

# WATER SUPPLY VULNERABILITIES IN THE SACRAMENTO/ SAN JOAQUIN RIVER SYSTEM

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## OVERSIGHT HEARING

BEFORE THE  
SUBCOMMITTEE ON WATER AND POWER  
OF THE  
COMMITTEE ON RESOURCES  
U.S. HOUSE OF REPRESENTATIVES  
ONE HUNDRED NINTH CONGRESS  
FIRST SESSION

Thursday, October 20, 2005

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**OVERSIGHT HEARING ON “WATER SUPPLY  
VULNERABILITIES IN THE SACRAMENTO/  
SAN JOAQUIN RIVER SYSTEM.”**

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**Thursday, October 20, 2005  
U.S. House of Representatives  
Subcommittee on Water and Power  
Committee on Resources  
Washington, D.C.**

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The Subcommittee met, pursuant to call, at 1:03 p.m. in Room 1324, Longworth House Office Building, Hon. George Radanovich [Chairman of the Subcommittee] presiding.

Present: Representatives Radanovich, Napolitano, Cardoza, Miller, Costa and Pombo.

**STATEMENT OF THE HON. GEORGE RADANOVICH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA**

Mr. RADANOVICH. Good afternoon. The oversight hearing by the Subcommittee on Water and Power will come to order. The Subcommittee is meeting today to hear testimony on the topic of water supply vulnerability in the Sacramento/San Joaquin River System.

Today’s hearing is about learning from the past and planning for the future. Every day, we continue to hear about the impacts of Hurricane Katrina on Louisiana and the Nation. Yet, our home region of California could experience an even bigger natural disaster of monumental proportions.

An earthquake or a massive flood in the Sacramento and San Joaquin Basins could simply erase centuries of progress and leave a dire future for our entire State. These natural disasters are nothing new to California over geologic time, but what has changed is how we can better shape our own destiny to withstand Mother Nature’s constant assaults.

Californians started this effort with the creation of the Central Valley and State Water Projects, a series of storage reservoirs and conveyance systems designed to control damaging floods, and provide water and power to our family farms and our cities.

Levees on the Sacramento and San Joaquin Rivers, and in the Delta, have also been constructed to control floods. Yet, for each measurable amount of progress, we can also look back at mistakes.

As recently as 1997, we watched as levees broke and people died because the Endangered Species Act put the Elderberry Bark

Beetle habitat before humans. Today, we continue to see how levee repairs are delayed and costs soar, due in part to the Endangered Species Act.

In addition, and sadly, we see that meeting our storage infrastructure needs continue to lag behind our rapidly growing demand, and as a result, we face a major water crisis. Meanwhile, Sacramento continues to have the worst flood risk in our country.

As we witnessed last year with the Jones Tract levee failure, we depend on a very fragile, but integrated, water supply system. Those of us south of the Delta were impacted by this. So it is safe to say that what happens in the Delta doesn't necessarily stay in the Delta.

Like Hurricane Katrina, the Jones Tract situation is a wakeup call that should not be ignored. The goal of today's hearing is to determine the very extent of our vulnerabilities, and more importantly, to help find solutions that all stakeholders can participate in, whether it is more infrastructure funding, more levee improvements, more storage, more planning and coordination, and/or common-sense Endangered Species Act changes, we ought to keep everything on the table.

We should find out what is working and what is not. Simply saying no is not going to work. We owe current and future generations of Californians the very best in protecting their lives, their property, and their way of life.

We may not find all the answers today, but I hope that we can begin to agree on an extensive road map to protection. We are fortunate to have some of the very best and brightest testifying before us today to help us find those answers.

I look forward to hearing the testimony and working with them and my colleagues in this important pursuit, and I now recognize my distinguished Ranking Member, Grace Napolitano, for any statement that she may have. Grace.

[The prepared statement of Mr. Radanovich follows:]

**Statement of The Honorable George Radanovich, Chairman,  
Subcommittee on Water and Power**

Today's hearing is about learning from the past and planning for the future. Every day, we continue to hear about the impacts of Hurricane Katrina on Louisiana and the nation. Yet, our home region of California could experience an even bigger natural disaster of monumental proportions. An earthquake or massive flood in the Sacramento and San Joaquin basins could simply erase centuries of progress and leave a dire future for our entire State.

These natural disasters are nothing new to California over geologic time, but what has changed is that we can better shape our own destiny to withstand Mother Nature's constant assaults. Californians started this effort with the creation of the Central Valley and State Water Projects, a series of storage reservoirs and conveyance systems designed to control damaging floods and provide water and power to our family farms and cities. Levees on the Sacramento and the San Joaquin Rivers and in the Delta have also been constructed to control floods.

Yet, for each measurable amount of progress, we can also look back at our mistakes. As recently as 1997, we watched as levees broke and people died because the Endangered Species Act put the elderberry bark beetle before humans. Today, we continue to see how levee repairs are delayed and costs soar due, in part, to the ESA. In addition—and sadly—we see that meeting our storage infrastructure needs continues to lag behind our rapidly growing demand. As a result, we will face a major water crisis. Meanwhile, Sacramento continues to have the worst flood risk in our country.

As we witnessed last year with the Jones Tract levee failure, we depend on a very fragile but integrated water supply system. Those of us south of the Delta were

impacted by this, so it's safe to say that what happens in the Delta doesn't stay in the Delta. Like Hurricane Katrina, the Jones Tract situation is a wake-up call that shouldn't be ignored.

The goal of today's hearing is to determine the very extent of our vulnerabilities and, more importantly, to help find solutions that all stakeholders can participate in. Whether it's more infrastructure funding, more levee improvements, more storage through CALFED, Folsom improvement or Auburn construction, more planning and coordination and/or common sense Endangered Species Act changes, we ought to keep everything on the table. We should find out what's working and what's not. Simply saying "no" is not going to work. We owe current and future generations of Californians the very best in protecting their lives, their property and their way of life. We may not find all the answers today, but I hope we can begin to agree on an extensive roadmap to protection.

We are fortunate to have some of the very best and brightest testifying before us today to help us find those answers. I look forward to hearing their testimony and working with them and my colleagues in this important pursuit.

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**STATEMENT OF THE HON. GRACE F. NAPOLITANO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA**

Mrs. NAPOLITANO. Thank you, Mr. Chairman, and thank you for your remarks that are so true. I agree with all that you have stated. If there is one positive effect of the recent Gulf Coast hurricanes, it is that we are now giving more attention to the fragile levee system in the Sacramento/San Joaquin Delta.

And that despite all the work that we have done on CALFED, and other California issues at this level, I think we all will agree that the Delta levees have been neglected at many levels by all governments.

When I visited the Delta in 2003, I was struck how fragile, how vulnerable, these—well, I heard 600 and 700 miles of the Delta levees. I will take either one of them, because even the small waves from the small boat that we were in was washing away the soil from the soil levees, and it looked to me like it was just waiting to have something happened.

And as I have read some of the testimony in the reports about the condition of the levees, it is frightening and horrifying to learn that a major earthquake could liquify and pretty much wipe out the Delta as we know it, and that it would not take months, but years, to recover, and the expense would be so prohibitive that it really would put a dent in many budgets.

And hindsight tells me that we should have paid more attention to the levee system when we authorized CALFED, and everybody was more focused on new water projects, and the many other elements of CALFED, and now I hope that it is really not too late to turn our attention to the levee system, and focus on that to fully understand what we need to do collectively to protect our water supplies.

And I am talking about not just the north, but also the south, who also benefits from those water conveyances. So with that, Mr. Chair, thank you very much, and I look forward to the testimony from the witnesses.

Mr. RADANOVICH. Thank you, Grace. I appreciate that. We now recognize the esteemed Chairman of the Resources Committee, Mr. Pombo. Richard, welcome.

**STATEMENT OF THE HON. RICHARD W. POMBO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA**

Mr. POMBO. Well, thank you, and I ask unanimous consent that my statement be included in the record. I know that we want to get to the witnesses as quickly as we possibly can. I want to thank Chairman Radanovich and Ranking Member Napolitano for holding this hearing.

Obviously this is an issue that is extremely important to me, as I represent a good part of the Delta, and that has been a major issue. When you talked about Jones Tract, that was in my district, and something that we are still dealing with.

So I thank you for holding this hearing. I look forward to hearing the testimony of these great witnesses, and I yield back.

[The prepared statement of Mr. Pombo follows:]

**Statement of The Honorable Richard Pombo, Chairman,  
House Committee on Resources**

I commend Subcommittee Chairman Radanovich for holding this important hearing. Mr. Chairman, I would like to begin by welcoming my constituent Chris Neudeck, who is testifying before us today. Mr. Neudeck is a leader in the Delta levee world. He has 24 years of experience as a levee engineer, and I look forward to his valuable testimony, and thank him for being here today.

We are all aware that Sacramento and the Delta are some of the most flood prone areas in the Nation. Under current conditions, it is not a question of "if" our levees fail, but "when." This scenario is not acceptable.

Protecting Californians in Sacramento and the Delta is not a partisan issue. Senator Feinstein and I sent a letter to the Army Corps of Engineers about protecting the Delta levees immediately after Hurricane Katrina. We have been working together on getting the Corps to conduct a study to determine where to fix the levees and to dredge the channels. And today, the Senator and I just sent a letter to President Bush asking him to include funding for \$50 million in levee work in his next supplemental appropriations request.

As it relates to levee maintenance, it is clear that the Endangered Species Act has driven up repair costs. Thirty years ago, the cost per linear foot of levee repairs was less than \$300. Today, the cost is upwards of \$5000 per linear foot due, in part, to environmental mitigation, permitting and delays associated with the Endangered Species Act. No one is suggesting that the Act shouldn't be implemented, but we should put some common sense into making sure human safety is part of the equation. Otherwise, we are destined to repeat the Arboga levee disaster, where three people died in 1997 because endangered beetle habitat delayed levee maintenance.

Water storage is another key piece of this puzzle. Storage has worked to control many floods in the past, but there's more we can do in this area. We should keep everything on the table as we look to flood-proof our region.

Mr. Chairman, I once again thank you for holding this hearing. The flood problems in our region will not be solved overnight, but these crucial first steps and this hearing will only help our cause.

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Mr. RADANOVICH. Thank you, Mr. Chairman. There being no objection, so ordered on the unanimous consent request. Mr. Miller.

**STATEMENT OF THE HON. GEORGE MILLER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA**

Mr. MILLER. Thank you, and thank you for holding these hearings. I share the concern of my colleagues on the issues of the delta and the safety of the deltas, and the need to assess that safety, and get on—we all signed a letter saying that we would like to get on with some of this work in this year's appropriations bill.

But I also would like to reserve the right to raise some questions with respect to what is going on with the water quality in the



Delta, and I see now that the State has issued a 14 point response, and I am trying to figure out how these things are sequenced when we have not completed the science, and people are telling us that they don't know the answers. This is the worst thing that they have seen in years.

And when we asked them before what was going on, they said that they don't know, and now we have a 14 point response. So I would appreciate it if we could address that later on, and I hope to be able to do that, and thank you for the hearings.

Mr. RADANOVICH. Thank you, Mr. Miller. I ask unanimous consent that the gentleman from California, Mr. Lungren, be allowed to join us on the dais, and participate in today's hearing. Hearing no objection, so ordered. Dan, welcome to the Subcommittee.

Mrs. NAPOLITANO. I object.

Mr. RADANOVICH. You object? We have a problem here. Dan, welcome to the Subcommittee.

Mr. LUNGREN. Thank you very much, Mr. Chairman. As someone who lives in the area affected, I appreciate the fact that you are holding these hearings. It seems the only time we really worry about floods is when we are in the midst of a flood; and the only time we worry about water storage is when we are in the midst of a drought, and we need to have visionary thinking.

I appreciate this. I look forward to hearing from our witnesses here. Thank you very much for allowing me to sit on the dais.

Mr. RADANOVICH. Thank you, Mr. Lungren. Good to have you here. Dennis, how are you doing?

**STATEMENT OF THE HON. DENNIS CARDOZA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA**

Mr. CARDOZA. Very good. Thank you, Mr. Chairman, for recognizing me and for holding these hearings. I, too, have a statement that I would like to have read into the record. I would like to make two points, however.

We cannot accept a band-aid approach to the Delta levee system. We have to have a comprehensive approach that truly deals with the magnitude of the crisis that we could see with a disaster here.

If we see a disaster in Mr. Miller's district with an earthquake on the Hayworth fault that would liquify the Delta levees, or cause liquefaction in that area, we have devastation on a scale that would make the horrible tragedy of Katrina really pale in comparison in some ways.

And it could happen much quicker because of the lightning quickness of the floods. We could see some incredible devastation very quickly to our urban areas on the heels of a major disaster in a very populated area, the Bay Area.

We are talking about hundreds of thousands of people in New Orleans, and Mississippi, and we are talking about millions of people in the Bay Area and in the upper Central Valley region, north of Stockton.

There is one other point though that I want to make. Some emergency officials came to see me about last week, and that is that one of the things that plagued the response in Katrina was the lack of communication, and inoperability of the first responder units.

The police and fire officials from Stockton and Modesto have been coming to see me, and we have to have the opportunity to talk more about this, Mr. Chairman, because it affects your district, as well as Mr. Pombo's.

But they have been discussing the belief that my area and your area, Modesto and just to the south, would be the Baton Rouge area where staging would occur if in fact one of these floods and devastation happened in the Bay Area, and we have a situation with the levees.

And that they have no ability to communicate amongst themselves between police, fire, and the military, that would be leading the response. The Highway Patrol can't communicate with each other.

It has been a problem that we have all discussed, and you and I have discussed that in the past, and it is something that probably should be also discussed as part of this levee discussion as well, because it really is not just rebuilding the levee, but how we respond to a disaster in that case as well. I thank you for the hearing.

Mr. RADANOVICH. Thank you, Mr. Cardoza. I appreciate your thoughts, and look forward to working with you on extensions of damage that could happen as a result of earthquakes as well.

I want to introduce our first panel of witnesses. Mr. Chris Neudeck, owner and consulting engineer of Kjeldsen, Sinnock, and Neudeck, in Stockton, California; The Honorable Mike Chrisman, Secretary of the California Resources Agency; Mr. David Guy, Executive Director of the Northern California Water Association; Mr. Barry Nelson, Co-Director of the Western Water Project of the Natural Resource Defense Council; Mr. Dennis Majors, Program Manager of the Metropolitan Water District of Southern California.

Gentlemen, welcome to the Subcommittee. I appreciate you making a trip back here to Washington, D.C. to deliver your valuable testimony. We will be using the five minute clock here, and I won't adhere to it strictly, but please note that your written statement is submitted for the record, and feel free to be extemporaneous in your remarks if you would like.

I think we will start from the right. Mr. Neudeck, welcome to the Subcommittee. You may begin your testimony.

**STATEMENT OF CHRIS NEUDECK, OWNER/CONSULTING ENGINEER, KJELDSSEN, SINNOCK AND NEUDECK, INCORPORATED, STOCKTON, CALIFORNIA**

Mr. NEUDECK. Good afternoon. I thank you for this opportunity, Mr. Chair, and committee members. Just so you are aware, I am a registered civil engineer. I have been practicing in the field of water resources engineering for the last 20 plus years, primarily focused in the San Joaquin Delta.

We refer a lot to the Jones Tract event. I heard it throughout the testimony and in today's briefing papers, and I had the daunting challenge, I guess, to be the one in the field reclaiming the Jones Tract event, and working with the Department of Water Resources, one of the first responders.

My firm, Kjeldsen, Sinnock and Neudeck, has been in business for 50 years, and we have been doing similar type work in the Delta ever since the time of our establishment. I am going to walk

you through my testimony pretty quickly today, focusing really on two areas.

One, Federal funding and an infusion of funds into an ongoing State program, as well as disaster assistance. Just to give you a little background, my prepared testimony walks you through the history of the Delta, and some of the makeup of it.

But in 1992, the State legislature filed and passed what is known as the Delta Protection Act. In that process, they created what is known as the primary and secondary zone. In my exhibits, you will see that, but the majority of the Delta as we know it, the legal Delta, is in the primary zone.

And I want to distinguish between the primary and secondary zone for one reason. We hear a lot about urbanization of the Delta. The majority of the Delta cannot be urbanized as a result of this legislation.

The primary zone is focused and reserved primarily for an Ag core. There is a whole bunch of other uses that we can go into later, but there is no urbanization in the primary zone.

With regards to the State and Federal interests in levee programs, up until the mid-1980s, there really wasn't a whole lot of activity with regards to assistance and how levees were constructed.

The locals constructed the majority of the levee systems out there, and were maintaining them. In the mid-1980s, several disasters occurred, and we started to see programs develop.

In mid-1984, we passed what is known as the Delta Levees Subventions Program. That program has features in it that allows for up to 75 percent reimbursement to the local reclamation districts for cost sharing the levee maintenance.

It has been that program that has probably kept the delta in its current state. From 1984 on, a lot of the incidents of flooding in the delta has been reduced. You hear these situations where there has been 160 levee failures in the last century.

Well, most of those predate 1984. Now, we haven't completely reduced levee failures, but we certainly reduced the risk to levee failures. My goal today here is to try and limit the amount of money that moves into studies.

I know that is the feature of government, is to study and understand the problem before we move forward. But the Corps of Engineers has prepared details for levee rehabilitation and have prepared actual cross-sections, which is known as PLA499.

Those particular cross-sections would enable the local reclamation district to construct to that standard, and achieve a much higher level of protection, but at the same time it would not require any additional studies.

That particular standard has been referred to on a number of occasions. Our CALFED Bay Delta Program has referred to it, but we don't have the funds in order to undertake that work.

The message that I am trying to send today is to put dollars into dirt, and not dollars into studies. We seem to find the money for the studies. We don't seem to find the money for the actual work itself.

What I am recommending is that—and this is a little bit off the mark where we typically get monies, and that is that the Bureau

of Interior actually be part of the levee program, and actually look to them to contributing to our levee subventions program.

We would be looking to a Federal contribution of \$20 million; \$10 million for the local cost-sharing program, and \$10 million for the State special projects program. Moving quickly alone, the other area that I would like to address is the emergency response.

I think we are all quite familiar with emergency with the recent hurricanes. The one thing we cannot do is we cannot debate policy at the time of emergency response. I think it is important that we understand that disaster is a common enemy, and I think we need to move forward and address the emergency quickly and rapidly, and arrest it, and contain it, and restore order as soon as possible.

These local reclamation districts do not have the ability to undertake restoration of a flooded island. The restoration of Jones Tract was on the order of \$70 million. That is two reclamation districts. So that is 12,000 acres.

These reclamation districts typically have a budget of around \$200,000. So you can see the disparity there. but the importance to the overall system is incredible. The final area is just to talk about whether or not to save the Delta.

I think that quite often we talk about they isolated facility not through Delta. It is very important to understand the relationship between the islands, and if we lose one, we lose them all. I will leave it at that, and stay within my time frame.

[The prepared statement of Mr. Neudeck follows:]

**Statement of Christopher H. Neudeck, Owner/Consulting Engineer,  
Kjeldsen, Sinnock & Neudeck, Inc.,**

I am Christopher H. Neudeck, a California Registered Civil Engineer. I have worked for over twenty-four (24) years as an Engineer for various Reclamation Districts in the Sacramento/San Joaquin Delta. My experience includes levee design, floodfighting, levee break repair, dewatering, levee rehabilitation and improvement and routine levee maintenance.

**Sacramento/San Joaquin Delta**

The Sacramento/San Joaquin Delta is the tidal area where the Sacramento and San Joaquin Rivers and their tributaries meet Suisun Bay as part of the San Francisco Bay Delta Estuary, the largest estuary on the West Coast of the United States. The Delta comprises more than 738,000 acres in five counties. The Delta's 700 miles of waterways surround more than 60 leveed tracts and islands where land elevations vary roughly from more than ten (10) feet above sea level to as much as twenty (20) feet below sea level. The lowest lands are in the agricultural portions of the western Delta where pockets of organic soil continue to subside primarily due to oxidation of peat. The Delta is an extremely fertile and productive agricultural area, its 700 miles of meandering, sheltered waterways provide for a recreational wonderland, its channels serve as the hub of the deliveries of water from north to south and store and provide for the capture of surplus natural flows, and it is the State's most important fishery habitat. The Water Education Foundation reports an estimated 25 percent of all warm water and anadromous sport fishing species and 80 percent of the state's commercial fishery species live in or migrate through the Delta. Contained within the Delta are the Cities of Antioch, Brentwood, Isleton, Pittsburg and Tracy and numerous unincorporated towns and villages. Major cities partly within the Delta are Sacramento, Stockton, West Sacramento and Lathrop. Attached hereto is Table 7 from the 1993 Delta Atlas prepared by the California Department of Water Resources which provides Delta statistics

Since 1990, urban development has greatly expanded. Recreational uses have also expanded but at a lesser rate. The conversion of Delta agricultural lands to other uses includes major areas set aside for wildlife habitat. In 1992, the State established the Delta Protection Commission which essentially precluded urban development within the "Delta Primary Zone" shown on the attached map. This area which

is primarily devoted to agriculture has the least ability to pay and contains some of the more challenging levee problems.

**Recognition of Need for Delta Levee Action**

Although the State and Federal interest and need for action to upgrade Delta levees has been clear for many years, significant State and Federal assistance has been basically limited to disaster assistance until 1984 when the State committed roughly Ten Million Dollars per year to the State Delta Levee Maintenance Subvention Program. One-half of the funds went to special projects of the California Department of Water Resources and the other one-half to a local cost-share program where after the local district expended \$1,000.00 per mile of levee the State would reimburse up to 75% of the cost. Due to limited availability of funding, the State failed to provide its full cost share and the typical reimbursement has been about 50% to 60%. Funding for this critically important program will end on June 30, 2006.

Although the federal interest in agriculture, commercial and recreational navigation, the Stockton and Sacramento Inland Ports, highways, railroads, electrical transmission lines, natural gas storage, utility pipelines, anadromous fish, migratory waterfowl, and fresh water supplies as related to the Delta is and has been clear, the non-disaster federal contribution to maintenance and rehabilitation of the non-project levees in the Delta has been directed primarily to studies. The U.S. Army Corps of Engineers Draft Feasibility Report and Draft Environmental Impact Statement - October 1982 reports that the Sacramento-San Joaquin Delta Investigation began in 1962. To date the studies have failed to produce any physical work.

