alter incentives. All of these methods closely emulate a private property rights system – but with a major difference. Instead of granting direct property rights to the resource itself, most of these systems are based on the granting of transferable privileges to harvest a certain fraction of the total allowable catch to various kinds of entities. When privileges are granted to communities, the dedicated access privilege is termed a Community Development Quota or CDQ, or community-based fisheries management. When granted to groups of fishermen, the dedicated access privilege often takes the form of a sector allocation or an allocation to a harvest cooperative. When the dedicated access privilege is granted to a group of fishermen who gain exclusive access to resources in a specific area, it is termed a Territorial Use Right Fishery, or TURF. Dedicated access privileges (shares of the allowable catch) allocated to individuals are called Individual Transferable Quotas (ITQs) or Individual Fishing Quotas (IFQs) or Individual Vessel Quotas (IVQs). The specific method of designating harvest privileges depends on the unique social, cultural, biological, and economic attributes of the fishery.

COMMUNITY-BASED FISHERY MANAGEMENT

Community-based fishery management (CBFM) has been promoted in developing countries such as the Philippines, Thailand, and Indonesia since the 1980's. In North America, the principal examples include Maine lobster, Massachusetts hook sector allocation, and the Bay of Fundy Marine Resources Centre of Nova Scotia. The following descriptions are taken from the Cape Cod Commercial Hook Fisherman's Association website (http://www.ccchfa.org/index.php).

Maine Lobster

Since 1954, the Maine Lobsterman's Association (MLA) has facilitated a lasting relationship between local fisherman, the surrounding community and the ocean leading to the successful management of the lobster fishery. In 1995, the Maine Legislature enacted a co-management law in the lobster fishery, dividing it into seven distinct lobster zones which are managed by lobster zone councils. In the new co-management plan, the fishermen collaborate with the government by participating on the lobster zone councils and aiding in the creation of new management practices. The MLA played a crucial role in establishing the lobster zone councils which are managed under the supervision of the Maine Department of Marine Resources. The commitment, unity and support from the members of MLA have driven the success of the lobster fishery and distributed power more equitably throughout the industry.

Massachusetts Hook Sector Allocation

The Georges Bank Cod Hook Sector allows hook and line fishermen to be engaged in creating rules and regulations for their sector. The Sector is allowed up to 20% of the total allowable catch (TAC) for Georges Bank cod, and the members determine how to harvest the cod. This prevents the race for fish, in which fishermen rush out at once and catch the fish in a short period of time, rapidly catching the TAC and potentially glutting the market. The Sector also provides opportunities for fishermen to work with scientists and observers to conduct research and monitor their bycatch, proving that they

are capable of handling the responsibilities of management. While the Sector is a relatively new concept, it has unified fishermen in the area, connected the community with the fishermen, promoted sustainable fishing practices and formed a bond of trust between fishermen and the scientific community.

Bay of Fundy Marine Resources Centre, Nova Scotia

The Bay of Fundy Marine Resource Centre (MRC) was established in 1997 in response to the massive decline in groundfish stocks off the coast of Nova Scotia. Fishermen, communities and scientist work in cooperation to protect the declining fish populations while providing opportunities for the fishermen to maintain their livelihood. The "Local Stocks and Local Knowledge" project allowed fishermen to work alongside scientists to discover fish spawning areas which fostered a relationship based on trust between the two groups. Traditionally fishermen and scientists have not seen eye to eye on many issues, but given the chance to work together, alliances are formed, which facilitates greater communication and promotes better science.

Community Development Quotas (CDQs) are another form of community-based fishery management. There are few examples of Community Development Quotas (CDQs) in the U.S., in which shares of the allowable catch are granted to isolated, rural communities primarily as an economic development tool. Such communities that border the Bering Sea have recently become beneficiaries of community development quotas (CDQs). Fish harvested off these coasts include Walleye pollock, Pacific halibut, sablefish, other groundfish and crab. Unfortunately this area of ocean has been under open-access management prior to establishment of the CDQ program, and so the effects of this program are largely unknown. Stock levels are also uncertain in these areas, although bycatch has been reduced from previous levels.

Established in the early 1990s, CDQs seek to augment economic opportunities for communities that lack full-time employment opportunities and to also develop the community as a whole. Ideally the initial profits would be reinvested in fishery-related activities (providing much needed capital), then later possibly allowing for investment of

other community development projects. The program here in Alaska also seeks to provide the resources for these communities to have more freedom over choosing their future, and preserving their subsistence lifestyles.