**There Is A Real Need To Secure Funds That Will Result in Immediate Placement of Dirt and Rock On Existing Levees To Reduce The Risk of Levee Failure**

The most effective way to accomplish this result is to contribute funding to the already ongoing State Delta Levee Maintenance Subvention Program which is administered by the State Reclamation Board through the California Department of Water Resources and California Department of Fish and Game. The program allocates funding for reimbursement to local agencies based on categories. Category 3 includes expenditures to achieve the Short Term Hazard Mitigation Plan Standards and Category 4 includes expenditures to achieve the U.S. Army Corps of Engineers PL 84-99 Delta levee standards for agricultural levees or the comparable Bulletin 192-82 State Standards.

Attached hereto is a sketch depicting the PL84-99 Corps of Engineers Delta levee standards. Most notable is the variable landside levee slope or "backslope" which is dependent upon the depth of peat. Achieving the PL 84-99 Delta agricultural levee standards is feasible and would reasonably reduce the risk of levee failures.

**Recommendation**

It is recommended that federal funding be directed through the U.S. Department of Interior Bureau of Reclamation to supplement the State and local funding of the State Delta Levee Subvention Program and to supplement the State Delta Levee Special Project Program.

A federal contribution of Ten Million Dollars per year should be made to each of the two Delta levee programs commencing as soon as possible to assure that the programs will continue past June 30, 2006.

The contribution to the State Delta Levee Subvention Program could be limited to achieving the Category 3 Short Term Hazard Mitigation Standards and Category 4 PL 84-99 Corps of Engineers Delta Levee Agricultural Standards with the proviso that federal funds will be used with state funds so as to result in the local cost share for such categories of no more than ten (10) percent. The match with state funds should be left to resolution between the state and federal agencies but should not delay or preclude the investment of the federal funds. If, for example, the state is unable to fund its share, then federal funds should be allowed to be expended with the local ten percent (10%) match to accomplish the desired work as soon as possible. The adjustment with the state in recognition of past state expenditures in the program without federal contribution can, if necessary, be accomplished in future years.

The contribution to the State Delta Levee Special Projects Program should also involve a match with state or local funds but the emphasis should be on immediate investment of such funds in accomplishing the needed work on the Delta levees.

In some cases even at ten percent (10%) the local reclamation districts may be unable to fund their share. The federal funds should be provided with some flexibility to reduce the local share even below the ten percent (10%) based on an ability-to-pay analysis similar to that already being used by the state.

**Levee Break Response Plan**

The Delta levee rehabilitation should be viewed as an ongoing process resulting in gradual but increasing stability. Although the risk of levee failure will be reduced, it will never be eliminated. Local agencies can help floodfight but do not have the financial ability to repair a levee break, dewater the flooded areas or otherwise undertake major restoration work. Once a levee break occurs, the assessable base of the local agency is of little value. The opportunity for possible reimbursement through currently structured disaster assistance or similar types of programs does not provide the cash necessary to accomplish the work. Given today's costs, only a state or federal agency has the financial capability to adequately respond to a Delta levee break. A plan for immediate response by a state or federal agency once a levee break occurs is essential to containment of the damages. The plan should provide for restoration of the public facilities to the point that the local agencies can financially and effectively resume operation and maintenance. Emergency response regardless of the type of emergency should not involve a debate on policy. Immediate "no holds barred" response to arrest the threat should be the goal.

**There is no reasonable alternative to preservation of the Delta levee systems.**

Although there are numerous levee systems protecting separate islands or tracts of land in the Delta, there is a critical interrelationship of such systems. For the so-called lowlands which are areas below five feet above sea level the flooding of a particular island or tract will result in seepage into adjoining lands, levees and embankments. The generation of wind waves across large open bodies of water also creates a serious threat to adjoining facilities. As demonstrated by the June 2004 flooding of Jones Tract, the seepage and wind waves from flooded areas can result in the failure of adjoining levees, railroad and highway embankments and major utilities with a real potential for a domino-type impact.

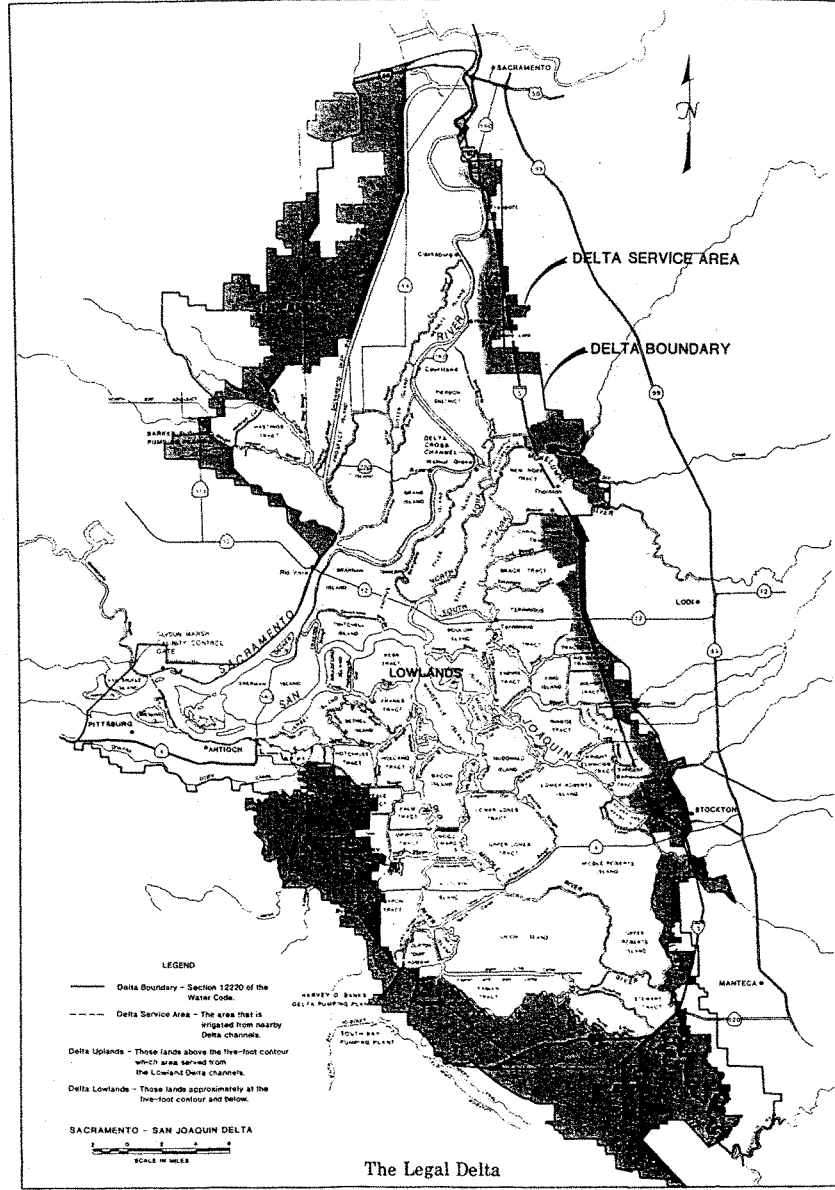
Due to the resulting depth of water flooding of Delta islands or tracts will not result in shallow marsh habitat but rather will result in the creation of a large lake or bay. The areas abutting such a lake or bay and particularly those which are developed will suffer from rising groundwater tables. Abutting levees and embankments will have to be raised and fortified.

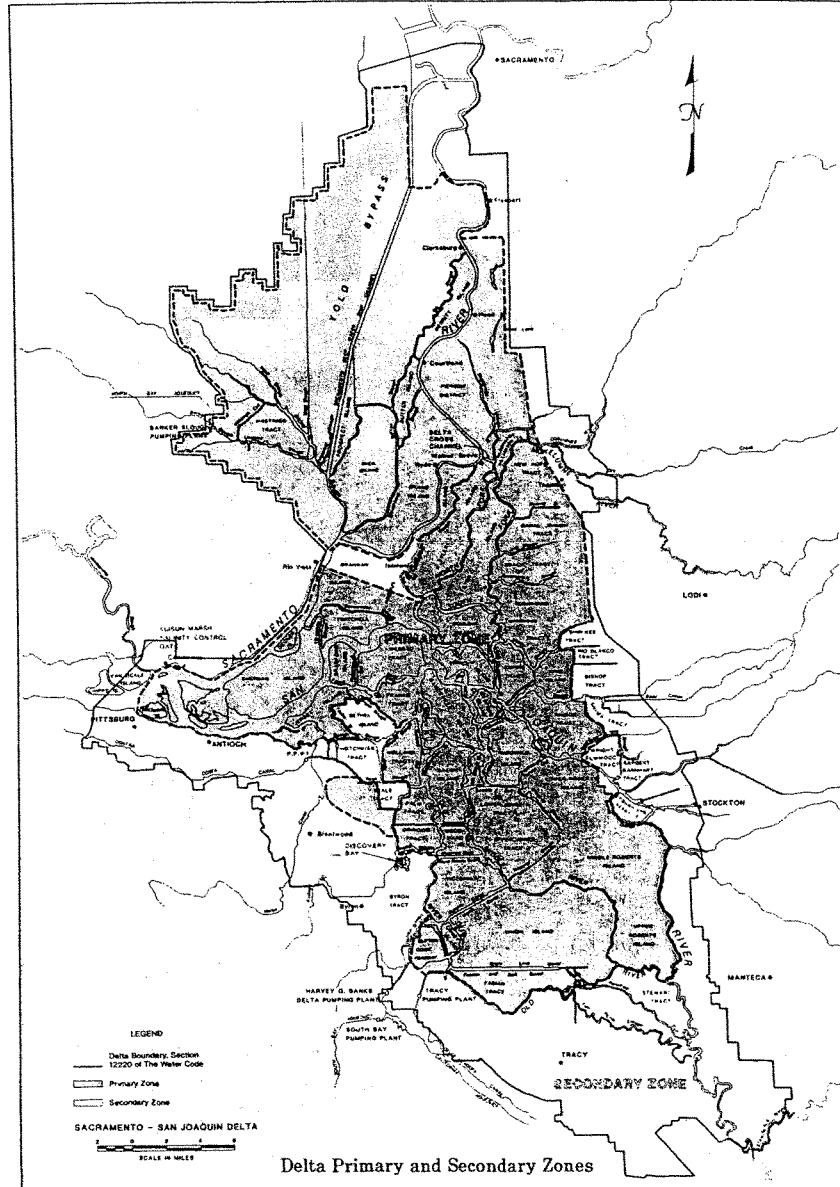
Another important consideration is the preservation of fresh water supplies. The Delta levee systems are critical to the efficient control of salinity intrusion from the Bay into the Delta which is the hub for water deliveries throughout the state. There is also a huge increase in evaporative loss when an agricultural area is left in a flooded condition. The commonly recognized "rule of thumb" is that 2 acre feet per acre more of fresh water will be lost from a flooded area than from the same area subjected to farming. Attached is a copy of the 1976-77 Estimated Crop Et Values for the Delta Service Area reported by the Department of Water Resources in Bulletin 168 - October 1978. A comparison of the various crop types to the item for "Riparian Veg. & Water Surface" displays the potential impact. If for example 460,000 acres of Delta lowlands were allowed to be permanently flooded, the additional fresh water loss would be about 920,000 acre feet per year. To replace such a loss particularly in a dry year would require the entire yield from a number of very large dams.

The alternative of an inland saltwater bay with the resulting salination of ground-water basins, adverse impacts to fish, waterfowl habitat and recreation and loss of Delta pool storage is also not a good choice.

Immediate action is in the best public interest.

[Attachments to Mr. Neudeck's statement follow:]







## Table 7 Delta Statistics

### DEMOGRAPHY

**Population:** 410,000 (1990)

**Counties:** Alameda, Contra Costa, Sacramento, San Joaquin, Solano, Yolo

**Incorporated Cities Entirely Within the Delta:** Antioch, Brentwood, Isleton, Pittsburg, Tracy

**Major Cities Partly Within the Delta:** Sacramento, Stockton, West Sacramento

**Unincorporated Towns and Villages:** 14

### SEECRAPHY

#### Area (acres, 1987):

Agriculture	520,000
Cities and Towns	35,000
Water Surface	50,000
Undeveloped	133,000
<b>Total Acres</b>	<b>738,000</b>

#### Levees (miles, 1987):

Project	165
Direct Agreement	110
Non-project	825
<b>Total Miles</b>	<b>1,100</b>

**Rivers Flowing Into the Delta:** Sacramento, San Joaquin, Mokelumne, Cosumnes, Calaveras (These rivers plus their tributaries carry 47 percent of the State's total runoff.)

#### Diversions Via Aqueducts Through or Around the Delta:      Diversions Directly From the Delta:

San Francisco Public Utilities Commission  
East Bay Municipal Utility District

Western Delta Industry  
City of Vallejo  
1,800+ Agricultural Users  
Contra Costa Canal  
State Water Project  
Central Valley Project

### FOUNDRY

**Recreation:**

User days annually	12,000,000
Registered Pleasure Boats	82,000
Commercial Recreation Facilities	120
Public Recreation Facilities	20
Private Recreation Associations	20
Berths	8,500
Docks	120
Launch Facilities	30

**Transportation:**

Interstate Highways:	5, 80, 205,
State Highways:	4, 12, 160
Railroads:	Southern Pacific, Union Pacific, Atchison, Topeka & Santa Fe, Sacramento Northern
Deepwater Ship Channels to Sacramento and Stockton transport 5 million tons of cargo annually.	

#### Agriculture (1990):

Average Annual Gross Value = Over \$500 million  
Main crops: Corn, Grain and Hay, Sugarbeets,  
Alfalfa, Pasture, Tomatoes,  
Asparagus, Fruit, Safflower

### FLORA AND FAUNA

Birds	230 species	Reptiles and Amphibians	25 species
Mammals	45 species	Flowering plants	150 species
Fish	52 species		

**Major Anadromous Fish:** Salmon, Striped Bass, Steelhead Trout, American Shad, Sturgeon

Figure 4

### Levee Standards

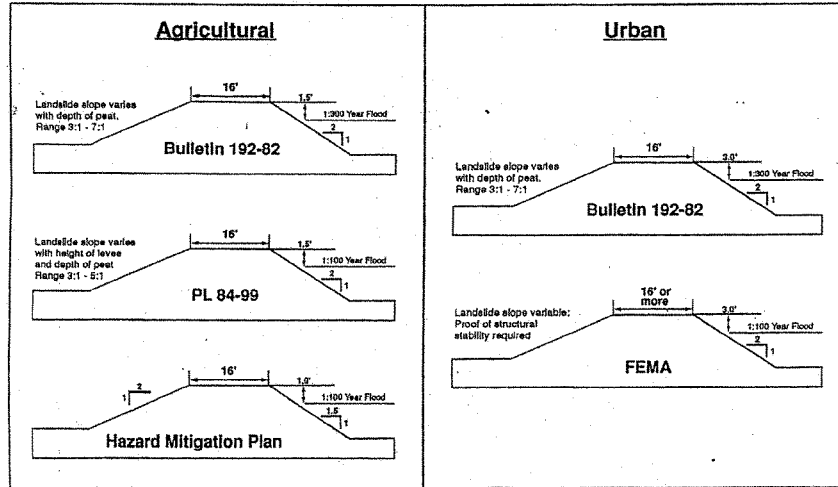


TABLE A-5  
1976-77 Estimated Crop Et Values  
Delta Service Area  
(in inches)

Land Use Category	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct. 76-Sep. 77	Oct. 77	Nov. 77-Oct. 77	Total
Sacramento-San Joaquin Delta																
Irrigated Pasture	3.2	1.5	1.0	0.7	1.5	3.6	5.4	4.8	6.9	7.7	6.4	4.7	47.4	3.4		47.6
Alfalfa	3.2	1.5	1.0	0.7	1.5	3.2	4.9	4.4	6.5	7.5	6.5	4.9	45.8	3.4		46.0
Deciduous Orchard (Fruits & Nuts)	2.6	1.5	1.0	0.7	1.5	2.7	3.8	4.0	6.1	7.4	6.1	4.3	41.7	2.6		41.7
Tomatoes	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.5	4.0	8.2	6.0	2.3	34.3	1.9		33.8
Sugar Beets	2.4	1.5	1.0	0.7	1.5	1.9	2.2	3.7	7.6	8.3	6.4	4.4	41.6	2.4		41.6
Grain Sorghum (Milo)	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.0	5.9	7.3	4.3	2.5	33.2	1.9		32.7
Field Corn	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.3	5.7	6.9	5.1	2.6	33.8	1.9		33.3
Dry Beans	2.4	1.5	1.0	0.7	1.5	1.9	2.2	1.7	5.7	6.2	2.7	2.5	30.0	1.9		29.5
Safflower	2.4	1.5	1.0	0.7	1.5	1.9	2.5	4.8	6.7	7.7	4.4	2.5	39.6	1.9		39.1
Asparagus	2.4	1.5	1.0	0.7	1.5	1.9	2.2	1.0	3.5	7.7	6.4	4.7	34.5	2.4		34.5
Potatoes	2.4	1.5	1.0	0.7	1.5	1.9	2.2	1.7	4.3	7.4	5.5	2.8	32.9	1.9		32.4
Irrigated Grain	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	1.8	1.0	1.0	1.6	26.1	1.6		24.7
Vineyard	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.8	5.3	6.5	5.3	3.4	34.5	2.4		34.5
Rice	3.2	1.5	1.0	0.7	1.5	1.9	2.8	5.6	8.8	9.8	8.1	5.5	50.4	3.4		50.6
Sudan	2.4	1.5	1.0	0.7	2.0	4.3	5.7	4.8	6.9	7.7	4.9	4.7	45.6	2.4		45.6
Misc. Truck	2.4	1.5	1.0	0.7	1.5	1.9	3.2	4.6	6.7	7.4	5.2	3.7	39.8	1.9		39.3
Misc. Field	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.4	6.1	7.4	5.0	1.9	34.0	1.9		33.5
Double Cropped with Grain																
Sugar Beets	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	1.8	4.2	5.2	5.8	37.7	3.4		38.7
Field Corn	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	1.8	4.3	6.3	6.1	39.2	2.7		39.5
Grain Sorghum (Milo)	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	1.8	2.7	6.1	5.2	36.5	1.9		36.0
Sudan	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	3.5	7.7	4.9	4.7	41.6	1.9		41.1
Dry Beans	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	3.1	7.6	3.5	1.5	36.4	1.9		35.9
Tomatoes	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	2.3	6.6	6.0	5.2	40.8	1.9		40.3
Lettuce	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	4.1	7.4	5.3	4.9	42.4	2.4		42.4
Misc. Truck	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	2.3	6.6	6.0	5.2	40.8	2.4		40.8
Misc. Field	2.4	1.5	1.0	0.7	2.0	4.3	5.7	3.1	4.1	7.4	5.3	4.9	42.4	3.4		43.4
Fallow Lands 1/	2.4	1.5	1.0	0.7	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	14.0	1.0		12.6
Native Vegetation 2/	2.4	1.5	1.0	0.7	1.4	3.7	3.8	2.1	2.3	2.6	2.3	2.0	25.8	1.6		25.0
Riparian Veg. & Water Surface	4.6	2.4	1.4	0.8	1.9	4.5	7.4	6.6	9.7	11.8	9.7	7.0	67.8	4.3		67.5
Urban	1.6	0.8	0.6	0.7	1.0	1.0	1.9	2.4	2.4	2.5	2.4	1.9	19.2	1.6		19.2

1/ Applies also to nonirrigated grain.  
2/ Applies also to nonirrigated orchards and vineyards.  
Metric conversion: inches times 25.4 equals millimetres.

Mr. RADANOVICH. Thank you very much, Mr. Neudeck. I appreciate that. We are pleased to have before the Subcommittee the Honorable Mike Chrisman, Secretary, California Resources Agency. Mike, welcome to Washington, and welcome to the Subcommittee. I appreciate you coming here to deliver your testimony.

#### STATEMENT OF THE HONORABLE MIKE CHRISMAN, SECRETARY, CALIFORNIA RESOURCES AGENCY, SACRAMENTO, CALIFORNIA

Mr. CHRISMAN. Thank you, Mr. Chairman. It is nice to be here, and I appreciate the opportunity to be here today to talk about

some of the vulnerabilities in the Sacramento/San Joaquin Delta. Of course, I think you have all in the Members' preliminary statements, you all indicated the problems that we have and we are facing in the Sacramento/San Joaquin Delta.

Of course, the flood damage in Sacramento and San Joaquin Valleys have been extensive over the years. If you look back to 1997, and some of the activities there. Last year, of course, many of you have talked about the Jones Tract break and the expense there.

Given all of that, given the State's burgeoning population, and the fact that we have 37 plus million people now, there has been a population that really is pushing into many of these new commercial and industrial development, and pushing into a lot of these areas that historically have been susceptible to flooding.

Yet, State and Federal, and local funding to maintain and repair, and upgrade some of these flood protection infrastructures has really not kept pace with those demands. As I think most of you know also, that in the Delta that we are facing, and we have, some of the oldest of the flood management system.

The levees were built primarily to protect farm land, but as the population grows, and as people move into the areas, these same flood control levees and dykes are being now asked to protect people and property.

There is well in excess of a million people, and two million acres of highly productive land, 200,000 structures, with an estimated value of billions of dollars in this particular area.

What we really need more than anything is a comprehensive plan to help make strategic investments, and I emphasize the word strategic, but strategic investments in levee maintenance and improvements, and educating the public about the importance of flood protection on an ongoing basis, about the flood risks, and trying to discourage to the extent that we can new development in many of the high risk areas.

This last year, in January of this last year, Governor Schwarzenegger, through the Resources Agency, and the Department of Water Resources, released a White Paper detailing many of the existing flood infrastructure deficiencies.

It is a White Paper that is actually on the website, and as Members, you will be receiving, and we are going to be delivering that to your offices over the next week or so. But in January of last year, we laid out some of the high risk areas.

This report indicted that we should reevaluate much of the flood control system to improve on flood plan maps, and do a whole series of new planning activities. I think we know what the possible catastrophe could come about without good forward planning.

Much of it was articulated by many of you before the hearing. Damage to structures, and contents, and property, we think would be extensive over time if you ended up with an earthquake that could create liquification activities.

But you also know that the problems that we face with much of the public attention focused on this situation now, we really have an opportunity to improve our programs and invest wisely, and to work together to make a difference for the future.

Earlier this year, the Governor proposed to increase the State's general fund budget for flood management by approximately

\$9.4 million, and this was adopted in the final 2006/2007 budget. This was a 70 percent increase in State funding for levee maintenance, and flood emergency response activities.

He also signed two bills that represent small steps to improve the Sacramento/San Joaquin Delta flood control efforts, one being AB 1200 by Mr. Laird, which directs the Department of Water Resources and the Department of Fish and Game to study island subsidence, floods, earthquakes, and other issues facing the Delta.

Also, SB-264 by Senator Machado extends the Delta Levee Subvention Program for a period of two years, and obviously our biggest challenge as NCRA continues to be funding, and that funding is going to run out in June of 2006. That is an issue that we are going to be working on pretty strongly.

We have also in place at the State level a Delta Risk Management Study that essentially is an ongoing effort to take a look through boring activities and other activities, to take a look at the health or the integrity of many of the levees.

Our plan is to have that study done by mid-2007. We already know in some of the areas where most of the high risk levees are. We are going to be pushing to try to get those studies done earlier rather than later.

I think the important thing out of a hearing like this is to recognize that we attack these issues by creating partnerships, partnerships from the local, State, and Federal level.

I think that we learned in the Jones Tract at the Federal level, with our good partners, the Corps of Engineers, that their responsibilities and immediate activities, absent some sort of Federal declaration of emergency, is unclear.

We probably ought to clear that up in terms of future flood activities and emergency activities. So, again, partnership is the key. I think we really need to work harder to develop these partnerships, and to create these opportunities at the local, State, and Federal levels.

And, of course, funding is what we really need as much as anything else. One of the lessons that we can take away from these recent events, and investing in these flood management programs, including levee maintenance and activities, that emergency response can and is a life-saving activity.

So I really look forward, and the State of California really looks forward, to working with all of you in this effort. Thank you.

[The prepared statement of Mr. Chrisman follows:]

**Statement of Mike Chrisman, Secretary for Resources,  
California Resources Agency**

Thank you for the opportunity to address the Subcommittee on Water and Power on the issue of Water Supply Vulnerabilities in the Sacramento/San Joaquin River system.

Long before the recent devastation caused by Hurricanes Katrina and Rita, we have known that floods in California could cause damage much like the devastating flooding that took place in the Gulf Coast.

New Orleans had a 250-year protection level. But many cities in our state, including the Sacramento metropolitan area, have only about a 100-year level of flood protection. In fact, Sacramento has the lowest flood protection of any large urban area in the nation.

Flood damage in the Sacramento and San Joaquin valleys have cost property owners and taxpayers billions of dollars over the past two decades. Our 1997 floods forced more than 120,000 people from their homes, and damaged or destroyed

30,000 homes and 2,000 businesses. Last year, a single levee break on Jones Tract in the Delta cost nearly \$100 million for emergency response, damage to public and private property, lost crop production, levee repair and pumping costs.

Even so, a burgeoning Golden State population is pushing new commercial and residential development into areas that are historically susceptible to flooding. Yet the federal, state and local funding to maintain, repair and upgrade our flood-protection infrastructure has failed to keep pace with our needs.

California's old and deteriorating Central Valley flood management system was built primarily to protect farmlands. But the system is increasingly needed to protect people living and working in the floodplains. Today, Central Valley flood control projects protect more than half a million people, two million acres of highly productive agricultural land, and 200,000 structures with an estimated value exceeding \$50 billion. And these numbers are increasing daily.

We need to protect Central Valley residents and businesses from the threat of flooding, and we need to protect Californians from the enormous financial liability they face when these floods happen.

We can do this by making strategic investments in levee maintenance and improvements, educating the public and local agencies about flood risks, and discouraging new development in areas of high risk unless the flood control system is upgraded.

This past January, Governor Schwarzenegger through the Resources Agency's Department of Water Resources (DWR) released a White Paper that detailed many of the existing flood infrastructure deficiencies. It highlighted conditions that have created a "ticking time bomb" for flood management in California.

The report indicates we should re-evaluate much of the flood control system to improve our floodplain maps, many of which are inaccurate and out of date. Then, we need to rehabilitate levees to give our communities an appropriate level of flood protection.

If we do not, the consequences will be staggering.

The Sacramento/San Joaquin Delta is home to 400,000 residents, vital port facilities, major highways and railroads as well as the state and federal water projects that provide drinking water to 22 million Californians (approaching one-tenth of the entire U.S. population) and 7 million acres of irrigated land. It includes nearly 60 islands and tracts that lie below sea level, protected by marginal levees. In the past century, there have been more than 160 levee failures, and we have adopted a solution of fixing them one by one.

Earthquakes are as common a natural condition in the West—particularly California—as hurricanes are a part of common atmospheric conditions in the southeast and gulf state region. A 6.5 magnitude earthquake on the Coast Range-Central Valley Fault that meanders under the west Delta would produce more than 30 levee breaches on 16 Delta islands.

Thousands of residents would be threatened. Levee breaks would draw salt water into the Delta from the San Francisco Bay—shutting down the State Water Project and the Central Valley Project, as well as water deliveries to much of the San Francisco Bay Area. Major power and gas transmission lines would be damaged, impacting power delivery to the entire state. State highways 4, 12, and 160 would be inundated, creating lengthy detours and jamming other highways and freeways. Environmental damage to the Delta ecosystem would be devastating.

Using optimistic estimates, the damage to the Delta would take more than 15 months to repair and cause perhaps \$20 billion in economic impacts. More realistically, several Delta islands would likely never be recovered before Delta wind-driven waves eroded through miles of unprotected levees on the flooded islands. This would result in permanent landform changes and water supply and water quality impacts with perhaps \$40 billion in economic impacts.

Consider an urban scenario, not unlike what happened in New Orleans after Hurricane Katrina. A large regional flood could lead to levee breaches in several parts of Sacramento, inundating approximately 54 square miles. More than a quarter of a million people live in areas that would be inundated with at least one foot of flooding; approximately 89,000 people live in areas with at least 6 feet of flooding; and 23,000 people live in areas that would have at least 10 feet of flooding.

The number of casualties for this levee-failure scenario obviously cannot be predicted. But if the experience of New Orleans with hurricane Katrina is indicative, the number of deaths in Sacramento could amount to hundreds of people, depending on lead time and response. Damage to structures, contents, and other property would be approximately \$5 billion. Emergency response costs, cleanup, and long-term economic impacts would be greater. Statistically, this scenario has a higher probability of occurring than what occurred in New Orleans.

But knowing the problems we face, and with much public attention focused on this situation, we have the opportunity now to improve our programs, invest wisely, and work together to make a difference for the future.

In the short term, we need to maintain our existing systems. Then, we need to evaluate systems for long-term viability. And for the long-term, we need to adopt systems to provide reliability, in a way that is balanced with our resource demands.

Earlier this year, Governor Schwarzenegger's proposal to increase the state's general fund budget for flood management by approximately \$9.4 million was adopted in the final state FY06-07 budget. This is a 70 percent increase in state funding for levee maintenance and flood emergency response.

The Governor also just signed two bills that represent small steps to improve Sacramento-San Joaquin Delta flood control efforts. Assembly Bill 1200 (Laird) directs the Department of Water Resources and the Department of Fish & Game to study island subsidence, floods, earthquakes and other issues affecting the Delta. Senate Bill 264 (Machado) extends Delta Levee Subventions program for two years, but funding is still lacking beyond June of 2006.

This year the Delta Levees Subventions Program will provide \$4 million in state matching funds to help maintain and improve approximately 600 miles of levees. The Special Projects program will contribute funding to make important improvements to levees on New Hope Tract, and the Department of Water Resources will work with the U.S. Army Corps of Engineers to prioritize funding for new Delta levee work under Public Law 108-361. Land use changes will be implemented on department-owned land to stop the ongoing degradation of Delta soils.

In a September 14, 2005 letter to House Resources Committee Chairman Pombo and Senator Feinstein, Governor Schwarzenegger, together with the U.S. Army Corps of Engineers and the Sacramento Area Flood Control Agency identified 12 priority projects and programs for California levee system that need federal funding to help avoid a flood event like Hurricane Katrina (letter attached).

We believe that all of these projects are worthy of funding by Congress now to avoid a situation like we have recently witnessed on the gulf coast and the state would be please to provide you additional information on any of these projects. In addition to the specific projects listed in the letter, the following activities are extremely important to ensure that federal, state and local flood management funding decisions are strategic, long-term investments.

#### **Delta Risk Management Strategy**

For more than 30 years, the state has been working with local interests to maintain and improve Delta levees by cost-sharing these efforts. It is imperative that we develop a thorough understanding of those risks to the Delta and to our infrastructure of statewide significance resulting from Delta levee failures. Factoring in the potential for sea level rise, a major earthquake, and greater peak river flows caused by global climate change adds to the urgency. Thorough understanding of risks and benefits is needed so that reasonable policy can be made and implemented to preserve the Delta.

The Delta Risk Management Strategy will tabulate the benefits and hazards for each Delta island. It will develop a thorough understanding of the data, and incorporate it into a peer-reviewed risk analysis. This assessment will also propose cost effective measures to manage the risk in both the short and long term; identify land use changes to preserve the Delta; and develop a plan of action for future steps.

These actions will form the basis for changes in policy that will guide the use of state funding for Delta levee improvements into the future.

#### **HR-2828 Delta Project Priority Study**

The Department of Water Resources and Department of Fish & Game are working with the U.S. Army Corps of Engineers to provide a well-coordinated report to Congress that will prioritize funding for combined federal, state, and local cooperation to improve the Delta levees. This report will detail the importance of specific Delta levees to both state and federal interests and provide the justification for up to \$90 million in new federal funding for improving the Delta levees.

#### **Emergency Response Planning**

Reinvigorating the federal government's commitment to emergency response planning for levee failures in the Delta and engaging in robust emergency response planning and pre-positioning of resources are also crucial. The Corps had only a limited response to the Jones Tract Levee failure in 2004, intended to prevent levee breaches of adjacent islands after the Tract had flooded. The Corps did not participate in closing the breach or the pumping of flood waters from Jones Tract. The Corps commitment to assist closing breaches or reclaim islands in the Delta during a flood disaster is unclear. Congress needs to provide the Corps clear authority and

funding that commits the Corps to swiftly respond to levee failures and in reclamation of islands in the aftermath of a flood disaster in the Delta. The Corps should fully participate with the state to create an emergency response plan that:

- Includes early warning of storm events
- Rapid reconnaissance of distress
- Pre-positioning of flood fight and rock materials
- Planning for contracting for barges and barge-mounted equipment
- Planning for flood-fight resources
- A robust hydrodynamic model that helps analyze the effects of levee failures on water quality which would help prioritize repairs of multiple levee failures

These action items are important steps for the state and federal government. Much more needs to be done. As partners, we need to work harder and invest more resources to ensure that California achieves the comprehensive and sustainable levels of flood protection that it needs and deserves.

One of the lessons we should take from recent events is that investing in flood management programs, including levee maintenance activities and emergency response, is a lifesaving investment that should not be ignored or postponed. We look forward to working with you to achieve this goal. Together we will be able to make a difference.

[An attachment to Mr. Chrisman's statement follows:]



GOVERNOR ARNOLD SCHWARZENEGGER

September 14, 2005

The Honorable Dianne Feinstein  
United States Senate  
331 Hart Senate Office Building  
Washington, D.C. 20510

The Honorable Richard Pombo  
U. S. House of Representatives  
2411 Rayburn House Office Building  
Washington, D.C. 20515

Dear Senator Feinstein and Representative Pombo:

We appreciate your interest and support for timely and necessary improvements to California's extensive levee system. I am confident that we all agree that the flood catastrophe triggered by Hurricane Katrina in New Orleans and other portions of the Gulf Coast brings a sobering reminder of the staggering human and property toll that a major flood can bring. In California, the two most critical levee issues are associated with the federal project levees on the Sacramento and San Joaquin Rivers and their tributaries, together with the local levees in the Sacramento-San Joaquin Delta.

The Sacramento metropolitan area has the lowest level of flood protection for any large urban area in the nation. Other river cities such as Tacoma, Dallas, St. Louis, and Kansas City have 500-year flood protection. Even New Orleans had a 250-year level of flood protection. Sacramento only has about a 100-year level of protection, a woefully inadequate level for a major city and the capital of California.

In addition, there are over 700 miles of structurally questionable local levees protecting low lying areas in the Sacramento-San Joaquin Delta. While primarily protecting agricultural areas and less populated rural communities, these levees also provide for the conveyance of drinking water to over two-thirds of all Californians (almost eight percent of the US population) and irrigate some of the most strategic and productive farmland in the nation. Future disaster scenarios predict multiple levee failures in the Delta. Such an event would degrade water quality, allow salt water to quickly intrude into the Delta and lead to an extended interruption of state and federal water deliveries to the Bay Area, San Joaquin Valley, and Southern California. This would have a huge negative economic impact on both California and the nation.



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The state Department of Water Resources (DWR) staff, U.S. Army Corps of Engineers (Corps) district staff, and the Sacramento Area Flood Control Agency (SAFCA) collectively have identified and prioritized the most critical levee programs for California that need federal funding to help avoid a flood event like Hurricane Katrina. These programs were prioritized by giving high priority to those programs that were closest to construction and those that addressed critical issues relating to public safety or California's economy. Some of these projects may already have partial federal funding scheduled in this year's budget, but are included here:

<u>Priority Project</u>	<u>Proposed Federal Funding</u>
1. South Sacramento Streams Project	\$ 10,000,000
2. Sacramento River Bank Protection Project	\$ 20,000,000
3. American River Common Features Project	\$ 16,000,000
4. Folsom Dam Modifications and Raise	\$ 24,555,000
5. HR2828 Delta Project Priority Study – 180-day study	\$ 500,000
6. Delta Risk Management Strategy (with DWR)	\$ 3,000,000
7. Levee Systems Evaluations (multi-year program)	\$ 8,000,000 (first year)
8. Natomas Reimbursement to SAFCA	\$ 4,500,000
9. Mid-Valley Area Levee Reconstruction Project	\$ 3,300,000
10. Yuba River Basin Project	\$ 1,200,000
11. Lower Cache Creek, Woodland	\$ 600,000
12. Middle Creek Flood Damage Reduction and Ecosystem Rest.	\$ 1,000,000

The above projects are cost-shared with the state and local partners. We expect that both the state and its local partners will be able to provide their share of the funding for these projects.

There are also many other important Corps projects that require federal funding. Correcting deficiencies in California's levee system will demand a comprehensive and sustained effort. More specific authority for the Corps may be prudent and necessary. Flood protection needs in the Sacramento-San Joaquin Delta involve three immediate actions:

- A) The Sacramento River Bank Protection Project would construct improvements to the levees protecting urban areas along the Sacramento River in FY 06.
- B) The Delta Project Priority 180-day Study will provide Congress with a recommended plan to address critical levee stability reconstruction projects and priorities as directed by Congress in PL 108-361.

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C) The Delta Islands and Levees Feasibility study will develop the Delta Risk Management Strategy (DRMS) as also directed by PL 108-361. The DRMS is an expedited study that will address levee stability throughout the Delta and recommend risk reduction measures that would be part of a long-term solution.

Reinvigorating the federal government's commitment to emergency response planning for levee failures in the Delta and engaging in robust emergency response planning and pre-positioning of resources are also crucial. The Corps had only a limited response to the Jones Tract Levee failure in 2004, intended to prevent flooding of adjacent islands after Jones Tract had failed. The Corps did not participate in closing the breach or the pumping of flood waters from Jones Tract. The Corps commitment to assist closing breaches or reclaim islands in the Delta during a flood disaster is unclear. Congress needs to provide the Corps clear authority and funding that commits the Corps to swiftly respond to levee failures and in reclamation of islands in the aftermath of a flood disaster in the Delta. The Corps should fully participate with the state to create an emergency response plan that:

- Includes early warning of storm events
- Rapid reconnaissance of distress
- Pre-positioning of flood fight and rock materials
- Planning for contracting for barges and barge-mounted equipment
- Planning for flood-fight resources
- A robust hydrodynamic model that helps analyze the effects of levee failures on water quality which would help prioritize repairs of multiple levee failures

California is poised to assist Congress with further briefings on the status of our flood preparedness challenges at your convenience. Thank you again for working on these critical levee issues for California.

Sincerely,



Arnold Schwarzenegger

cc: The California Congressional Delegation

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Mr. RADANOVICH. Thank you very much, Mr. Secretary. Mr. Barry Nelson is the Co-Director of the Western Water Project, Natural Resource Defense Council, and is next to testify. Mr. Nelson, welcome to the Subcommittee. You may begin your testimony.

**STATEMENT OF BARRY NELSON, CO-DIRECTOR, WESTERN WATER PROJECT, NATURAL RESOURCE DEFENSE COUNSEL, SAN FRANCISCO, CALIFORNIA**

Mr. NELSON. Thank you, Chairman Radanovich, and members, NRDC has been involved in issues related the Bay Delta System for over 15 years, and for me those years with regard to levee

stability. So we really appreciate the opportunity to testify before you today.

The Delta is one of the State's most important ecosystems. It is also tremendously important for water supply for the State of California. But in addition to those important values, it is also important to the Delta farming community, highways, utilities infrastructure, Delta residents, as well as the Delta economy.

It is a tremendously important thousand miles, a thousand square miles, in the heart of California. Unfortunately, that Delta is often overlooked, but two events in the last year have really brought attention to the issues related to the stability of the Delta.

One of those, of course, was Hurricane Katrina. The second was a report from the University of California at Davis that revealed the risk of a combination of Delta subsidence and sea level rise as a result of climate change, increasing the risk of what could be a catastrophic failure of levees, that has the potential to be damaging to all of those interests who depend on the Delta.

In addition to that long term threat, the Delta is facing a crisis today in the decline of the health of that Delta ecosystem. Delta fisheries are at the lowest point ever.

It is important to bear both of those crises in mind; the long term stability, and the short term health of the ecosystem. We think that solutions that work are going to be solutions that tie those two problems together, and build solutions together.

The CALFED program has begun to do that, but frankly, it is an area where we need to put more attention than we have been able to in the last several years. Governor Schwarzenegger, as Mr. Chrisman has mentioned, has launched a number of initiatives related to this, including a reevaluation of the CALFED program, and we think that this issue should rise to the fore in the CALFED program as a part of that reevaluation.

I would like to very briefly talk about six issues that we think are key parts of a long term plan to address Delta stability. The first is addressing diversions, pollution, and evasive species, three key issues affecting the health of the Delta today.

The protections that have been in place for the last several years simply have not been working, and we need to tackle the health of the ecosystem, which is in crisis today.

The second thing we need to do is to effectively address the stability of Delta levees. Frankly, maintaining all of those thousands of miles of Delta levees may not be possible. We believe that ecosystem restoration, and restoring some of those Delta islands, could help benefit that declining ecosystem, and reduce Delta levee maintenance costs, and make the challenge of maintaining Delta more achievable. Financing that is going to be a challenge. The State is looking at a water infrastructure investment program. We think that Delta levees need to be a part of that program in order to effectively maintain the Delta over the long term.

Third, we need to reduce California's risk of Delta failure by reducing our dependence on the Delta. The more we divert from the Delta increase our dependence, the more vulnerable California is to a disruption of that source.

There are a variety of proven tools that we think can reduce our reliance on what is by all universal agreement a vulnerable system. Fourth, we need to tackle sprawl in the Delta.

There are 400,000 Delta residents now, and that number is growing dramatically, and frankly, we are concerned that when we put Californians below sea level and in a vulnerable Delta, we are putting more people at risk. There is increased recognition of that.

Fifth, we need to step back and look at systems, at programs that have looked at the Delta in the past, and pay attention to how issues like this, issues like ecosystem health, and especially Delta vulnerability, have slipped through the cracks.

And we need to make sure that we don't let that happen in this program. And then finally, my sixth and more general point, is something without which we don't believe we can ensure the long term future of the Delta.

Dr. Mount concluded in the UC-Davis study that one of the greatest threats to the Delta is sea level rise caused by climate change, and the State of California recognizes that threat.

The State Water Plan recognizes it. Climate change is not just a threat to the Delta; it is a threat to our snow pack and water supplies. The Governor has called for action on climate change. The Governor has launched an ambitious program to address that issue.

But the State can't do that alone. We think that a partnership with Congress is important. The Senate has called through a resolution for mandatory limits on greenhouse gases.

We think that an awareness, and an increasing awareness of climate change, potential climate change, impacts on the Delta and California's whole water supply, could increase the possibility of action in Congress in the coming year.

Frankly, the most important thing Congress could do to tackle the long term stability of the Delta is to tackle climate change head-on, and if we don't get that under control, it will be extremely difficult to protect the Delta over the long term. Thank you.

[The prepared statement of Mr. Nelson follows:]

**Statement of Barry Nelson, Senior Policy Analyst,  
Natural Resources Defense Council**

Chairman Radanovich and members of the subcommittee, thank you for the opportunity to appear before you today. My name is Barry Nelson and I am a Senior Policy Analyst with the Natural Resources Defense Council, where I am the co-director of NRDC's Western Water Project. I have been active in Bay-Delta issues for twenty years. For the past fifteen years, I have been deeply involved in collaborative Bay-Delta efforts such as the CALFED Bay-Delta program. For much of this time, I have been involved in issues related to the stability of the Sacramento-San Joaquin Delta.