TURFs

Territorial Use Right Fisheries exist throughout the world. The principal examples are for benthic species in Mexico (where the government has granted sea area concessions to harvest cooperatives for lobster off Quintana Roo coast and in the Sea of Cortez), Chile (for sea urchin), and other countries with strong traditions of local marine tenure (e.g., Indonesia, Philippines, Vanuatu, etc.). Japanese fishing cooperatives have also been highly successful at sustaining catches and mitigating for habitat damage over several decades.

Benthic (shellfish) fisheries are substantially different from finfish fisheries. Since these species are sedentary in rocky coastal areas or sandy sediments, fishing practices and technology tend to be quite idiosyncratic. For example, lobster species are harvested with special cages designed to exploit lobster behavior (e.g. Ford, 2001; Harper and Muller, 2001). Also, the spatial distribution of a species might change year by year and be heterogeneous because of fluctuations in recruitment (e.g. Biron et al., 2004; Campbell et al., 1998; Prince et al., 1998). Such fisheries often lend themselves to TURF management.

The artisanal Chilean sea urchin fishery has been regarded as a critical social sector in Chile for several reasons. It has provided the substantial amount of high-value sea products. As of 1995, the artisanal fishery sector supplied 22% of total exported value of fishery products (Bernal et al., 1999). Also, it was reported that 446,500 out of about 516,000 all fishery-related jobs were offered in the artisanal fishery sector according to a 1992 survey (Bernal et al., 1999).

The Chilean government renovated its fishery policies by introducing the Fishing and Aquaculture General Act (FAGA) in 1989. Under a specific management plan, every member of a community was allowed to harvest multiple benthic resources,

including highly valuable "loco" clam (*Concholepas concholepas*), within a designated area. A fairly substantial annual fee and some technological restrictions were required (Bernal et al., 1999).

Catch per unit effort (CPUE) for loco, sea urchin, and limpets significantly increased under TURF management. Also, the mean sizes of these three species within TURFs were significantly larger than in open-access areas. Castilla et al. (1998) compared the data from four different "sindicatos" (co-management entities) and also concluded that the best-organized one (El Quisco) enjoyed the highest catches and value for loco. It also had the highest CPUE and mean size. On the other hand, poorly-managed sindicatos with open-access policies fared much worse.

The effects of management quality can also be seen in the spiny lobster (*Panulirus argus*) fishery in Punta Allen, Mexico (Castilla and Defeo, 2001). This geographical concession fishery (TURF) has enjoyed a relatively stable harvest and generated unusually high levels of value under strict self-regulation such as season, size, and area allocation to each fisher. Castilla and Defeo (2001) concluded that the keys to its success are: 1) since the lobster fishery is the only notable economic engine in that remote area, people are highly motivated to manage the resource sustainably; 2) its magnitude is small enough to ensure the enforcement of rules; and 3) the TURF system appears to be suitable for the lobster's spatial distribution dynamics (i.e., reproduction, migration, grow-out, etc). The Mexican spiny lobster fishery was recently certified as sustainable by the Marine Stewardship Council.

INDIVIDUAL TRANSFERABLE QUOTAS OR FISHING QUOTAS

When harvest privileges are held by individuals, they are termed Individual Transferable Quotas, or ITQs (also known as Individual Fishing Quotas, or IFQs).[2] ITQs represent individual percentage shares of scientifically determined allowable catches, thus removing the need to race to catch fish before one's competitors do.

[2] Individual Quotas (IQs), Individual Fishing Quotas (ITQs), and Individual Transferable Quotas (ITQs) are all similar management structures. IQs assign a specified portion or percentage of the Total Allowable Catch to a fisherman. If the individual quota is tradable or can be sold to others, then it is an ITQ or an IFQ.

ITQs have been adopted in several hundred fisheries in over 16 countries, and the results have generally been very positive for both conservation and income generation. We believe that having an ITQ changes the focus of fishermen from maximizing one's share of allowable catch (which is uncertain under open or limited access programs) to maximizing the value derived from a secure share of the total allowable catch. Following ITQ implementation, it has been suggested that fishermen in the British Columbia halibut fishery now time their halibut fishing trips according to expected ex-vessel prices (*11*), and Bering Sea Pollock fishermen have altered their fishing to achieve a per unit increase in value (*12*). Freed of the need to compete with other fishermen to catch as many fish as fast as possible, a fisherman can tune his/her operation to maximize profits by fishing at times when market prices for his catch are high or when product quality is high. Fishermen can also reduce costs by trading his/her large boat for a smaller vessel more closely aligned with his/her fish quota. This can result in more income with less investment, and cleaner, less destructive fishing.