I am particularly pleased to testify before you today regarding the long-term stability of the Delta. This issue has been long overlooked. The Delta is one of the state's most important ecosystems. It is also important to many stakeholders and tens of millions of Californians who drink Delta water. I will close my testimony with recommendations regarding a long-term plan for the Delta and additional steps that must be taken to protect the Delta and other California water supplies in the future.

Two events in the past year have drawn attention to this issue. First, Dr. Jeff Mount of the University of California at Davis has studied the Delta extensively. He has paid particular attention to the ongoing subsidence of Delta islands that are already well below sea level and to predicted sea level rise, as a result of climate change. Dr. Mount has determined that during the coming half century, as a result

of these changes, the Delta is vulnerable to a large-scale failure of multiple levees. Large-scale levee failure would be a disaster for farmers, highways and utility infrastructure, water supply, the Delta ecosystem and Delta residents. Hurricane Katrina is the second event that has drawn attention to the vulnerability of California's Delta.

Historically, it has been easy to overlook the Delta. California's more glamorous ecosystems—Yosemite, beaches, the redwoods and the desert—have garnered far more attention. The Delta was once a 1,000-square-mile tule marsh. Most of this marsh is now gone, but the Delta remains vitally important. The Delta supports the biggest salmon run south of the Columbia River and a major recreational fishery. Every winter its islands fill with waterfowl. Four hundred thousand Californians call it home. More than 20 million Californians rely on it for a portion of their water supply.

It is important to note that, in addition to the threat to its stability, the Delta is threatened by another looming crisis—the collapse of its ecosystem. Delta smelt, striped bass and other fish have reached their lowest ebb in history. This decline is discussed further in an article attached to my testimony. A recent Department of Interior biological opinion cites water project operations as a major cause. It is not a coincidence that total water pumped from the Delta has been the highest ever in three of the past five years. Recently, scientists believe invasive species and pollution may also be playing a role. A small nudge could be enough to push the smelt—a bellwether for the ecosystem—over the brink of extinction. This collapse also has major implications for the Delta economy, which benefits greatly from tourism and recreational fishing.

It is important to note both of these crises, because a successful strategy for the Delta must address both ecosystem health and system vulnerability.

A few say that these crises call for reconsidering the Peripheral Canal. If the canal were built, the state's two big water projects—the Central Valley Project and State Water Project—could bypass the Delta and pump water directly from the Sacramento River. Voters rejected the canal in 1982, fearing a water grab and disaster for the Delta and San Francisco Bay. Successive governors and CALFED, the state-federal program to restore the Delta, have rejected the canal as well.

Concerns about the Peripheral Canal are well founded. If it were built, there would no longer be any physical imperative to release water to the Delta and Bay. The Delta's fate would be determined by regulations and promises from state and federal agencies. Water exporters are already working to weaken legal protections for the Delta and the Sacramento River.

Building the canal would do nothing to improve Delta stability. In fact it would eliminate Southern California's major motive to protect it. Today, the Southland—with the majority of the state's voters and taxpayers—values a healthy Delta because one fifth of its drinking water supply depends on it. With a Peripheral Canal, it would not. In short, a Peripheral Canal could seal the Delta's fate. The implications for Delta residents, highways, and other infrastructure, as well as the health of the estuary, could be very serious.

Finally, the canal would take decades and perhaps tens of billions of taxpayer dollars to build. Delta water users are unwilling to pay for this project. We shouldn't consider an investment on this scale until elected officials and agencies develop a Delta solution that works. It's time to tackle problems that agencies have ducked for decades.

The CALFED program has recognized the need to protect the stability of the Delta. Indeed, reducing system vulnerability was one of the four purposes of the CALFED program. However, this element of the CALFED program has, until recently, received far less attention than others. CALFED agencies are only now beginning to tackle the long-term concerns identified by Dr. Mount. As you may know, Governor Schwarzenegger has recently launched several ambitious evaluations of the CALFED program. In addition, the legislature recently passed and the Governor signed AB 1200, which will start a process of examining these Delta stability issues. NRDC and other environmental and fishing organizations have recommended that, as CALFED is reshaped, it should include particular focus on the development of a long-term plan for the Delta.

NRDC believes that a successful long-term Delta plan must accomplish five things:

- 1) Address the problems of diversions, pollution and invasive species to restore the health of the Delta and its fisheries, including stronger standards that hold up under the attacks of water exporters. The protections in the CALFED ROD for the Delta are simply not working.
- 2) Effectively address the stability of Delta islands. Maintaining them all may be impossible. Returning some of them to marsh could help the environment and

reduce the challenge of maintaining levees. Financing this program will be a challenge. Delta water exporters, who benefit from these levees, should help fund their maintenance.

- 3) Reduce the risks to Californians who rely on Delta water by reducing their dependence on it, through conservation, water recycling and more. Increasing Delta diversions further would exacerbate the estuary's decline and make California even more vulnerable to disruptions in the Delta.
- 4) Stop sprawl in the Delta. Building homes on below-sea-level Delta islands is putting more Californians at risk.
- 5) Learn from past mistakes. Any attempt to shortcut efforts to save the Delta and build a Peripheral Canal will waste precious time and energy.

This effort will require collaboration and leadership.

Finally, as Dr. Mount correctly concluded, one of the major threats to the future of the Delta is future sea level rise, which is anticipated to result from climate change. In fact, over the past century, sea level in the Bay has already begun rising. This, however, is only one of the many anticipated water related impacts of climate change. For example, the new California water plan recognizes the potential for climate change to reduce existing snowpack, reducing water supplies for all who rely on the Sierra. One of the attachments to this testimony is a summary of the science related to climate change. As California's governor said recently: "The debate is over...the time for action is now." Governor Schwarzenegger recognized the serious potential impacts of climate change on California, and its water supply last summer when he stated that: "Global warming threatens California's water supply, public health, agriculture, coastlines and forests—our entire economy and way of life. We have no choice but to take action to reduce greenhouse gas emissions." The severity of the potential impacts of uncontrolled climate change on the Delta further indicate the need to address this problem head on. To reduce these future impacts, the state is developing an ambitious program to reduce greenhouse gas emissions. However, the state cannot succeed alone.

During the coming year, we anticipate that Congress will have an opportunity to pass mandatory limits on global warming pollution. Last June, the Senate passed a resolution calling for such mandatory limits. We are hopeful that rising awareness of the potential impacts of climate change on the Delta and water supplies will help lead to Congressional action in 2006. In short, the most important action that Congress can take to protect the stability of the Delta over the long term is to address directly the cause of climate change—the emission of climate changing pollution.

The Delta ecosystem is enormously important. Tens of millions of Californians have a stake in its future. It is time for us to act to preserve it—for the future health of all of California. Thank you.

NOTE: Attachments to Mr. Nelson's statement have been retained in the Committee's official files.

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Mr. RADANOVICH. Thank you, Mr. Nelson. Mr. David Guy is the Executive Director of the Northern California Water Association. Mr. Guy, welcome to the Subcommittee, and you may begin your testimony.

**STATEMENT OF DAVID GUY, EXECUTIVE DIRECTOR, NORTHERN CALIFORNIA WATER ASSOCIATION, SACRAMENTO, CALIFORNIA**

Mr. GUY. Thank you, Mr. Chairman, and members of the Subcommittee, and others. It is a pleasure to be here. The Northern California Water Association represents the area north of Sacramento, from Sacramento up toward Redding, and bound on the east by the Sierra Nevada, and the west by the Coast Range.

Of course, it is the are of California that has the bulk of the water supplies that we are now talking about, and also when the rains and the snows come, it is where most of the flooding tends to begin.

The question about the committee is are we vulnerable, and of course, as I think all of your preliminary statements indicated, I

think that the simple answer is of course yes, we are vulnerable in California for a variety of reasons.

And let us first in my view talk about a couple of the problems, and I think they are fairly self-evident, but they set the stage for ultimately what the solutions might be. The Delta, of course, is a maze, and we are in gridlock right now in the Delta.

Nothing is getting done in the Delta that will ultimately reduce the vulnerability that we are talking about. I think that is a given. With respect to flooding, the Chairman mentioned in his opening remarks about the floods in 1997.

We have some very strong memories of that, because the Aboga Flood was in the areas that we represent, and was just devastating; and if you look at the history of Northern California, of course, there is a flood on average about every 10 years.

And so it really poses some problems, and I know that Congressman Herger brings this to your attention quite often. We have some real flood control problems in the north part of the State.

It really leads to a conundrum though because, of course, in the past we built a magnificent set of bypasses in Northern California. We built levees that in their day were strong, and would meet the needs.

And then, of course, we built storage, but yet in today's climate, we really cannot take any of these measures for flood protection, and it really leaves the question that people are asking around the State of California, how do we in fact protect the public safety.

As far as some of the potential solutions, I think with respect to the Delta, the bottom line in my view is that we need stability in the Delta, and that stability comes in several forms.

The first, of course, is the structural stability. I think that goes without saying. You need to have a system that is structurally sound, and can withstand earthquakes, and can withstand many of the natural catastrophes that have been talked about, including potentially a climate change.

But I think in some ways the more important stability that we really need is political stability in the Delta, and right now, quite honestly, we have chaos, and that is what we need to find a way to sort through, because how do we create a Delta solution that won't work for all of California.

In my view the through Delta solution that is now before the CALFED program has shown that it is not working. We need to step back and look at various options. Secretary Chrisman mentioned AB 1200 as one of the mechanisms that I believe that we can utilize to in fact look at the various options to avoid being vulnerable as you have indicated.

From the Northern California perspective, of course, some would say, well, is there risk in that, and absolutely there is risk in that as a Northern Californian. But in my view, it is something that we need to take a very hard look at.

I am confident that we can protect Northern Californians' water rights, and we can protect Northern California water supplies, and we can in fact make sure that the water quality in the Delta and the ecosystem is protected, but we need to look hard at some new and different options for the Delta.

The second solution that I would offer, of course, goes without saying that we need to make investments in infrastructure, and that of course includes the broad range of infrastructure needs that we have not been pursuing in California over the past several decades, and which we need to become more aggressive about, and that includes levees, and that includes opportunities for off-stream storage in several areas.

It includes groundwater storage, and it includes a whole range of infrastructure that in fact can both help with the water supply and the flood control perspective. And then the final piece that I would offer is what I call integrated regional solutions.

The CALFED issues, the Delta issues, the vulnerability issues, are the ones that get all the headlines, but in California, in my view, there is a lot of good work that is being done on the regions, whether it is in Northern California, where we have a very ambitious regional water management program for the Sacramento Valley that is meeting the needs and providing a lot of ecosystems and water supply benefits for the region.

Southern California has an integrated regional plan and we see that throughout the State, and that is where a lot of the excitement is going on in the State of California, and I hope that we will continue to foster that, while recognizing that the Delta is in fact what ties a lot of us together.

And so I will leave it at that, but to me there is a tremendous opportunity right now in the wake of the Gulf Coast, and the wake of the Jones Tract, and in the wake of a lot of the activities going on in California, and it just feels to me like there is just a tremendous opportunity here to start making some advances.

And I know that we sure look forward to working with the Subcommittee and all of you, and trying to advance some lasting meaningful solution for California. Thank you for the opportunity to be here today.

[The prepared statement of Mr. Guy follows:]

**Statement of David J. Guy, Executive Director,  
Northern California Water Association**

Dear Chairman and members of the Subcommittee, my name is David Guy. I am the Executive Director of the Northern California Water Association (NCWA). We appreciate the Subcommittee convening a hearing today to discuss and develop solutions to address water supply vulnerabilities in California's Central Valley.

NCWA is a geographically diverse organization, extending from California's Coast Range to the Sierra Nevada foothills, and nearly 180 miles from Redding to Sacramento. Our members rely on the waters of the Sacramento, Feather, Yuba and American Rivers, smaller tributaries and groundwater to irrigate more than 900,000 acres that produce every type of food and fiber grown in the region. Many of our members also provide water supplies to state and federal wildlife refuges, and much of this land serves as important seasonal wetlands for migrating waterfowl, shorebirds and other wildlife. NCWA also represents the local governments and the business leadership in the region.

We welcome the opportunity to provide the Northern California perspective on public safety and water supply security and to present both the opportunities and challenges we now face in California. You can be sure that Northern California water users, in concert with counties and local governments throughout the region, are committed to help improve public safety, water supply reliability, water quality and the environment.

The Subcommittee's interest in California's water security is appropriate and very timely in the wake of the hurricanes along the Gulf Coast and given the importance of a successful resolution to the environmental and water supply problems in the Central Valley and particularly the Sacramento-San Joaquin River Delta and San



Francisco Bay (Bay-Delta). The Bay-Delta is a tremendous economic and environmental resource to California and the nation, and there is much at stake in how we implement the numerous ecosystem restoration and water management actions. Put simply, people throughout California are vulnerable to various events in the Central Valley, including prolonged droughts, devastating floods, earthquakes and what appears to be a change in climate that may affect snow pack in the Sierra Nevada Mountains.

We believe the recent California Water Plan (Draft Bulletin 160) provides a framework for California, with the assistance and leadership of Congress and the Administration, to address the vulnerabilities in the Sacramento/San Joaquin River systems. This framework contains two major initiatives—maintaining statewide water systems and empowering regional solutions—that we encourage the Subcommittee to support.

#### **Maintain Statewide Water Systems**

California depends on vast statewide water management systems to provide clean and reliable water supplies, protect lives and property from flood, withstand drought and sustain environmental values. A significant part of California relies on the Bay-Delta system for its water supplies. As a result, California needs stability in the Delta. This stability should include structural stability, such as the integrity of Delta levees in the face of earthquakes or tidal action, and it will require political stability with respect to the way in which water flows through the Delta. Although most of Northern California does not divert water from the Delta, we recognize the importance of the Delta for water supplies throughout the State and support efforts to solve the water supply and environmental issues in the Delta.

After 11 years, it is clear that there is little confidence in the Bay-Delta solution being discussed as part of the CALFED program. Most importantly, we need a sustainable solution to the public safety and water supply issues in the Delta. There is a tremendous opportunity to focus on the Bay-Delta and to undertake a new evaluation of various options that will protect Northern California water rights and supplies, enhance the environment, and improve water supplies and quality derived from the Bay-Delta. This, in turn, will provide stability in the Bay-Delta and decrease vulnerability throughout California.

Additionally, California needs an aggressive investment in the State's flood management system and changes in the way we think about flood management to fully protect public safety. Northern California has always experienced devastating floods, including the most recent flooding in early January 1997. High winter and spring flows, coupled with the fact that many of the rivers in Northern California serve as water conveyance facilities for the rest of the state, makes flood protection critical for public safety to protect the citizens and property in Northern California.

Integrating both surface and groundwater storage programs into the existing statewide water system can help California assure public safety and increase the water supplies available for all purposes in California, including cities, farms wild-life refuges and managed wetlands and fish. In the Sacramento Valley, for example, North of Delta Offstream Storage (Sites) could be integrated with the existing system to provide additional flood control at Lake Shasta and to provide valuable water for the Delta during critical times for fish, birds, cities and farms.

#### **Empower Integrated Regional Water Management Programs**

Regional planning and the implementation of strategies that are developed by leaders in the various regions throughout the state are critical to meet the various water supply needs in California. Most importantly, regional strategies build on the successful efforts that have been undertaken or are underway throughout a region to meet water supply, water quality and ecosystem objectives at the regional and local level. California is a diverse state where complex water policy decisions are difficult to fashion in a manner that allows a simple solution to fit problems that may exist in various regions across the state. As a consequence, regionally based policies and programs are the most effective and cost effective way to integrate the various water rights and supplies for a particular region and to undertake the efforts necessary to improve water quality and the ecosystem. We therefore support empowering regional solutions and partnerships throughout the state to help serve California's total water needs. We believe California can best advance the broad interests of the state by helping to fulfill the promise of regional programs and integrated water management.

By implementing these management strategies, regions can plan, invest, and diversify their water portfolios. These strategies will help a region become more self-sufficient with local supplies and will minimize conflicts with other resource management efforts. NCWA and the Northern California water users have embarked on

an integrated water management program that has broad support from water suppliers and local governments throughout Northern California. The Sacramento Valley has been developing an Integrated Regional Water Management Plan (IRWMP) to meet local needs and to increase both the flexibility of the water system and the water available for multiple uses in the Sacramento Valley and other areas of the state. This integrated program includes fish passage improvements (fish screens and siphons), groundwater management, environmental water programs, water quality improvements, evaluation of the Sites off-stream reservoir, flood protection, water use efficiency programs, intra-regional water transfers and exchanges, and watershed management.

Thank you for the opportunity to testify before the Subcommittee today. If you have any questions or would like to discuss this further, please call me at 916.442.8333.

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Mr. RADANOVICH. Thank you, Mr. Guy, for your valuable testimony. Mr. Dennis Majors is Program Manager for the Metropolitan Water District of Southern California. Mr. Majors, welcome to the Subcommittee. You may begin your testimony.

**STATEMENT OF DENNIS MAJORS, PROGRAM MANAGER, METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, LOS ANGELES, CALIFORNIA**

Mr. MAJORS. Thank you, Mr. Chairman. At Metropolitan, I guide CALFED efforts to achieve and improve water quality and water supply, particularly at the Delta export facilities.

I will give an overview today of Delta issues, and I will summarize what I think are reasonable emergency, near term and long term, strategies. And then I will highlight what Metropolitan is doing to avert problems that might come out of an actual Delta levees outage.

And finally, I will point out what seem to be possible Federal roles here. Now, we have seen a keen awareness of the critical issues in the Delta. Subsidence is happening up to a maximum of 30 feet in certain areas.

Overlying that is a network of eleven hundred miles of levees, which are protecting major infrastructure, as well as the water passing through the Delta. So it is kind of a recipe for something to happen pretty bad.

Approximately 162 levee breaches occurred in the past century, and 11 have occurred in the western Delta and central Delta, which is the critical subsidence area, and that is what has the greatest problem from our standpoint.

Breaches in the western Delta can result in large quantities of salt water being drawn into Sherman and Twitchell Islands, and when that happens, it just pulls the salinity from Sansume Bay directly toward our pumps. So that is a major concern.

But also major levees breaks interior to the Delta tend to suck a great amount of water into the south Delta, and we can't get that salt out of there through normal releases through our reservoirs. So you can see the types of problems.

Now, DWR predicts a hundred year earthquake would initially trigger 3 to 10 levee breaches on one or more Delta islands. Let me give you a comparison. An earthquake causing this type of damage to Delta levees would most likely be in the magnitude of 6 to 6.5 Richter range, and would result from faults either near to or directly under the western Delta.

A one in one hundred chance of failure means that the risk that we face in the Delta is orders of magnitude higher than the level of risk that we find acceptable for any major infrastructure.

Now, progressive failures following an earthquake could lead to more widespread damage, and you saw a bit of that in Jones Tract last year, where the island flooded, but then it moved right over to the unarmored levees on the inside of Jones Tract near Trapper Slew, and almost took out Trapper Slew.

And if that had happened, water would start marching toward Stockton. So these are major problems, and we need to be strategic in how we analyze it. It is crucial, we think, to have things like where the State has talked about a central regional flood response center which might co-locate Federal, State, and local commands in one location, and be just essentially a fluid overall command.

And in catastrophic events, we could see command escalating up to State or Federal level. We think we need to see that and have a plan for that. It is crucial to have adequate standby emergency contracting capability, and prepositioned materials and equipment in the Delta, and I will give you an idea of what that can do.

You may be able to move in and actually stop a levee breach when it can occur, but we actually have the ability to model. If we know where the breach is at, we can see where the salt is flowing, and then at critical predetermined locations, we might be able to actually stop through a barge or some kind of fill, and keep salinity from marching through a particular channel by closing it in the Delta.

So there are things that can be done, and we think that those need to be looked at. At Sherman Island, they talked about the great amount of water that can be pulled through that area in the event of a breach.

Converting Sherman and Twitchell Island. Now, they are owned by the State Water Project, and we are half of the State Water Project. So breaches at these locations are things that are caused by or draw tremendous water in because the land is so subsided.

So we feel that alternative farming practices that spread water over the land are important to arrest subsidence, and things like rice farming or other practices are probably appropriate.

I heard the Delta risk management strategy talked about, and we think that is a great idea. It is a joint effort of DWR and the Corps. It evaluates hazard and system conditions together, and it has the ability to look at fixes both inside and outside the Delta on a probabilistic basis.

A recent exercise that DWR performed showed that in a 50 breach levee break event in the Delta, what the consequences would be. But we think that is only part of the picture.

Following breaches of the levees, we see progressive failures occurring which are quite plausible through strong Delta winds, wave action, and then erosion. So we are concerned about that.

But in that analysis, what is critical to Metropolitan is the amount of time to repair all of these breaches, because in the meantime, we either are partially or totally shut down on our exports. So that is a real problem.

This determines how much emergency storage we need to have in Southern California, but I wanted to give an idea. Metropolitan, about 10 years ago, recognized these kinds of problems.

We placed strong emphasis on the development of enhanced storage, and more storage in Southern California, and in fact, we have increased our storage almost tenfold in the past decade.

So if that total outage was to occur, we would start pulling on about a 1.7 million acre feet of water for emergency, and we would even pull on our drought storage. That might last 2 to 3 years. So it just points out that it is critical to have real scenarios to fix those levees as you proceed.

So I think the summary is that we heard the word strategic, and I think that is important, not only for emergencies, but near term and future actions, fine tuning our capabilities.

Federal and State legislation could be required to grant additional authority. Federal authorization and appropriation might—in addition to CALFED authorization, might best be considered under the Water Resources Development Act, with expanded Federal flood control responsibility.

I have noted that a greater emergency response role at the Federal level may be required, and I guess in the end, I would say that it seems like the Katrina disaster has kind of focused things, and we may have a limited period of time when so much attention will be focused on this issue in order to enhance our capabilities to respond, and I think we need that a timely action is important.

[The prepared statement of Mr. Majors follows:]

**Statement of Dennis G. Majors, Program Manager,  
Metropolitan Water District of Southern California**

I am a Program Manager with the Metropolitan Water District of Southern California, with responsibilities for guiding the implementation of the CALFED Program to achieve improved water quality and water supplies from Delta export operations. From 2000 to 2002, I was CALFED's Delta Implementation Manager, where I became knowledgeable of Delta levees remediation issues as they relate to the water supply and quality at State Water Project (SWP) and Central Valley Project (CVP) export facilities and the implementation of CALFED Through Delta solution (Figure 1).

This testimony covers the water supply and quality vulnerabilities in the Sacramento/San Joaquin Delta focusing on the water quality and supply effects at CVP and SWP export facilities, needed emergency response capabilities and any near-term and long-term strategies which can be employed to adequately safeguard these water resources.

**Strategic Overview**

The Metropolitan Water District has focused increased attention on the vulnerability of the Delta levees system over the past year. The recent events in New Orleans have heightened our awareness and renewed interest of our Board of Directors on this critical issue, particularly the adequacy of emergency, short-term and long-term governmental response. It is well known that Delta islands, drained for agriculture in the late 1800's, have subsided up to 30 feet through the oxidation of peat soils in critical portions of the western and central Delta. A system of more than 1,100 miles of levees protect major utilities, highways, and railroads and convey fresh water southerly to state and federal export pumps. The most problematic areas remain in the western and central Delta, where peat soil subsidence is greatest, levee designs and maintenance practices are varied and 11 levee breaks have occurred since 1960 (Figure 2). Overall, 162 levee breaches have occurred throughout the Delta in the past century.

Levee breaches in the western Delta can result in an extremely large volume of salt water being drawn from Suisun Bay into subsided islands like Sherman and Twitchell, moving higher salinity concentrations toward the export pumps. Unabated, subsidence on these islands will advance from a total of 30 feet today

to more than 80 feet when all peat is depleted, exacerbating potential flooding and salinity problems. Significantly, multiple levee breaks in the central and southern portions of the Delta draws salt water into south Delta areas, which cannot be easily flushed seaward through the normal fresh water releases from upstream reservoirs.

“Project” levees make up about one-third of the system, which are designed, built and maintained by the Corps of Engineers. “Non-Project” levees make up about two-thirds of the system, and are built to varying standards of design, maintained by local Reclamation Districts (RD’s) and situated generally in the most vulnerable areas of the Delta with respect to subsidence and adverse consequences of failure. A small fraction of the levees are privately owned.

Disruption of the levees system by earthquakes or other hazards could potentially trigger a progression of failures in the Delta levees system that would have serious consequences on Metropolitan’s drinking water supply, since on average the SWP provides more than half of the supplies available to Metropolitan.

A strategic approach to emergency response, and short- and long-term actions to avert or minimize the impact of levees failure is critical. From a levees integrity standpoint, there must be a logical connection to the proposed CALFED Through Delta solution, which relies on the integrity of Delta levees for the delivery of high quality water to export pumps.

Under the DWR Subventions Program, established by the state in 1988, Reclamation Districts maintain, repair, restore their levees, and receive reimbursement through bond or other funds to protect island properties. This program is not specifically aimed at providing strategic benefits to export water quality and supply. The DWR Special Projects Program is specifically established to focus on critical levee problems, but needs strategic direction to be properly implemented.

However, a process is emerging to reduce major risks in the short-term and develop longer-term strategies to fund levee improvements, which benefit export water quality and supply interests. A number of strategies are being embedded in the existing response system, and support is beginning to coalesce around new initiatives.

### **Emergency Response**

DWR predicts a 100-year earthquake would initially trigger the breach of 3 to 10 levees on one or more Delta islands (Figure 3). For comparison, earthquakes causing this type of damage and failure to Delta levees would most likely be in magnitude 6 to 6.5 Richter range, either close to, or actually beneath the western Delta. Based on the progressive damage to the unarmored inside face of levees at Jones Tract (at Trapper Slough opposite the main Jones Tract breach), there is a major concern that that these seismically induced breaches will result in a broader failure of the Delta levee system through wave action from high Delta winds and erosion within the islands being flooded. The effective emergency response at Trapper Slough avoided further flooding of the adjacent tracts toward Stockton. Probability analysis reflecting a 1-in-100 chance of failure of the Delta levee system means that the risk we face in the Delta is orders of magnitude higher than the level of risk we find acceptable for other major infrastructure and critical facilities.

Impending levee failures require rapid response to prevent permanent damage and avert progressive damages leading to serious degradation to export water quality and supply. The following are some potential areas that Metropolitan could support.

Emergency response is now coordinated through a DWR Delta Area Command, linked to the state’s Standardized Emergency Response System. However, DWR is evaluating and we support a Central Regional Flood Response Center in order to:

- Develop a central command, co-located in a common facility, to facilitate assignment of commands and coordinate operations among the federal, state and local agencies; this would force rapid approvals and clearances and save time in advancing emergency response measures.
- Establish a pre-set list of trigger points to ensure that the assignment of authorities moves efficiently from local, to state and federal levels, depending on the severity of the emergency.
- Allow command in catastrophic events to expeditiously escalate, if necessary to the federal level.

Federal and state legislation could be required to grant greater authority to respond to such crises. These should be explored and appropriate legislative approaches taken.

Particularly, we could support measures to reduce the time responding to an impending or actual emergency by:

- Establishing emergency contracting capability with private construction firms to respond immediately in the event of a levee breach or similar situation.

- Substantially augmenting rock stockpiles and equipment throughout the Delta to ensure rapid response to close a breached levee or selected river channels at pre-determined locations; pre-positioned rock stockpiles or barges to achieve temporarily closure could avert the most serious damage and limit salinity intrusion toward the pumps.
- Establish real-time modeling capability with up to date hydrologic data and breach locations to help predict the salinity effects of levee breaches and guide strategic channel closures to minimize salinity intrusion into the Delta.

#### **Near-Term Strategies**

There are deliberate steps that we believe can be accomplished in 2 to 5 years beginning with a comprehensive inventory to identify the levee design standards throughout the entire Delta levees system. This would identify high-risk areas and focus immediate attention. For example, at the State Water Project-owned Sherman and Twitchell Islands, significant soil subsidence caused by farming operations aggravates the risks caused varied levee designs. As note earlier, flooding of these islands would draw large volumes of salt water into the islands toward the export pumps. Here, farming leases managed by DWR need to be converted to farming practices which spread water over the islands most months the year. Rice farming or other practices may be appropriate. Where not already constructed as such, levees should be modified to include toe berms or other stability measures under acceptable design standards, making them less vulnerable to failure under ground shaking, floodwaters or other hazards.

Measures should developed in the short-term to better develop emergency response capability, such as:

- Improved levee instrumentation, inspection program, and real-time monitoring.
- A fully developed emergency breach closure and real time modeling capability to help guide emergency operations to limit salinity intrusion.
- Acquisition of island lands that provide sufficient soil, sand and gravel as a ready stockpile for any scale of emergency.

The Small Projects Authority Program, administered by the Army Corps of Engineers, is ideally suited for post-disaster repairs, maintaining the repaired levee integrity until more permanent repairs can be implemented, or repairing smaller levee problems that could get worse if left unattended.

#### **Long-Term Strategies**

A systematic process is now being undertaken to look at the consequences of different types of failures in economic terms. Alternative actions can then be taken and measured economically. Here is a long-term approach we would support, that could be accomplished in 5 to 15 years:

##### *Delta Risk Management Strategy*

An ambitious federal-state process now underway is called the Delta Risk Management Strategy (DRMS). This is a joint effort of the Department of Water Resources and the Army Corps of Engineers, with assistance from other agencies. It evaluates both hazards and system operational conditions in combination to determine the economic consequences of levee failures in the Delta and downstream. The following steps are taken to determine the most cost effective approach using DRMS:

- Statistically, develop an envelop of economic consequences resulting from multiple combinations of hazards and system conditions.
- Develop alternative remedial actions both inside and outside of the Delta.
- Determine the change in economic consequences (benefits) that results from applying a particular remedial action.
- Determine the most cost effective remedial action as an overall strategic approach.

A number of strategies can be evaluated by the DRMS process both inside and outside the Delta. Any alternative must ensure a reliable long-term Delta conveyance system, which is critical to the delivery of CVP and SWP allocations and water transfers. The following alternative strategies can be evaluated from an economic perspective using the DRMS:

- The Though Delta solution considered in the CALFED Bay Delta Program EIR/S, including the North Delta Flood Control program.
- Modified land use practices or acquisitions at strategically identified islands, along with necessary levees remediation, within the highly subsided western and central Delta.
- Pre-positioned and enhanced downstream groundwater and surface storage; Metropolitan has aggressively pursued these strategies by increasing its storage

more than 10-fold over the past decade, in part to guard against emergency events.

Should additional federal authorization and appropriations be required, beyond the CALFED authorization, such authority may be considered under the Water Resources Development Act with expanded federal flood control responsibility; a greater emergency response role at the federal level may be appropriate as borne out by the recent New Orleans event.

#### *Metropolitan Response*

DWR and UC Berkeley studies indicate that from 3 to 10 breaches of the Delta levees system would statistically occur in a 100-year earthquake event. This would have the likely follow-on effect of multiple breaches caused by repeat episodes of wave action from strong Delta winds and erosion. It is unknown how extensive this type of failure scenario would be, however the progressive erosion on the inside levee face at Jones Tract, noted above, tends to substantiate the reality of this scenario. The extent of these types of scenarios would be determined in a statistical sense under the Delta Risk Management Strategy.

In a recent exercise, DWR performed multiple levee breach scenarios that assessed the consequences of 30- and 50- breaches in the Delta. Critical to Metropolitan is how long the levee repair actions would take and under what conditions export operations could resume. This determines the extent that emergency storage in the Metropolitan service area has to be utilized, as noted below.

In part to deal with these types of disasters, Metropolitan has increased its surface and groundwater storage substantially in the past decade. Total southern California surface and groundwater storage is currently about 2.8 MAF, of which about 1.7 MAF is available for emergency and non-emergency (carryover) purposes. In an emergency, such as a multiple-levee breach in the Delta, Metropolitan would draw upon both emergency and non emergency (carryover) storage at the rate of about 550 TAF per year. This could continue for 2 to 3 years depending on hydrologic conditions while remediation measures were taken in the Delta and SWP supplies were being restored. DWR has estimated that a "worst case" 50-breach scenario may take around two years to repair. It is, therefore, crucial that proper attention be given to levee repair protocols and emergency powers capabilities to complete levee remediation work as quickly as possible.

#### **Summary**

The water supply and quality vulnerabilities in the Sacramento/San Joaquin Delta can seriously affect the CVP and SWP exports. DWR predicts a 100-year earthquake, equivalent to a magnitude 6 to 6.5 Richter range, either close to or actually beneath the Western Delta, would breach 3 to 10 levees on one or more Delta islands. Progressive levee failures, initiated under this seismic event, could lead to more wide spread failures and damages. The impact to southern California would be significant since on average the SWP provides more than half of the supplies available to Metropolitan.

Emergency response capabilities, as well as near-term and long-term strategies need to be modified and fine-tuned to adequately safeguard affected water resources. Pre-positioned materials and equipment could aid in closing beached levees or strategically restrict river channels before widespread damage occurs or adverse salinity intrusion takes place. Near-term remedial actions at Sherman and Twitchell Islands could significantly reduce overall risk to water quality and supplies at export pumps. Long-term strategies guided by the ongoing Delta Risk Management Strategy could identify cost effective actions to reduce economic risk and the potential for loss of life. Clearly, the recent events in New Orleans have heightened our awareness and renewed our interest in this critical problem on the west coast.

A Central Regional Flood Response Center, co-located in a common facility, could facilitate assignment of commands and emergency operations among the federal, state and local agencies in catastrophic events. Overall command could expeditiously escalate, if necessary, to the federal level.

Expanded federal and state authorities may be needed to respond to the scale of emergency operations anticipated in the Delta. As well, new federal and state legislation may be required for equivalent level response, including potential authorizations and appropriations under the Water Resources Development Act. The current Small Projects Authority Program, administered by the Army Corps of Engineers, may also be well suited for post-disaster repairs.

Metropolitan has anticipated these types of emergency scenarios that may occur in the Delta region and placed significant emphasis on the development of enhanced storage accessible to the Metropolitan to serve these and other purposes. Accessible surface and groundwater storage has been increased ten-fold in the past decade,

making nearly 1.7 MAF available for emergency and non-emergency (carryover) purposes, which would be drawn on under these type events. While these emergency supplies would last 2 to 3 years, it is crucial that proper attention be given to levee repair protocols and emergency powers capabilities to complete Delta levees remediation work as quickly as possible.

[Attachments to Mr. Majors' statement follow:]

Figure 1. Through Delta Conveyance Concept

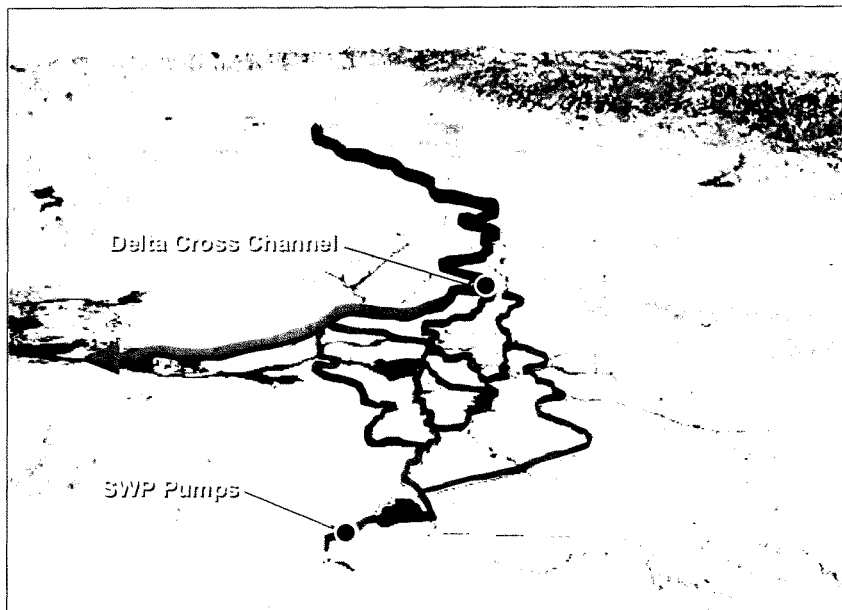




Figure 2. Historic Island Flooding since 1960

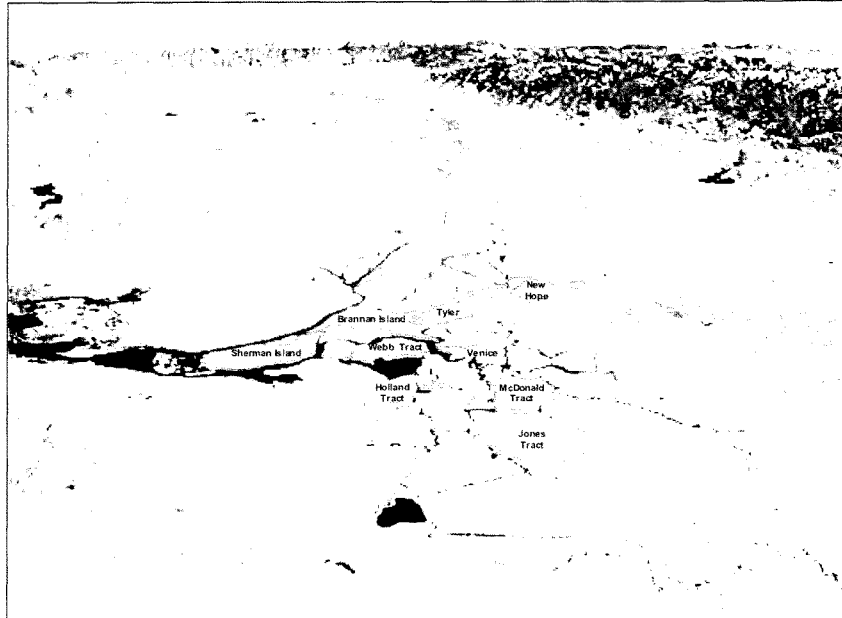
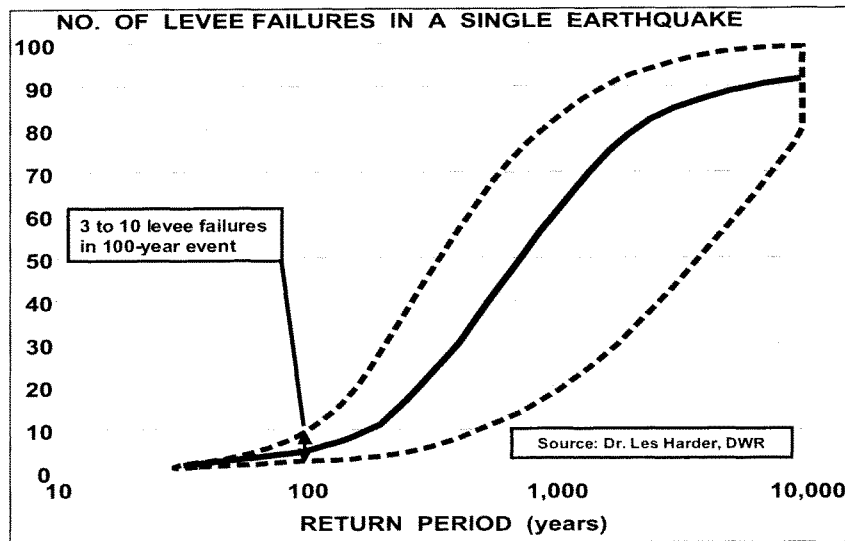


Figure 3. Levee Failures in a Single Earthquake Event



Note: For comparison, a 100-year earthquake event would most likely be in the magnitude 6 to 6.5 Richter range, generated by faults either close to or beneath the Western Delta.

Mr. RADANOVICH. Thank you, Mr. Majors, for your testimony. I will now open up the panel for questions from the dais. I am going to go ahead and start, and state that many of us were a witness via television to the disaster in Louisiana, and after the hurricane hit, the levees broke, and it seemed like forever before they were able to get the equipment in to begin plugging up the holes in the levee.

I understand that this was a situation where they had many days of warnings to get ready for and still were not ready for, and in a situation in California, you might have some warning through increasing rainfall, causing flood problems.

You certainly would not get a warning from an earthquake and the damage that might cause. I want to open up this question to the entire panel. Tell me. Are we due to be managing this problem worse than New Orleans did with the post-hurricane, and the failure of the levees; or is there any way that we could be in shape in order to deal with this thing swiftly and effectively?

Mr. CHRISMAN. Mr. Chairman, if I might.

Mr. RADANOVICH. Mr. Chrisman.

Mr. CHRISMAN. We in California have what we call the Instant Command System in place for major emergencies, and again it is major emergencies for earthquakes, for fires, for most natural disasters, and that is an integrated Federal, State, and local response system in place.

So when, for instance, earthquakes happen, there are already predetermined responsibilities for specific localities, and specific Federal, and mainly State, and local entities to kick in and to begin to help in the activities surround the emergencies.

So our system, quite frankly, is a well-defined system. In fact, we sent to the Katrina disaster, we sent in the neighborhood of 55 of our California Department of Forestry Incident Command Specialists down to Louisiana to begin to help them put—and of course this was after the fact, but help them put an Instant Command Response System in place, much like the one that we have in California.

So we can always do better, and every major disaster that we have in California, there is always an after the fact assessment of how did we do, and what did we do wrong, and how do we need to do better, and how did the specific responsible agencies respond, and did they respond in a timely manner.

So those types of questions, and so we are constantly improving the process that we have in California. So we think we are ready, but we can probably never be too ready, but we think we are ready.

Mr. RADANOVICH. Thank you, Mr. Secretary. Would anybody else care to respond to that?

Mr. NEUDECK. Yes, I have one response, or actually two. One, with resources, and the other with the debate on whether or not we need to move forward. I think that Secretary Chrisman is correct. We do have an excellent emergency response program in place.

But the question is if a Delta island levee breaks, do you repair it. That very question was asked with Jones Tract. We are all sitting here today at the repaired levee. Fortunately, our Governor

flew in Saturday morning after a Thursday break, and made that happen.

We were debating whether or not that was necessary. We can't do that. We can't run that risk. The second thing, and just reality, because of the Endangered Species Act, we only have work windows that open between August and October.

That means that is the only time we can do in-water work. The problem with that is that our resources are moving out of the region because they cannot support water borne equipment for only working three months out of the year.

So we are left with very few water borne pieces of equipment that are available. Now, I think if we had a major disaster, we could draw them from other areas, but that is a fact to consider. Thank you.

Mr. RADANOVICH. Thank you. Any others wishing to respond?

Mr. GUY. I would just say that there is a couple of islands from a real practical standpoint out on the western Delta, Sherman and Twitchell, and we probably could take those out of the equation pretty quickly here by changing land use practices there and stop subsidence.

That does a lot for us for water moving in on the western Delta, but I would point out again that it appears that you might have a tactical method here for actually curtailing salinity intrusion in the event of major breaks of the Delta, and it could be done by great readiness and the ability to go in at predetermined locations and literally through modeling and understanding where the salt is moving, and stopping the salinity flow.

So this thing gets away from you pretty quick as we see it with an initial earthquake, and we see it getting away from you pretty quick in multiple breaks.

Mr. RADANOVICH. Thank you. I am going to ask one more question and then we will go to the next folks here. Now, a lot of levee studies are going on, and I understand that the Corps has to do a study, a 180 day Delta levee study, before any CALFED money can be spent on the levees.

In your estimation, with so many studies out there, can the Corps assemble this study with the existing information? Can they do it themselves? Are they the ones to get their hands around this issue?

Mr. CHRISMAN. Well, absolutely. You know, I think that in my comments, I made the point that their authority is unclear with respect to responding to emergencies like this. But they have the capability. I mean, they have shown that they have the capability, and you will hear from the General here soon in the next panel that comes up here.

But in my view, absolutely. They have shown to us over time, time and time again, that they are good partners in this effort. Again, a little clarification from Federal statutes is what I think would help us in this process, and would help them in terms of responding quicker to help in these activities.

So the will is there certainly, and the knowledge is there. I just think that we need a little bit more clarity in terms of the Federal statute.