In the vast majority of ITQ fisheries that have been established around the world, the "race for fish" has ended, profits have increased, and environmental performance has improved substantially. For example, ITQs transformed the Alaskan and British Columbia halibut fishery from a five day frenzied race, prosecuted by a bloated and overcapitalized fleet, into a much less intense fishery delivering fresh fish nearly continuously throughout the year. In British Columbia, ex-vessel halibut prices[3] rose by 40% following ITQ introduction and total ex-vessel revenues[4] increased by an average of Can$5,8 million per year (*12*). ITQs, introduced in stages from 1976 to 1990 in various Icelandic fisheries, greatly reduced both fishing effort and vessel numbers and transformed a previously loss making industry into a profitable one: In 1988, profits as a percentage of gross revenue for all Icelandic fisheries was –5%, compared to +12% in 2002 (*13*). Similar results apply to the New Zealand fisheries, where ITQs were introduced between 1982-1984, as well as other ITQ fisheries around the world. The value of New Zealand fisheries doubled in real terms between 1990 and 2000, much of which is attributable to having dedicated use privileges in the form of ITQs, as well as

[3] Ex-vessel prices are prices paid to fishermen for seafood products right off the boat.
[4] Ex-vessel revenues are revenues obtained from the sale of seafood products right off the boat.

gains from trade (*14*, *15*)[5]. After its transition to ITQs, the multi-species groundfish fishery off British Columbia, Canada, improved compliance with catch limits and virtually eliminated bykill and unaccounted fish mortality (*12*). This fishery also substantially improved its economic performance. Ex-vessel prices increased by US$0.32 per pound for Pacific Ocean Perch and US$0.37 per pound for lingcod and the landed value of the total catch increased by $13 million (*12*).

ITQs generally result in improved environmental performance, with respect to compliance with total allowable catch levels, bykill reduction, and other measures. Rather than opposing conservation measures and complaining about the lack of adequate research, ITQ holders in some ITQ fisheries have actually invested in conservation, research, and management[6] (*13*). Fisheries become profitable and able to thrive, even without indirect government subsidies. Increased profitability may reduce opposition to conservation measures, because under an ITQ regime they may be perceived as investments in the future of the fishery, producing a flow of increased benefits to the ITQ holder. Also as a result of increased profitability, ITQ fisheries are often able to pay management costs formerly paid by the government. For example, New Zealand fisheries achieve almost full cost recovery and now pay annual fees that cover nearly all management and research costs (*15*).

Despite strong evidence that secure access to a guaranteed share of sustainable catch cures many of the environmental and economic ills present in modern fisheries, progress toward adopting these measures has been disappointingly slow. In some countries, there is a deeply-felt concern about the allocation of exclusive use of resources that have traditionally been open to everyone. These sentiments must be balanced against the economic, biological and environmental gains of dedicating use privileges. Other more specific concerns focus on the potential difference between individual and collective economic gains or losses, the potential for economic windfalls resulting from the sale of harvest privileges, the possibility of excessive levels of industry consolidation,

[5] Value is the market capitalization (quota price*TAC), which summarizes gains from trade and ownership (*14*).

[6] For example, in New Zealand, quota shareholders have asked for voluntary reductions in TAC to improve population status and have funded consultants to carry out research related to population assessments, enhancement programs, bathymetric surveys, etc.

and, related to all this, perceived inequitable distribution of harvest privileges. However, both theory and experience shows that it is possible to design programs in such a way to adequately address these concerns. For example, Alaskan fishermen insisted on a requirement that ITQ holders be on board the vessel to prevent a fishery dominated by "absentee landlords". They also implemented a cap on the maximum amount of ITQ that an individual or firm can accumulate (one percent of the allowable catch) to prevent a large change from a fleet dominated by small businesses to one dominated by large firms. In *Sharing the Fish*, the National Academy of Sciences recommended ways to allocate ITQs more fairly and to address other concerns (*13*). But fear of change and deeply held concerns, coupled with a lack of funding for education, consensus building, and implementation, continue to block the road to a more rational way of managing precious marine resources. This applies especially to less developed countries which, in addition to the above, face the difficulties of limited alternative employment opportunities, inadequate financial resources, and in many cases, the lack of administrative and fisheries management capacity and infrastructure.