Mr. RADANOVICH. Thank you. Anybody else wish to respond? All right. Thank you very much. I ask unanimous consent that the gentlemen from California, Mr. Nunes, Mr. Herger, and Mr. Doolittle, be allowed to join us on the dais, and participate in today's hearing. Hearing no objections, it is so ordered. Grace, do you have questions?

Mrs. NAPOLITANO. Well, I just wanted to ensure, Mr. Chairman, that the Delta Action Bill for 2005 be introduced into the record. That is the one that was just referred to as coming to us.

Mr. RADANOVICH. Today.

Mrs. NAPOLITANO. We have secured a copy off the web.

Mr. RADANOVICH. Great. There being no objection, it is so ordered.

[NOTE: The information submitted for the record has been retained in the Committee's official files.]

Mr. RADANOVICH. If the gentle lady will yield, I will say that I want to hold each member to five minutes for questions, but we will go around as many times as needed to get all the questions asked and answered. So, Grace, thank you.

Mrs. NAPOLITANO. Thank you, Mr. Chair. I have a lot of questions, and I hope that I will be able to get all of my queries somehow answered. One of them has to do with—and this is nothing with what has been discussed, but the fact that a 2005 study done by the State of California showed that the State is at considerable risk in the event of an earthquake leads to levee failures, and it goes on. This is on page 3 of a report to me.

And that in addition, salts from seawater, combined with Delta carbon sources, to form potential causing or cancer causing substances. None of you have addressed that. Is there any information that you can give this panel, or I mean this body, in regard to any findings that you may have, or anything that has come up in your reports or submissions that we can address? Mr. Majors.

Mr. MAJORS. If I could just offer that when Jones Tract broke, the TOCs total organic carbons, we saw a spike in that. We saw increases in algae in some of our receding reservoirs in Southern California.

And in fact, we are studying what we think at one of our reservoirs where they actually had to stop operations and bypass it for a period of time due to TOCs. So that is a particular problem from our standpoint.

Mrs. NAPOLITANO. Well, may I suggest then that as you are moving forward, gentlemen, the panel, that you consider this as part of one of the things that you need to consider as an issue, as it will affect the water quality of Southern California.

To Mr. Chrisman, thank you for spending some time with me, Mr. Secretary. Do the local reclamation boards have the financial ability to adequately respond to catastrophic failures of the levee system, and do they have their own crews and equipment, and further, do they have financial reserves that they will need?

Mr. CHRISMAN. The local reclamation districts that oversee the districts?

Mrs. NAPOLITANO. Correct.

Mr. CHRISMAN. The answer is probably no to all of your questions, and it is not that the desire isn't there. Mr. Neudeck

indicated in his comments the financial capabilities of each of these districts, and the fact that the answer to your question is no doesn't mean that we don't address these issues, and that is what I think this hearing is about.

We did it in Jones Tract, and I think there is two reclamation districts that were involved in the Jones Tract levee break, and clearly ran out of resources early on in this process. The State stepped in and made them whole.

And again that is why we need the strategic look at the Delta levees themselves, because we need to ask some questions about those 60 plus islands in the Delta, and the levees, and we need to ask some serious questions about them, and to what extent do they need to be restored, and to what extent do the levees and where the levees need to be restored, and what are the highest priorities.

So again it goes to the partnerships that we are going to have to create out of these conversations. So going back to your original question, the local reclamation districts do not have the resources.

But working together with our State and Federal partners, we think the resources can be there.

Mrs. NAPOLITANO. Then, Mr. Secretary, that begs the question, why was all this not addressed in CALFED's bill?

Mr. CHRISMAN. Which bill?

Mrs. NAPOLITANO. The CALFED bill that was passed last year, and that was funded out of this committee.

Mr. CHRISMAN. Senator Feinstein's bill, the bill that passed?

Mrs. NAPOLITANO. Yes.

Mr. CHRISMAN. Well, again, improvement in the Deltas is part of the CALFED program, and again, it is a Federal and State partnership. Levees and flood protection, are one part of the overall program of CALFED.

Again, it has to do with the availability of dollars, and again it has to do with priorities in programs. The Federal Government, through your good work here, have stepped up and are good partners in that process. I mean, we think we have—we can be faulted, I think, over the long haul at the State level, and we provided the dollars.

But, you know, budget shortages created us funding some of these programs less than we would have liked to have funded them to be honest with you. But at the end of the day that doesn't mean they are any less of a priority for us, and it should be for all of us in correcting some of these issues.

Mrs. NAPOLITANO. Understood, but one of the comments made in some of the testimony was that the Feds have done nothing but study. Well, with all the studies, it has been reported that whether the State, or the Feds, or the locals, has there been any comprehensive attempt at looking at the overall health of the levees, and what it would need? Because I have seen some figures that refer to the Sacramento Area Flood Control Agency figures is one billion, and the Department of Water Resources estimates in its January report two billion. Has there been any addressing of the total needs assessment, and how we are going to be able to put all of our marbles into the one basket and work together as you say collaboratively?

Mr. CHRISMAN. Again, we talked about the levees in the Delta, and this Delta Risk Management Study that we are involved is going to be doing just that. We are in the process of doing that and prioritizing levees.

Mrs. NAPOLITANO. But it has not been done before is the answer?

Mr. CHRISMAN. Well, we are working with the Sacramento Area Flood Control Association or group, and they are in the process of doing just that, and we are working with the Army Corps of Engineers in that process.

The Governor submitted a letter to Senator Feinstein, and Congressman Pombo, and which I think is a part of the record, that highlighted where those priorities, those quick fixes, those priorities that we already know need to be corrected. That is already a matter of record.

We all agree that there is some projects and programs that we can begin right now to correct some of those deficiencies in those Deltas, in the Delta, and in the Sacramento-San Joaquin area. Again, the challenge is priorities and money.

Mrs. NAPOLITANO. Again, the question was whether there has been an attempt in organizing all of it so we can understand.

Mr. CHRISMAN. Yes.

Mrs. NAPOLITANO. And the report has been where?

Mr. CHRISMAN. The report?

Mrs. NAPOLITANO. To this committee, to the world, about the status of the levees, of the Delta levees, and how we can as a coordinated group be able to help solve all of the above problems? We are talking about band-aid approaches.

Mr. CHRISMAN. No, we are not talking about band-aid approaches.

Mrs. NAPOLITANO. No, no, there have been band-aid approaches, Mr. Secretary.

Mr. CHRISMAN. Oh, I see. Yes.

Mrs. NAPOLITANO. OK. Thank you.

Mr. RADANOVICH. Thank you very much, Mr. Lungren.

Mr. LUNGREN. Thank you very much, Mr. Chairman. I thank you all for your testimony and the work that you have done. It is extremely important for us to focus on the specific projects for the levees, but it is also important for us to think a little upstream to make sure that we don't forget about the work that needs to be done on the dams as well.

And since I happen to live downstream from Folsom Dam, I have a little concern. I have a boat on my second story just in case we have any problems. It is going to be a long fast ride, I will tell you that.

My question is this. Can you articulate—those of you on the panel, can you articulate—sometimes we need to know the dimensions of the problem in stark terms, so we can get the public support for what needs to be done?

We have talked about—I mean, it has been evident on television on what happened in New Orleans. What are we talking about in terms of the Delta? What are we talking about in terms of the Sacramento region?

What are we actually talking in terms of what would confront us if we don't get about the business of improving these levees, and doing modifications that we need to do upstream?

Because as long as we talk here, we know what we are talking about, and we are talking about in a foreign language compared to folks back home. And politically the biggest need we have is to have the political will to do the things that need to be done.

So what are we talking about in terms of the damage to be done in loss of life and/or property, and our water supply?

Mr. NEUDECK. Well, I will start just with the Delta itself. I was partly responsible for the estimates that were put together for the CALFED, and just for the delta, and not upstream of the San Joaquin or Sacramento system.

And in that estimate, you hear a billion dollars being thrown about quite a bit. That estimate was actually \$600 million to a billion, and that is the estimate that we have been working toward to reconstruct the levees to the base level protection, PLA8499, and that was in the bill that was passed out of this committee and that the Congressman was just speaking about.

That was actually one of the features of the bill, was to put money toward that base level protection. That is where the \$600 million to a billion came from. Now, I need to turn to my colleagues here to tell you what other estimates would be upstream to both Sacramento and San Joaquin.

Mr. CHRISMAN. Let me if I might. In my written testimony, I highlighted some of those issues for you, for the members, Congressman. But let me relate some of them to you.

In the Sacramento and San Joaquin Delta, it is the home to about 400,000 people. It has vital port facilities, and major highways, and railroads, as well as State and Federal water projects that provide drinking water for 22 million people in California.

That is approaching one-tenth of the entire United States population, and 7 million acres of irrigated land. That includes about 60 islands and tracts that are below sea level in the Delta.

If you think about earthquakes, Congressman Cardoza talked about earthquakes in some of his early questions, or in his early comments. They are as we know very common in California.

It has been estimated that a 6.5 magnitude earthquake on the coast range in the Center Valley fault—and of course that is a fault that kind of meanders around under the west Delta,—would produce more than 30 levee breaches on 16 different islands.

Levee breaks—and this has been alluded to in some of the previous comments, but levee breaks would draw salt water into the Delta from the Sacramento Bay, shutting down the State water project, and the Central Valley project, and damage to State highways.

The environmental damage to that very, very valuable Delta ecosystem and estuary would be absolutely devastating. Those are a few of the examples that we laid out in some of the estimates that we have made in some of the early conversations.

Mr. NELSON. If I could, we have a long history of small scale frankly, relatively small scale levee failures in California that have been repaired, and this has been happening for well over a hundred years.

And generally speaking, those levees have been repairable. What has happened in the last year or two is the release of a number of reports looking at earthquake risks.

And as Mr. Chrisman mentioned, the study from UC-Davis, and which I mentioned in my testimony, that talks about the potential for the failure of multiple levees, a large scale failure.

And one of the disturbing things about the Jones Tract failure was that it didn't come as the result of a flood. It happened during the dry year, and it happened at a time when the water projects are particularly vulnerable.

So what we are starting to understand now—and I think what has really heightened awareness, in addition to Katrina—is the number of studies that showed the potential for a large scale failure of a kind that we have not seen before, and the need therefore for a more ambitious, more long range, plan to tackle those multiple issues.

Not just water supply, but water quality as Congressman Napolitano mentioned, and protecting all of those Delta infrastructure facilities that are there. It is a complex problem, and we are starting to realize that we need to tackle in a more long term way than we have.

Mr. RADANOVICH. If we could wrap up this question.

Mr. GUY. Well, most of the situations that we have seen have been fairly isolated as you all know, and just to give a feel, again going back to the 1997 floods, and when we had the so-called Pineapple Express. You get the warm water coming in during the early part of the year, and that fairly small break in the whole scheme of the State was over \$300 million worth of damage.

But I think that what we can't lose sight of is that people die during these events, and people have died throughout the history of California because of floods; sometimes in the tens, and sometimes in the hundreds.

And the magnitude of any of these breaches, even the fairly small ones, are serious, and what we are talking about of course is much larger than that.

Mr. RADANOVICH. Thank you, Mr. Lungren. Mr. Miller.

Mr. MILLER. Thank you, Mr. Chairman, and thank you for holding this hearing, and just a couple of quick questions to open the topics, because I don't think we are going to resolve them here today.

Just on the integrated crisis management plan that we have in California, which really is quite remarkable in its completeness, and how many times that we have tested it, and it has worked rather well.

But I would just raise the point that Mr. Cardoza did. I just went through the same exercise that he did in Contra Costa County, and the concern there is that we are not going to get—unlike Katrina, we don't get 4, 5, or 6 days warning. There is no earthquake season.

And there is still a very real concern among our first responders of the ability to contact one another in real time, and understand one another in real time. I think we are going to take some actions in the Congress that are going to free up some money and some spectrum.



But it is still the kind of a frightening program and the ability of Sheriffs' offices to talk to State Forestry, and to talk to others. I recognize that they all understand what to do with the equipment and the assets, but whether they still have the ability to talk to one another without warning.

We know about fire seasons, and people start thinking about who is going to rotate where and what assets are going to be needed in other parts of the State. This is a different situation. So I just wanted to say that.

Mr. Chrisman, let me ask a question. Waking up and reading the press accounts of the new 14 point Delta smelt action plan is quite stunning, in the sense that it sounds like all of a sudden we are in high gear on all aspects of this plan.

I suspect that we are not, because of the divisions and expenditures, and if you did that, of billions of dollars.

Mr. CHRISMAN. That is right.

Mr. MILLER. But there is a phrase that we could calm things down here a little bit. There is a phrase in the action plan on page three of, I think, the executive summary, and it says that the following is a summary of 14 actions that are either currently being implemented or under consideration by the IEP to protect and enhance Delta Smelt. This action plan will be updated to incorporate the results of ongoing scientific studies.

Can I put some confidence in that paragraph, that that is kind of a gatekeeper there, and that we are not rushing off to embrace ideas that we had 25 years ago because now we have a crises in the Delta?

You know, crises are used as multiple reasons in politics, and I just want to make sure that we have some guide post here that we have a lot about standing science work yet to be done, and a lot of questions that remain, because when we ask them about the collapse of the Delta, in terms of water quality, most people tell us that we are not even close to being able to tell you the answers.

People have theories, and the Contra Costa Water Authority has a theory, and the State has a theory, and Fish and Wildlife has a theory. But the answer is that we don't know yet as I understand it?

Mr. CHRISMAN. No, we don't, and it is an excellent question, and as the pelagic fish population crashed over the last year to 18 months, we began to realize that we don't.

And we have in place a very aggressive science program run by the Department of Water Resources, the Department of Fish and Game, looking at such issues as invasives, pesticides, food sources, changes in the Federal and State project operations. They are looking at all of those activities.

Mr. MILLER. I have to be fast talkers of America here to get through in five minutes. So, Barry, is that sort of your understanding of what is taking place?

Mr. NELSON. The Department of Interior's biological opinion on Delta Smelt, one of those species that has crashed, says that they believe, that Interior believes that water project operations is one of the major causes.

The suspicion now is that the decline of the Smelt may have steepened because of invasive species and contamination. We think

that we have to move on all three fronts. We can't wait for the science to come back.

Mr. MILLER. Do you have confidence in this paragraph that this will be done as we—to incorporate the science that is still out there, and that we are not rushing ahead here?

Mr. NELSON. There has been a lot of discussion of what are sometimes called no regrets actions. We need to make sure that we are acting on all three fronts but at the same time build in flexibility to modify over time. We know that we need to act on all three.

Mr. MILLER. OK. Just quickly.

Mr. CHRISMAN. Can I answer your question on the talking among various emergency agencies?

Mr. MILLER. I have a levee question that I would like to ask, and the question is this. I have been doing this for 30 years, and for 30 years we have seemed to very often go back and pile more on top of the levees, and everybody wants their levees protected.

We have learned a lot in flood management, and the Corps has learned a lot, and we have made a lot of different changes in the upper Mississippi, even some in the lower Mississippi, and some on the Napa River, and some even on the Delta.

And to raise this question, are we looking at this in a very real strategic sense about what makes the most sense in terms of whether we have to move levees back, abandon levees, abandon islands? I mean, there is all of this on the table, and we are at some point going to be asking people, and we have already asked for a lot of money to do this.

But we have learned a lot about controlling river flows, and tidal flows, and the use of levees. And let us not pretend like these levees were strategically placed when they were created.

So now a century later, we have to ask some questions, and I am just wondering if all of these questions that are on the table, are they about the architecture of these, in terms of their strategic importance, and what role they play, or are they worth that role or not?

It is a complicated answer and I don't expect a full answer, but again it just goes to the confidence of what we are looking at here.

Mr. MAJORS. I think the answer is yes to all three questions. There is three things taking place right now. One is emergency response, and how you do that. I talked about things that could be considered, and where we actually get out there in real time in the event of a breach, and know where that salinity is going, and literally have the ability to stop salinity from coming into the Delta on channels.

The other thing that was talked about was short term actions. While we have the Delta risk management strategy going on, there are also some no regrets, and I think that Mr. Chrisman talked about it, actions such as Sherman and Twitchell Island, which are obvious fixes as far to the west in the Delta that you can get.

And if those goes, Subsume Bay comes in. I mean, there is no question about that. So those are near term type actions you might say, some 2 to 5 years. Emergency response, we believe it can be enhanced.

And then long term, I believe this Delta risk management strategy is key, because it is looking probabilistically. You can look at one levee or three levees, and take them out of the equation, and cause them to flood, and determine economic consequences all the way into Southern California.

You see, that is a common denominator, and then you can apply a fix against that strategically, and say, well, what if we just put storage in Southern California, and how would that work on economics?

Or why don't we take five islands out in the central Delta and guarantee that they won't fail? Do you see what I mean? It is that type of thing. I think that sort of strategy needs to guide long term actions, a good deliberate strategic action.

Mr. MILLER. My remaining time, Mr. Chrisman, is yours.

Mr. RADANOVICH. There is no remaining time.

Mr. MILLER. I just wanted to be generous.

Mr. RADANOVICH. Nice try. Mr. Herger.

Mr. HERGER. Thank you very much, Mr. Chairman. There is not any other issue more important in the area that I represent in Northern California than the issue that we are addressing today.

So again I thank you very much, Chairman Radanovich, for having this hearing. I also welcome David Guy, who is the Executive Director of our Northern California Water Association, and represents a number of water districts that are so important in our area.

And when we look at the importance, we look at maintaining a secure and reliable water supply and protecting the people and property from flooding. Again, as we see now and are witnessing in the Gulf States, there just are not any issues more important than this.

I think back to some of the problems that point this out even in our area, and some of the problems that have brought about some of the flooding that we have had, that perhaps could have been alleviated.

For example, the 1997 flood that we had in Arboga, just south of Marysville and Yuba City on the Feather River, in which the Corps of Engineers in 1991 indicated, quote, that there would be a loss of human life that would occur if these repairs weren't made.

But yet because of an Elderberry Bush that they found, and no Elderberry beatles, but a Elderberry Bush, for six years, these repairs were delayed. And then finally there was a break there, and three people drowned, including a Japanese-American war hero.

The wife of the manager of the levee district was one of the three, and I understand that even now we are seeing that this continues. I understand that there is stories of vegetation blocking six fee wide erosion holes in levees, and the vegetation could not be trimmed because of endangered beatles.

Would you like to comment on this, Mr. Guy, on just what the Endangered Species Act is doing to our ability to protect our levees, and just briefly, very quickly.

Mr. GUY. Thank you, Congressman Herger. Absolutely, there are these kinds of issues that you see all over the State, and I think it really goes to the fundamental question that was asked earlier, which is we spent a lot of time of course developing a response to

these kinds of calamities, when I think that most of us would agree that we ought to be spending the time up front trying to avoid the problem in the first place, and this is clearly an example.

There are a bogus situation. The levee maintenance was deferred, and just as I might suspect, there is a lot of deferred maintenance going on in all of the facilities, whether they be levees, storage facilities, and of course a lot of that is purely a fiscal issue.

But then there is also the regulatory issues that you have called out, and it seems to me that we just need to push forward and say that we are going to make not only the investments, but also the streamlining in the regulatory process that is necessary so that we can avoid this in the future. That public safety has to come first I would think.

Mr. HERGER. It has to, and I again thank you. And we also see—I don't know if any of you—well, if Mr. Neudeck would like to comment on the extra costs that we are seeing coming about because of this, of all the extra money that we are spending just for what some of us would think would be very fundamental, and just maybe move an Elderberry Plant, but yet literally spends millions of dollars more that we normally would not have to do.

Mr. NEUDECK. Yes, thank you. Well, we don't have the time to wait under most circumstances, and I think that in that particular instance, you had the Federal Government involved. A local reclamation district will work around and avoid that. They will actually set the levee back.

They will do things that practically speaking that you wouldn't want to do, but when we look at these, there is a law that states that this is maintenance of a serviceable structure, and whether there is ESA compliance, and things of that nature.

We are out there basically maintaining a highway, and that some of these plants came in and voluntarily seeded there, and no we no longer have that opportunity to maintain it. No more would we stop maintaining I-5 up California because there was a tree in the median. We would remove it. The problem here is that we can't, and so what we end up doing is that we realign the levee. We move it back to the land site. Yes, there is a tremendous cost to that, or we avoid doing the work, or we only do it during the months of August and October, or whatever the work period will be.

So all those complications add to the bottom. line.

Mr. HERGER. Let me follow up to that. Now, I am born and raised in an area that is flooded, and one of my most vivid memories, and one of my first memories, was being five years old and having our ranch surrounded in water that had been flooded on a tributary at Feather River in 1950.

But back in those days, they would annually go in, and up until 1986, I understand, annually dredge out these rivers of all the sediment that builds up every year. So that every year, these river systems are holding less water than they did the year before that.

There is more and more vegetation and so they can allow less water to be able to travel down as it should. Would you like to comment? David Guy mentioned this phenomenon of a Pineapple Express, which we seem to get about every 10 or 12 years.

And that is where we get heavy snows in the Sierra, followed by a warm rain coming from the Hawaiian Islands, which dumps all

this warm rain on top of heavy snows, and it all comes down at once.

And the best levees as William Hammond, the first water engineer in the State of California, stated that there is only two kinds of levees; those that have broken, and those that will break. We could have the best levees in the world when all that water comes down at once, and not having been dredged, with all of the buildup that we have in it, and without the reservoirs to meter that, we are going to have a New Orleans type flood. Would you like to comment on that?

Mr. NEUDECK. Well, I will take the first stab. We are going backwards. That siltation or that sedimentation can be used to build levees, but in reverse, they are going to buildup, and our conveyance capacity drops as a result of that, and it all comes down to the constituents in that sediment.

Into the mid-to-late 1980s, we used to go out and we would dredge at will. I mean, I worked with Fish and Game and the Streambed Alteration Agreement, and it would take us about \$25 and two days and we would be out there dredging.

1989 rolls around and Fish and Game got interested, particularly in the Delta, and the Regional Water Quality Control Board got interested, the cessation of dredging. For instance, we went ahead and placed some dredged spoils from the Port of Stockton on the levee on Trapper Slew that has been mentioned here in this hearing to save Highway 4 and another 40,000 acres from being flooded.

And we have been involved with the State in basically a lawsuit from that point on, because there was some sediment characteristics that a couple of environmentalists did not like that were in that material, even though it saved public health and safety.

So there is a real restriction on the use of sediments and dredged borrowed soils. We would really like for that log jam to be broken, because it serves two purposes. You open up the conveyance, and you also provide a borrowed source of material, a very valuable borrowed source.

Mr. HERGER. Well, just in closing, we have environmentalists—

Mr. RADANOVICH. Wally, are you going to sum up?

Mr. HERGER. Yes.

Mr. RADANOVICH. Your time is up.

Mr. HERGER. Thank you.

Mr. RADANOVICH. We will get back to you. I want to give everybody an opportunity. Mr. Cardoza.

Mr. CARDOZA. I will yield to Mr. Costa.

Mr. RADANOVICH. OK. Mr. Costa.

Mr. COSTA. Thank you very much, Mr. Chairman; and thank you, Mr. Cardoza, for yielding your time. In listening to the testimony that has been made here this afternoon, two things. One is that I reminded of all of the years that many of us together have worked on trying to protect and improve the issues surrounding the Delta water quality fisheries, and the ability to, when feasible, to export water south of the Delta, and going back to the Boatright Delta levee program.

As a matter of fact, I counted the amount of money that the State has put in for Delta levee rehabilitation over the last 10

years, and the number in Propositions 204 and 13 total over \$125 million, specifically as it relates to 1996 for Delta levees.

And there has been over \$500 million that has been at one level or another, and provided in ways for fishery habitat, and restoration efforts, and the like. So it is not like the State has been sitting back idly waiting for something to happen.

What I would like to do in my limited time is try to focus on alternative solutions and cost effectiveness. Certainly the comments that have been made, in terms of the critical importance of the Delta as the linchpin of California's plumbing system for water supply, water quality, and the environment, I think is known to all the Californians here.

In light of Katrina, we have an opportunity it seems to me to try to draw additional Federal support beyond the CALFED effort, and I think that is where we ought to be focused. And my question, Secretary Chrisman, to you would be is the Department of Resources carefully examining the risk assessment versus the risk management in terms of where we ought to put our money?

I mean, we did have a levee failure just over a year ago, and I think Mr. Herger is correct. We all understand that there are only two kinds of levees; ones that have not failed and ones that will.

And with the subsidence problem—I mean, I think there is an open question as to—versus continuing to reinforce levees, and taking some of those most vulnerable levees, as was suggested by the gentleman from Metropolitan, and converting them into water supply, and doing other kinds of things that wouldn't be pouring money down an efficient way to protect the Delta.

Mr. CHRISMAN. Well, Congressman Costa, that is exactly what this Delta Risk Management Study is about, is to do just that, and as Mr. Major indicated. I mean, it is kind of a scenario planning approach, and the kind of what-if approach with various scenarios.

And at the end of the day when the study is done, what it is going to be required is political will to make some of the significant changes that are going to be recommended as a part of this study.

They are going to be obvious out of this study, that come out of this study. I mean, he is absolutely right. I think we already know on the western part of the Delta some of those levees need immediate attention.

And I think that many of us already know that in other parts of the Delta where those particular vulnerable areas are.

Mr. COSTA. You are going to put a price tag scenario, one; and continue to do what we have been doing, and that is to just reinforce the existing levees?

Mr. CHRISMAN. Absolutely. Right.

Mr. COSTA. Both project levees and non-project levees.

Mr. CHRISMAN. Yes.

Mr. COSTA. And in scenario two, looking at and dealing with the dredging issues. And in scenario three, looking at turning in some of the islands to reservoirs, and in essence buying out the property owners.

Mr. CHRISMAN. Right.

Mr. COSTA. An in scenario five, god forbid should say the word—what is it now, the correct word? It is no longer PC.

Mr. CHRISMAN. It is a peripheral canal.

Mr. COSTA. Right, it is a peripheral canal, but otherwise known as an isolated facility.

Mr. CHRISMAN. Right.

Mr. COSTA. And you will get price tags for all five of the scenarios.

Mr. CHRISMAN. Well, you would have to.

Mr. COSTA. Well, I don't think we can come back here, notwithstanding Katrina, and ask for additional money notwithstanding CALFED.

Mr. CHRISMAN. That is right.

Mr. COSTA. And unless we can do a risk assessment, along with a price tag?

Mr. CHRISMAN. Well, you are absolutely right, and again, you talk about the Delta facility, and known as the peripheral canal facility or whatever, and that is an integral part of the record of decision.

Through CALFED, we are going to be teeing that discussion up again here in the not too distant future, again talking about it, and I hope from a strategic standpoint, looking at it strategically, what does it mean, and how can we better move the water around through the Delta, and how can we better manage that ecosystem, and with the demands that are on that system today.

I mean, what are the right answers? We don't know them yet, and so we are going to be teeing those conversations up as a part of this CALFED process.

Mr. COSTA. And what is the time line that you expect, because memories around here—I have only been here around 9 months, and I can see that they are pretty short.

Mr. CHRISMAN. The Delta Risk Management Study was due to be completed in early 2007, and we are going to speed that up.

Mr. COSTA. You need to speed it up.

Mr. CHRISMAN. Exactly, but I think we already know what in some of the most vulnerable areas of the Delta, particularly on the western part of the Delta, what needs to be done.

There are going to be some of us suggesting that we need to move quicker in some of those areas, and so we are going to be doing that.

Mr. COSTA. One last quick question.

Mr. RADANOVICH. Quickly.

Mr. COSTA. The FED agencies and the locals are participating?

Mr. CHRISMAN. Yes.

Mr. COSTA. I just want the report to be credible.

Mr. RADANOVICH. Than you, Mr. Costa. Mr. Pearce.

Mr. PEARCE. Thank you, Mr. Chairman, and thanks for letting me in on this California caucus.

Mr. RADANOVICH. This is a California——

Mr. PEARCE. Yes, I understand, and if I can learn that secret handshake, I will then ask my wife if she minds if I get that secret tattoo put on. First of all, I would go to Mr. Nelson.

Mr. Nelson, on item three on your presentation, it says that you would reduce dependence on water from the Delta. How much of a percentage reduction would you think long term you should try to achieve? Just a percent? Keep in mind that I have lots of questions and a long way to go.

Mr. NELSON. Frankly, there are a lot of different ways of tackling that, but the one way that I would approach that is that in the last five years—my testimony has said that in 3 of the last 5—

Mr. PEARCE. No, just how much of a percentage reduction, and if you would give a percent.

Mr. NELSON. Well, a 10-to-20 percent reduction.

Mr. PEARCE. OK. Thank you. Mr. Majors, in Item 2 of his report, Mr. Nelson says that users should—that the water exporters should benefit, and simply reading here, I am taking a guess that you might be a water exporter.

Is that rational that you would be expected to pick up the maintenance of the levees? Is that something that you would agree with, either up or down?

Mr. MAJORS. I don't think that we are talking about issues of taking all of it on board, but if we can a specific benefit that we are receiving, that is the type of thing that we need to see to make a determination that there is some money that we want to provide. But we have to have benefits noted on this so that we can react to that.

Mr. PEARCE. Thank you. Mr. Nelson, you heard Mr. Neudeck's comments about the problems and lawsuits. Philosophically, do you agree with the lawsuits that are stopping progress on dredging and cleaning out the systems behind the dams or the levees, and do you understand the process by which groups do that, or are you philosophically opposed, or are you supportive of those lawsuits?

Mr. NELSON. I would have to say that I am not familiar with those lawsuits. I have worked on dredging issues.

Mr. PEARCE. You heard the testimony, and it is a fairly simple deal. They are saying don't take the stuff out because there are sediments there that are causing problems to the environment, and so philosophically, it is either yes or no. It is a fairly easy question.

Mr. NELSON. Well, our philosophy has been to try to find solutions on dredging issues, and we have been very successful in doing that.

Mr. PEARCE. And so you would be opposed to the lawsuits?

Mr. NELSON. I would have to say that I don't know the details, but what I do know is that we have been involved with projects that have allowed dredging projects to move forward and address sedimentation and contamination without litigation.

Mr. PEARCE. As far as stopping the sprawl in the Delta, how much would you go back and retrace, or would you simply stop further development in the Delta? Would you actually take houses out and residents out?

Mr. NELSON. I don't think that anyone is talking about taking residents out. Now, that might happen if individual islands came out of production, but some of the deeper islands. But no one is talking about eliminating developments on the periphery of the Delta.

What is becoming clear now is that areas of the Delta that are not as seriously subsided may be vulnerable to failure, and we need to take seriously the potential that folks living on those islands could be at risk.



Mr. PEARCE. Mr. Chrisman, that 10 to 20 percent reduction in Delta water, is that something that you think is feasible and willing to support?

Mr. CHRISMAN. Well, you have to put it in the larger context. I mean, if we are going to take that reduction, we have to make it up somewhere else from my perspective as one of the water managers in California.

So we are going to have to make it up somewhere else, and the somewhere else is going to be challenging.

Mr. PEARCE. And the somewhere else is through conservation, and that is the testimony, and can you achieve the 20 percent reduction and get the 20 percent savings through conservation?

Mr. CHRISMAN. It is possible. It is possible with new technologies, it is, but again, you have to put that in the larger context, a larger management context.

Mr. PEARCE. Mr. Neudeck, would you care to comment on the workability, the ability of the groups here bringing court actions to stop your progress, and how much are they interested in working solutions, or are they just interested in obstruction in your opinion?

Mr. NEUDECK. I think there are some groups out there that are just interested in obstruction. Working with the State and the regional water quality control board, I think their intent is to find a solution.

Unfortunately, the Delta has a drinking water quality standard over it, and provides—

Mr. PEARCE. Well, I am about to run out of time here. For those groups that are simply after obstruction, what could motivate them to obstruct the processes of the cleaning out of a levee system?

Mr. NEUDECK. There are some political ones, particularly with the port.

Mr. PEARCE. Thank you, Mr. Chairman. My time is up.

Mr. RADANOVICH. Thank you, Mr. Pearce. You might want to know, too, that the secret handshake is a little different in Southern California than it is in Northern California. Mr. Cardoza.

Mr. CARDOZA. Thank you, Mr. Chairman. I am going to skip any comment on that last comment, but that is interesting to know on an issue like this, the big guns come out; the appropriators, the Ways and Means folks. We welcome them over here.

I would like to start my first question to Mr. Neudeck. You have mentioned a couple of times that there is this window period of an allowability of work because of the Endangered Species Act. Could you elaborate on that? I am not familiar with why that would be the case.

Mr. NEUDECK. Certainly. It is the in-water work. It tends to be toward the fisheries. So any in-water work has to be in a non-spawning period, which tends to be overall in the Delta from about August 1 to about October 30, or November 1.

So anytime that you work on the water side of the levee, which is the most active area for erosion and activity, you have to do it in that period. Otherwise, everything else has to be done up land or on the land side. So you will see that is why the advent of the setback levee, and moving levees landward, has another merit to it.

Mr. CARDOZA. Thank you. I want also at this point to associate myself with comments that Mr. Herger made earlier on the Elderberry Beatle, and that is the reason why my community of Newnan has flooded twice now, although I will say that the Corps and other agencies have been much more amenable in working with us on that problem, and a number of challenges that we have there, and I would like to thank them for those efforts.

And I think that we have eliminated some of those challenges, or at least reduced the challenges of having that, and there are other threats to the community for other reasons. I would like to focus most of my time remaining on questions other than dealing with levees, as other members have adequately dealt in my opinion with questions of the levees.

But as Mr. Herger as well has said, there are going to be failures, and my concern is the catastrophic failure, and the inability for us to truly be adequately prepared. In 1997, my district was at ground zero on many of the flood, as Mr. Herger's was.

And I patrolled the levees and saw boils, and I could not believe what I was seeing; that 30 feet out, and sometimes more, into a field next to a levee, you would just see this boil of water start to come up, and boom, and that would be the precursor to possibly a levee failure.

And the hydrology of levees are amazing, but all that pales in comparison, and that is during a flood situation obviously. But all that pales in comparison to what would happen during an earthquake. And in an earthquake—and my comment is to Mr. Chrisman, because we were talking about emergency preparedness.

And while this is not your department as a member of the Administration, I thought our Office of Emergency Services did an admirable job, both then and some other times.

But I will tell you that I have been involved in other crises where there has been difficulty getting a decision made to act, even with as good as we are in California. And I am afraid that without the inoperability of communication, without having a more targeted plan of action to decide how we are going to deal with things before, that no amount of studies on the shelf are going to help us unless we are really prepared for the emergency that I think is most threatening to us, and that is the earthquake failure of the Delta. And I would like to have you have an opportunity to respond to that.

Mr. CHRISMAN. That is an excellent question. I mean, that is a question that we ask ourselves all the time quite frankly. It is a question that we are asking ourselves as we go through this levee assessment right now.

And it is a question that we ask ourselves every time that we have a natural disaster, and we sit back, and as I said earlier, try to figure out what we did right and what we did wrong, and try to learn from that.

Earthquake preparedness in California is something that we are very serious about, and all we have to do is look around the State, and look at what is happening in some of the most earthquake prone areas, in terms of building rehabs, and that sort of thing.

I mean, I think we recognize it. But levees as you point out, and particularly in the Delta, and the age of those levees on peak soils,

with the subsidence out there, and with the critical nature of which we have come to depend on the Delta from an estuary standpoint, and from a water supply and water quality standpoint in California.

Again, we are going to have to do a better job, and that is why this scenario planning that we are going through right now on the Delta levee system is going to be critically important.

And it is the kind of scenario planning that we need to do with respect to our emergency preparedness, particularly as it relates to levees, and we are going to be suggesting some of those kinds of activities along the way.

But you are right to be concerned about it, and you are right that you can in most emergencies, you can never be too prepared. But in earthquakes as it relates to the levees, we can stockpile material. I mean, there are a lot of things that we can do, rock materials and other materials, to quickly get in and fill the breach.

That is something that we learned out of the Jones Tract disaster, and a number of those things are in the process of being done. But we can do better.

Mr. CARDOZA. I would just say that if our local officials can't communicate, and they don't have the ability to marshal those services between irrigation districts, or reclamation districts, the State, as I have seen in the past—we can stockpile until the moon and not ever have the ability to get the equipment to the right place before it is too late.

Mr. CHRISMAN. let me speak to that issue. I wanted to speak to it. Mr. Miller asked me about it, but we learned that again, that interoperability of communications during major disasters, and we learned that the hard way during the 2003 fire storm down in Southern California, particularly in San Diego County.

And we have at our level moved to correct that. Essentially what we have gotten is that we have hand radios, and quite frankly, when we get into a multi-agency event on the ground, we carry hand radios in, and pass them out to our sister, and brother departments, and agencies that are working with us on the disaster.

We are doing that now. We stepped up to the legislature last year, and got monies to do just that kind of thing. We are working to try to get mutual bands, FM bands and other radio frequency bands that are emergency only bands, and that only work within a certain range all over California.

So we are working to do just that, and so that is a part of our—that is part of what we learned out of the 2003 disaster, and we have moved to correct that, and we are working with our Federal counterparts, at the Forest Service and others, to correct that also.

Mr. RADANOVICH. Thank you, Mr. Cardoza. Mr. Nunes.

Mr. NUNES. Thank you, Mr. Chairman. It is good to be back on your committee, and thank you for holding this very important hearing on Delta levee security. I think it is really critical.

I had a chance to spend some time in the Delta two weeks ago looking at these levees, and I think that there could be some considerable challenges to the Congress if we don't do something, especially in a wet year.

With that said, Mr. Nelson, I would like to ask you do you think that storage facilities, especially on-stream storage facilities, should be an important piece to Delta levee security?

Mr. NELSON. As I mentioned, one of the concerns about the Jones Tract failure is that it did not happen during a flood. It didn't happen during an earthquake. It happened during a time of the year when it was much less expected than that.

Looking at Delta issues, at the moment, it frankly doesn't seem that additional storage is going to make a significant difference in protecting the long term stability of the Delta. There is a storage project in the Delta right now that is really to be constructed, or virtually ready to be constructed, Delta wetlands.

And unfortunately—and that is a creative project that the environmental community frankly has not been—where the environmental community has not been the problem for the proponents of that project.

The problem is that no one believes that that project is financially viable. The Department of Water Resources doesn't believe it at the moment. The Water Exporters don't believe it, and we think that cost factor has to be factored in at the moment.

Things like restoration of the Delta, setback levees upstream that actually offer environmental and flood control benefits, we think that those projects are really promising.

Mr. NUNES. So for the record, you are not for onstream storage?

Mr. NELSON. Not for it? Well, there are—

Mr. NUNES. I know you are against the peripheral canal, and you outlined that in your testimony.

Mr. NELSON. There are a lot of water projects in California that we have never taken a position on. I am not aware of a surface storage facility that we have endorsed. The surface storage projects are under investigation right now, and other than Delta Wetlands, for which there are no customers, the other projects are projects that are not right now at a feasibility level. And at the moment, none of those projects have shown themselves to be feasible to any stakeholders in California.

Mr. NUNES. Well, I am concerned that in a wet year, you know, with the ongoing lawsuit that you are a part of, to take water out of the San Joaquin River, and in a wet year wouldn't that add to the problem of levee security?

Mr. NELSON. Without a doubt, it would potentially offer storage, and potentially offer some benefits, both for river restoration and for flood protection in some places. As you know, we have looked in the San Joaquin River, and the potential for small surface storage projects to be helpful there.

Those are expensive, but we think that some of the smaller ones are worth examining. Groundwater storage is far less expensive, and California has made a major investment there in terms of cost effectiveness for water supply.

That is where not just the environmental community, but that is where most Water Districts have chosen to put their money.

Mr. NUNES. I am not opposed to any of those projects, but we always get to the same point when we have a lot of water in California, it all comes at one time. And unless you have the proper storage facilities to handle that flow, you have major flooding.

And you can build a lot of off-stream storage, and a lot of ground-water storage, and you are going to have considerable flooding, which leads me to the concern that I think you bring up, and maybe you are right on this one, and that is returning some of those islands out there to marsh habitat.

And I am interested in knowing the 60 islands that are out there, how many of those 60 should be flooded out and returned back to natural habitat and marshland?

Mr. NELSON. I can't give you a number in terms of which, but I think that is one of the places where we really need a Delta wide assessment of how many and which islands we need to return.

With regard to your comments on surface storage, from our perspective, we have no concern with all options being on the table, but we think that we need to look at all of those options—surface storage, groundwater storage, levee setbacks, and so forth—and look at all of those options as part of a strategy, and honestly evaluate the costs and the environmental solutions. We think that can be doable, and produce results that will provide multiple benefits.

Mr. NUNES. But you definitely think that we should take some of the islands out and just—that we should flood a lot of those islands out there?

Mr. NELSON. Given that there are eleven hundred miles of waterways, I believe, in the Delta, it is going to be extremely difficult to maintain all of those Delta levees over the long term.

And if we reduce that number by restoring some islands, it means that we can concentrate our activities on other islands, and that is true in the western Delta as a number of folks have mentioned, and it may be true in other parts of the delta as well.

Mr. NUNES. Thank you. Thank you, Mr. Chairman.

Mr. RADANOVICH. Thank you, Mr. Nunes. Welcome to the Subcommittee, Mr. Doolittle. John, if you have any questions, feel free.

Mr. DOOLITTLE. Thank you very much. I appreciate being up here with you, Mr. Chairman. And I guess that as I was looking over this letter, Mr. Secretary, Secretary Chrisman, from Governor Schwarzenegger, are you aware, Mr. Chrisman, of what the current value of State property is in the American River floodplain?

I know what the total value of all assessed valuation is in the floodplain, but my figures are about nine years old. Are you doing an updated study for the State based on the concerns that Katrina has raised, and the possibility of a catastrophic event facing Sacramento?

Mr. CHRISMAN. You know, I don't know whether we are in the process of doing that. I will have to get back to you on that, Congressman. I mean, if you would look at the Governor's letter, and you look at the projects in the Governor's letter that I think you were alluding to, it seems to me that those are the kinds of questions that we need to answer. But I can't tell you if that is in the process right now.

Mr. DOOLITTLE. Well, I would appreciate it if you would for the record submit your answers.

Mr. CHRISMAN. Sure.

Mr. DOOLITTLE. What if it turns out that no one is doing that? Is that something that you would feel would be something that you would care to commit to begin?

Mr. CHRISMAN. I would need to ask why it is not being done. I mean, I can at least commit to that today, to ask why, because it seems to me that we need that base of understanding before we can make some of these bigger decisions.

Mr. DOOLITTLE. Well, I have marveled over the years, 25 some years, where it seems that the State of California has never appeared to be that concerned about the value of its own property within the floodplain.

And nine years ago, I believe these are the figures that we had from the Sacramento area flood control agency. I believe there were \$40 billion of assessed valuation in property in the floodplain of the American River.

That is total, and I don't know what percentage that belongs to the State but obviously the State has a number of buildings there in the American River floodplain, and I would like to have an accurate figure on that.

Also, just to draw your attention, there was a Blue Ribbon Study done by the Corps of Engineers a few years ago, and I don't remember the name of that, but in there, they made the statement that levees are inherently unstable and less reliable than on storage dams, and I never hear any talk of dams anybody, either out of our Sacramento Administration, or frankly our Administration in Washington, D.C.

Dams are like politically incorrect. So we talk about levees, which are inherently less reliable. I just wondered. Do you—you are living, I presume, someplace around the Sacramento area; is that right?

Mr. CHRISMAN. That is correct.

Mr. DOOLITTLE. Are you in a floodplain?

Mr. CHRISMAN. Yes, I am, and I am worried about it. My office is on the thirteenth floor though.

Mr. DOOLITTLE. Do you have any—

Mr. CHRISMAN. I hear. No, that is a very good question, and again it is a part of the record of decision that created the CALFED process. We have teed up, and we are studying five different storage projects around California.

Mr. DOOLITTLE. Yes, are any of those onstream storage?

Mr. CHRISMAN. Maybe. Yes, could be, but they are enhancements. There is Shasta. There is Dam Los Banos Grande, a number of those kind of projects. Again, we are still in the feasibility study stage.