Literature Cited

1. D. Pauly, V. Christensen, J. Dalsgaard, R. Froese, F. Torres Jr., *Science* **279**, 860 (1998).
2. R. Arnason. 1991. "Efficient Management of Ocean Fisheries", *European Economic Review* 35: 408-17.
3. W. Schrank, R. Arnason and R. Hannesson, *The Cost of Fisheries Management*, Ashgate Aldershot (2003).
4. Food and Agriculture Organization Fisheries Department, *The State of World Fisheries and Aquaculture 2002* (FAO Publication, 2002; http://www.fao.org/docrep/005/y7300e/y7300e00.htm).
5. PEW Oceans Commission, *America's Living Oceans: Charting a Course for Sea Change* (PEW report, 2003; http://www.pewoceans.org/oceans/index.asp).
6. M. Milazzo, "Subsidies in World Fisheries: A Reexamination" (World Bank Tech. Pap. No. 406, Fisheries Series, Washington D.C., 1998).
7. "Hard Facts, Hidden Problems: A Review of Current Data on Fishing Subsidies," (World Wildlife Fund Tech. Pap., 2001; http://www.worldwildlife.org/oceans/hard_facts.pdf).
8. G. Hardin, *Science* **162** 1243 (1968).
9. *Afkoma Sjávarútvegs*, (Statistics Iceland, Reykjavik 2003).
10. J. Wilen in *Evolving Property Rights in Marine Fisheries* D. Leal, Ed. (PERC, Bozeman, in press) Prepared for PERC's 13th Political Economy Forum: Evolving Property Rights in Marine Fisheries, Big Sky Montana, March 21-24, 2002.

11. K. Casey, C. Dewees, B. Turris, J. Wilen, *Marine Resource Economics* **10**, 211 (1995).
12. S. Nelson, "British Columbia Individual Vessel Quota Experience: Lessons for the West Coast Trawl Groundfish Fishery", unpublished data.
13. *Sharing the Fish: Towards a National Policy on Individual Fishing Quotas*, (National Academy of Sciences, Washington D.C., 2003).
14. J. Sanchirico, R. Newell, "Catching Market Efficiencies: Quota-Based Fisheries Management" (Resources for the Future, 2003; http://www.rff.org/Documents/RFF-Resources-150-catchmarket.pdf)
15. J. Sanchirico, personal communication.
16. R.E. Johannes, Annu. Rev. Ecol. Syst., **33**, 317 (2002).
17. M. King, U. Faasili, *Fisheries Management and Ecology*, **6**, 133 (1999).
18. G. R. Russ, A. C. Alcala, *Coral Reefs*, **18**, 307 (1999).
19. Pacific Fisheries Management Council, *Amendment 16-2: Rebuilding plans for darkblotched rockfish, Pacific ocean perch, canary rockfish, and lingcod. Draft environmental impact statement and regulatory analyses* (2003, http://www.pcouncil.org/groundfish/gffmp/gfa16-2.html).
20. U. S. General Accounting Office, *Report to House Committee on Resources: Commercial Fisheries, Entry of Fishermen Limits Benefits of Buyback Programs* (GAO/RCED-00-120, 2000, http://frwebgate.access.gpo.gov/cgi-bin/oseftp.cgi?Ipaddress=162.140.64.21&filename=rc001.pdf&directory=/diskb/wais/data/gao).
21. Conservation International, Conservation Programs: Policy and Economics (http://www.conservation.org/xp/CIWEB/programs/policy_economics/policy_economics.xml#rep; 2003).
22. D. Pauly, *The Sea Around Us Project Newsletter* (Issue 12, July/August 2002; http://www.conservation.org/xp/CIWEB/programs/policy_economics/policy_economics.xml#rep).
23. At-Sea Processors Association, *A Case Study of Fish Harvesting Cooperatives: The Pacific Whiting Conservation Cooperative (PWCC)* (http://www.atsea.org/concerns/pwcc.html).
24. *Marine Fisheries and the Law of the Sea: A Decade of Change – Special Chapter (revised) of the State of Food and Agriculture* (Food and Agriculture Organization, Rome, 1993).