We are still trying to figure out whether in fact they are economical from a storage perspective and water yield perspective. So to that extent, we are doing just that. We are at work trying to enhance water storage projects that Mr. Nelson talked about.

We are encouraging all of those activities. And our California water plan, if you look at our Bulletin 160 process that we are involved in now, we are going to be relying specifically on integrated regional management.

We are prospectively looking out for 30 years, in terms of these type of water management projects. Ultimately, additional storage

projects will be a part of that. But we think in the short and medium term that there are significant benefits that we can gain from additional groundwater storage projects, conservation, recharged basin, those type of activities, that will gain us supply over time.

Mr. DOOLITTLE. Those will help with supply, but they are not going to help protect your property in the American River floodplain. So are you doing anything about that?

Mr. CHRISMAN. Well, again, we are in conversations with our partners at the Bureau or Army Corps of Engineers, and the Bureau of Reclamation, and others, and you will hear about that from our folks from the Bureau of Reclamation. But, no, at this stage of the game, we are not.

Mr. DOOLITTLE. Well, unfortunately—and I do mean unfortunately, I cannot stay to hear that testimony, but I will bet you that they are not going to testify that they are doing anything about that either. What do you bet?

Mr. CHRISMAN. I am not going to take you up on it, Congressman.

Mr. DOOLITTLE. Thank you, Mr. Chairman.

Mr. RADANOVICH. You are welcome, Mr. Doolittle. Mrs. Napolitano. Excuse me one second. Secretary Chrisman, I understand that you may need to leave shortly?

Mr. CHRISMAN. I do need to leave, yes.

Mr. RADANOVICH. And I want to thank you from being here, and excuse you, and for any other members that might have questions of the Secretary, we will submit them in writing.

Mr. CHRISMAN. Please do.

Mr. RADANOVICH. And we would appreciate a prompt response.

Mr. CHRISMAN. Thank you a lot. I appreciate the opportunity to be here today.

Mr. RADANOVICH. Thank you, Mr. Secretary. Grace.

Mrs. NAPOLITANO. Thank you, Mr. Chair. For Mr. Majors, there is a couple of questions that I have. One of them has to do with climate changes. Do you agree that climate change in sea level rise is an important point to consider?

Mr. MAJORS. No, we think they are. In fact, a couple of things. If you start looking at subsidence taking place in the Delta, subsidence is taking place at about a foot-and-a-half per decade. Sea level rise, there is a fair amount of numbers out there, but it might be in the range of .2 feet per decade.

So subsidence sort of overtakes it. Overall subsidence has been taking place in the Delta since the islands were drained in the 1800s, at about a foot-and-a-half per decade. And then you can look at a number of sea level rise analyses, but it tends to be in the range of a couple tenths of a foot per decade. Two-tenths, let us say.

So the sea level rise is the—pardon me. Subsidence is the greater problem, but keep in mind when that happens that one is going down and the other is coming up. So it makes the levees higher. So it all contributes to more risk.

And beyond that though in Southern California, we sit on a number of forums dealing with the sea level rise issue, and that prompts a very robust conservation strategy and reclamation strategy that we employ.

We have a number of pieces of information that we could share with you and discuss on that.

Mrs. NAPOLITANO. Thank you. May we introduce those into the record?

Mr. RADANOVICH. Yes, without objection, it is so ordered.

[NOTE: The information submitted for the record has been retained in the Committee's official files.]

Mrs. NAPOLITANO. Thank you. Does the MWDSC contribute financially to the Delta Levee and maintenance improvements, sir?

Mr. MAJORS. Would—

Mrs. NAPOLITANO. No, do you currently.

Mr. MAJORS. Only in the sense that we support the bond issues that are used to, say, reimburse the reclamation districts, but the overall question of user fees and such is under way right now in CALFED and DWR.

Mrs. NAPOLITANO. Does that include the risk study?

Mr. MAJORS. That I can't respond to. I would have to get that answer for you.

Mrs. NAPOLITANO. If you would.

Mr. MAJORS. Definitely in terms of right now at the moment, there is no what you would call an annual fee or something like that, that the Metropolitan is paying

Mrs. NAPOLITANO. There might be other—how would I say—assistance.

Mr. MAJORS. Well, I will just loosely use the term user fees. If we can define a benefit, giving us an economic benefit, I think that is what our board of directors wants to see. Levees might apply.

Mrs. NAPOLITANO. Certainly. That means that you are protecting our water supply in Southern California.

Mr. MAJORS. Right.

Mrs. NAPOLITANO. Thank you, sir. Mr. Nelson, can you tell us whether the enactment of the AB 1200, which is fairly similar to CALFED, will that help solve the problem of Bay Delta, or address the problems of Bay Delta, and wasn't that what CALFED was supposed to do?

Mr. NELSON. AB 1200 was a bill that was just signed by the Governor that directs the State to look at the Delta with regard to system vulnerability, the issues that we are discussing today, and to report back on options.

We think that is really going to help strengthen that program and make it a more robust program. Should CALFED have taken a broader look at these vulnerability issues from the start? It probably should have.

But frankly the strategy for the first several years of CALFED was to spend money in the State as Mr. Costa pointed out. It has spent quite a bit of money on levee maintenance. What has not happened is the development of an overall plan, and the developments in recent years we have been talking about have really highlighted the need to step back and develop that broader plan for the future of the Delta.

Mrs. NAPOLITANO. One of the questions that has come to mind as you are talking about the islands, and whether or not there will be assistance to be able to shore up some of those levees in those areas that are populated, if you will, what about flood insurance?



Is it a requirement? Are we ensuring that those individuals that are moving are aware that this is floodplain, and that they must have flood insurance?

Mr. NELSON. Those developed areas do require flood insurance. There is some concern given the increased understanding of the vulnerability of the Delta that we may have underestimated the risk to some of those Delta islands, and that means insured communities may think that they are safer than they really are.

Mrs. NAPOLITANO. Is any attempt being made to be able to educate and inform those currently residing in those areas?

Mr. NELSON. I honestly don't know. The Governor has recently appointed a new Reclamation Board at the State that is responsible for tackling some of these issues, and I don't know what their programs are to address that public education need.

Mrs. NAPOLITANO. Thank you, sir. Thank you, Mr. Chairman.

Mr. RADANOVICH. Thank you, Mrs. Napolitano. Mr. Nunes.

Mr. NUNES. Thank you, Mr. Radanovich. Mr. Neudeck, I have a question for you. You have done a lot of work on the levees in the Delta.

Mr. NEUDECK. Correct.

Mr. NUNES. And I read in your testimony that you are—you cite a lot of reasons why you should not flood out any of the existing islands that are out there, the 60 islands, and wants to flood out some of the islands, and I don't know how many of the islands that he wants to flood out.

So based on your testimony, are there any circumstances where you would flood out any of the islands?

Mr. NEUDECK. Basically, the answer is no. I think that we were specifically relating to the Delta project which was four centrally located islands. We are having enough problems keeping the water out, and putting water in is a substantial challenge.

What occurs when you put water in these Delta islands, they actually seep under the adjoining channels on to the neighboring island, and destabilize the levees in the process.

They also create a much larger windfetch, potentially opening up the Central Delta to a large lake. We have testified against those projects for those challenges, and the solutions for those challenges, and those challenges will become a very large expense to try and offset them.

The idea of trying to reduce the seepage would require putting pumps around the entire island that was flooded, and basically return the seepage water from going to the neighboring islands back on to that island.

And that is where I think that Mr. Nelson is indicating the expense of this is really beyond where anyone thinks they were going. So the challenge to do that—that is really not the place to put them. If you are going to do off-stream storage, get it outside the Delta. The Delta is not the area to be putting off-stream storage.

Mr. NUNES. So are there opportunities then to build a type of—either through a Delta canal, or peripheral canal, that would bring more fresh water into the Delta?

Mr. NEUDECK. We are absolutely against a peripheral canal for a whole host of reasons, and the primary reason is the Delta pool. We are all in it together. State law establishes that the delta pool

is being maintained, and the locals and the diverters share in that same common pool, and we are going to stand strong behind that.

We are absolutely against any peripheral canal. You will kill the Delta as you see it today, along with all those that are benefiting from it. But we believe that State law protects us against that.

Mr. NUNES. But that is a pretty harsh criticism of the peripheral canal. I mean, under some studies that I have seen, they actually show that there could be some improvement, in terms of being able to flush the Delta areas where you don't get the fresh water, and to bring the water around, and then back through the Delta.

Mr. NEUDECK. I will answer your question again. Yes, I am absolutely harsh against it, and the reasons for it is that if they have it and we want it, those that have it will continue to have it, and those that need it will never get it.

The need for that Delta or for that water source, if it goes to a isolated facility, will always be higher than the estuary or the remaining Ag islands, and things of that nature, and that is why I think that State law provided for maintaining that common pool.

Once it goes to the peripheral, you will basically do under the Delta. So I think it is just based on the way that policy will run. I mean, there is going to be a much higher need from a drinking water perspective at that point to maintain that water quality in the peripheral system, and forget, or allow the water quality in the remaining system to no longer exist.

Mr. NUNES. But essentially what you are saying is that you are afraid of losing more water out of the Delta farmers?

Mr. NEUDECK. Well, all those that benefit from it, yes. The original origin of that water.

Mr. NUNES. Well, to say that never turns back and goes the other way is not correct as evidenced by what has happened in other parts of California, where we have lost a considerable amount of water to the Delta to improve water quality in the Delta.

You know, everything from up north, Northern California, to down south, to the lawsuit that is currently going on, and that impacts my district dramatically. And I find it interesting that water quality continues to improve. Yet, the Delta Smelt population continues to rapidly decline, and these evasive species are coming in.

So I hope that we are not too shortsighted on the fixes in the Delta, because I think that if we don't look at fixes, we are looking for a disaster on a lot of fronts. Did you want to comment, Mr. Nelson?

Mr. NELSON. Thank you, I would. Mr. Neudeck eloquently stated the position of the landowners in the Delta, and their concerns about the peripheral canal. There are a number of reasons why for the last 20 years that every planning process that has looked at the Delta has decided to not proceed with the peripheral canal.

One is the health of the Delta, and that Mr. Neudeck talked about. We are very concerned about potential impacts to the health of the Delta.

Mr. NUNES. Well, in terms of the question of the health of the Delta, you have had more fresh water in there than you have had in the last 50 years, and why do you have the lowest fish populations?

Mr. NELSON. We actually have less water this year. I just checked before this hearing, and this year, and the year in which the Delta Smelt reached its lowest ebb in history, this year, we have pumped more water from the Delta than we ever have in history, well over 6 million acre feet of water. That is more water than has ever been pumped from the Delta before.

Mr. NUNES. Well, pumped, but that does not mean that the water quality has not been higher. Salt water has come up nearly to Stockton in years past.

Mr. NELSON. One of the concerns that has been raised—there have been multiple reasons for the decline of the Delta Smelt. We think that one of those is water project operations, and the dramatic rise in Delta pumping.

But the other issues of invasive species, and water quality, we think are all potential problems, and we need to tackle all three of those.

Mr. NUNES. Thank you. I know that my time has expired. Thank you, Mr. Chairman.

Mr. RADANOVICH. Thank you, Mr. Nunes. There being no other questions of this panel, I want to thank you very much for your valuable testimony, and for coming here and testifying here today, and with that, you are excused. Thank you very much.

And I will call up the next panel. Mr. Kirk Rodgers is the regional director of the Mid-Pacific Region of the Bureau of Reclamation, and Brigadier General Joseph Schroedel is the Commander and Division Engineer of the South Pacific Division, of the United States Army Corps of Engineers.

Gentlemen, welcome to the Subcommittee. Again, if we could hear your testimony, and then we will open up the dais here for questions of that testimony. Brigadier General Schroedel, welcome to the Subcommittee, and you may begin your testimony.

**STATEMENT OF BRIGADIER GENERAL JOSEPH SCHROEDEL,  
COMMANDER AND DIVISION ENGINEER, SOUTH PACIFIC  
DIVISION, U.S. ARMY CORPS OF ENGINEERS, SAN  
FRANCISCO, CALIFORNIA**

Brigadier General SCHROEDEL. Thank you, Mr. Chairman. No apology is required on the pronunciation of my name. I will answer to anything quite frankly.

Mr. RADANOVICH. Just make sure that you get Radanovich right.

Brigadier General SCHROEDEL. Got it, sir. Sir, again, Mr. Chairman, and distinguished members of the committee, it is indeed an honor today to testify here before you, but also to join you as we engage together to serve the American people.

Second, it is an honor for me to represent the chief of engineers, Lieutenant General Karl Strock, who sends his regards, and also to represent my division, which encompasses all or parts of 10 Western States, and not just the State of California, which is in question today.

And also in some indirect way to represent the men and women of our country who are serving this Nation around the world, and our civilians, and I would point out that today that approximately 10 percent or better of the United States Army Corps of Engineers,

predominantly civilian, are volunteering serving in many places around the world.

And I would like to publicly thank also today the Bureau of Reclamation, who offered up in excess of a hundred volunteers of their own, and who are currently serving and supporting us in Operation Katrina in the Gulf, and I will talk more about that in a second.

I would like to let my written testimony stand as a part of the record, and just offer a very brief introduction here orally, to underscore what I think are two very important points as we move forward.

First, I think we have heard a lot already today regarding the condition of the levees and we can talk more about that in the question and answer period. In terms of the solutions, I think there are two very critical things that we would like to emphasize.

The first is that we do need to take a strategic look at our priorities. We do need to take a look also at how we use the resources and authorities that are at our disposal. The Corps stands ready to support that for which we were called to do.

On the resources side, I think Katrina and Rita served as a call to action. In that regard, we have some tough issues in front of us, and we need to find the wisest use of all the resources and authorities at our disposal, and to balance competing demands, and to protect life, property, the environment, and also our own values.

And then second, I want to emphasize the collaborative nature, which you have heard a couple of times today, and I would just underscore that the collaboration between the Federal, State, local, and other entities is quite alive today.

And if I could just use this little quote. If anyone has read Cadillac Desert, I would tell you that we are in the process by our actions, and not by our words, of rewriting what you find in that book. I will tell you that the collaboration, the honest to goodness collaboration, the honest to goodness trying to find the best way to leverage the authorities and capabilities of each of our agencies is quite alive and well. And I can give many, many examples of that.

Again, Mr. Chairman, distinguished members, I am very, very proud to be here to testify today, and to give you the best engineering judgment that we can offer as we tackle a very difficult situation, and find ways to prevent or at least be able to appropriately respond to any catastrophes that may result that have any similarity to what we have faced in the Gulf. So, Mr. Chairman, thank you very much.

[The prepared statement of Brigadier General Schroedel follows:]

**Statement of Brigadier General Joseph Schroedel, Commander,  
South Pacific Division, U.S. Army Corps of Engineers**

**Introduction**

Mr. Chairman and distinguished members of the Subcommittee, I am Brigadier General Joseph Schroedel, Commander of the U.S. Army Corps of Engineers South Pacific Division. I am honored to be testifying before your Committee today. I am testifying on behalf of Lieutenant General Carl Stroock, Chief of Engineers. My testimony today will discuss current infrastructure conditions in the watershed of the Sacramento/San Joaquin River system and the Corps' ongoing efforts to reduce the risk of flood damage to the system.

### **Background**

The impact of Hurricane Katrina in coastal areas along the Gulf of Mexico has focused renewed attention on the potential vulnerability of other regions, such as the Sacramento-San Joaquin Delta ("Delta"), if levees were to fail.

The 1997 and 1998 floods forced more than 120,000 people from their homes in the Delta region. An estimated 30,000 residential and 2,000 businesses were damaged or destroyed. Rehabilitation of the Federal levee system cost \$160 million in Federal dollars and funded repairs on approximately 600 sites along the Sacramento and San Joaquin River systems.

The recent levee break on Jones Tract in the south Delta cost nearly \$100 million for emergency response, damage to private property, lost crops, levee repair and pumping water from the island. The State also bore significant costs associated with losses in water supply and conveyance. Delta pumping was curtailed for several days to prevent seawater intrusion and water shipments were possible only through unscheduled releases from other reservoirs, which sent more fresh water to the Delta for salinity control.

### **System Condition**

There are over 6,000 miles of levees in the Central Valley. Of that total, approximately 1,600 miles are authorized as Corps of Engineers Federal flood damage reduction projects. The others are local levees, which were constructed, enlarged and maintained over the last 130 years by local reclamation districts and private entities. In general, the owners of the lands within the levees financed the levee work by these districts. During the last 30 years, the State of California has provided supplemental financing for levee maintenance and emergency response.

Since the mid-1980s, the Corps has evaluated almost 1,100 miles of the Federal levees. For example, the Corps found that within the Sacramento River Flood Control Project, approximately 90 miles of levees needed significant repairs and most of this rehabilitation work is now complete. However, these levee evaluations were performed using criteria which are now outdated, and, therefore, did not identify all potential levee deficiencies. The Corps has recently developed new levee seepage design criteria that will require much more stringent field exploration than was used in earlier levee performance studies. When the new criteria are applied, it is likely that more deficiencies that may require rehabilitation work will be identified.

In major urbanized areas with large population centers, including Sacramento, Stockton, Yuba City, Marysville and Merced, the levees have been extensively evaluated and studies or projects are currently underway to improve levee performance. Much of the new development in these and other parts of the Central Valley is occurring in areas that until recently were agricultural areas. Typically, the levees in these areas were built 60 to 100 years ago with a view toward reducing the risk of flood damage to crops. Such levees are aging and may not reflect current flood damage reduction objectives.

### **Future Plans for Protection**

In September 2004, Congress passed the CALFED Bay-Delta Authorization Act (PL 108-361, Title I). CALFED is a unified multi-agency approach to management of the Delta region in California.

The Act authorizes up to \$389 million for new and expanded CALFED authorities for 2005 to 2010 including studies, projects, and coordination regarding watershed planning; water conveyance, supply and quality; ecosystem restoration, levee system integrity, and other purposes. This authorization includes up to \$90 million for efforts regarding levee system integrity, which would be headed by the Corps (USACE) as lead Federal agency in partnership with the State of California Departments of Water Resources and Fish and Game (DWR, DFG), local reclamation districts, and other concerned stakeholders. Additionally, the authorized funding includes amounts up to:

- \$184 million for Conveyance Program activities (Bureau of Reclamation (BOR) lead, USACE as cooperating agency)
- \$90 million for implementation of the Environmental Water Account (BOR lead with USFWS & NOAA Fisheries as cooperating Federal agencies)
- \$25 million for oversight and coordination of the Program (BOR lead with USFWS, NOAA Fisheries, EPA, USACE as cooperating Federal agencies)

For the Delta levees, the Corps will be working with the State of California to scope out both near-term and long-term solutions and develop a framework for setting priorities. If funds are appropriated, the Corps will prepare a report to Congress assessing the scope of the problem and identifying specific priorities for repair within the \$90 million authorized. This study will be a collaborative effort with

CALFED partners and sponsors. This report will also provide details on the locations and lengths of those levees that are high priority for repairs.

In the past, some local agencies have expressed concern about their ability to meet the 35% non-federal cost share requirements for Delta levee projects. However, the State of California recently indicated its readiness to work with local partners to provide funds for priority levee repairs. The Corps will work with the local sponsors to clarify the extent of such concerns in the report to Congress.

The Corps is also currently the lead agency for several studies to help ways to reduce the risk of flood damage in the Delta, including water supplies, roads, cities and towns, agricultural lands, and natural habitat. These include the—

- Delta Islands Feasibility study, in partnership with the State of California, which will evaluate the entire Delta Islands and Levee System consistent with the Delta Risk Management Study authorized in the CALFED Act. Estimated cost \$3 million; estimated time, 3 years.
- Lower San Joaquin River Feasibility Study, which will focus on the San Joaquin River in the South Delta—estimated cost \$2 million; estimated time 3 years.
- Development of the Levee System Integrity Program Plan, pursuant to the Record of Decision for the CALFED Bay-Delta Program to the Act, in which the Corps is participating with the State of California—Estimated cost \$8 million; estimated time 4 years.

The Corps participates in the CALFED activities. The Corps is represented at the California Bay-Delta Authority (CBDA), Bay-Delta Public Advisory Committee (BDPAC), and subcommittees to support and monitor refinement and execution of levee efforts.

This concludes my statement. Again, I appreciate the opportunity to testify today. I would be pleased to answer any questions you may have.

Mr. RADANOVICH. Thank you very much, General. Mr. Rodgers, welcome to the Subcommittee. You may begin your testimony.

**STATEMENT OF KIRK RODGERS, REGIONAL DIRECTOR, MID-PACIFIC REGION, BUREAU OF RECLAMATION, SACRAMENTO, CALIFORNIA**

Mr. RODGERS. Thank you, Mr. Chairman, and members of the Subcommittee. I appreciate the opportunity to appear before you today to discuss the current water supply vulnerabilities in California's Central Valley, and in the Sacramento/San Joaquin Delta.

Today, my testimony will focus on the work and activities in the Delta, and on the risk faced in the context of levee failures. While our attention is understandably drawn to the levees, it is important to keep in mind that the long term reliability and security of water supplies can be heavily impacted by other problem areas that we need to address.

Reclamation has no authority to implement levee work, nor do we have jurisdiction over levees in California, and therefore would defer certainly to the Corps and to the State to address those important issues.

I would like to speak somewhat about future water supply projects, and in the context of that ecosystem restoration, water management strategies, and regulatory decisions that are being developed or implemented by reclamation, and the other CALFED agencies, and how those will help determine the future viability and certainty of the State and CVP water management infrastructure as a whole.

The Delta is a prominent feature of California's complicated water supply system. Water conveyed through the Delta provides drinking water for two-thirds of the State. It supports the most productive agriculture region in the Nation, and conveys almost 50

percent, if not more, of Central Valley projects water delivery south of the Delta.

The Delta channel assists in transporting water from upstream reservoirs to the south, where the CVP and the State Water Project lift those, and then move them. Given the current reliance on the Delta levees, one of the primary objectives of the CALFED program was to look at long term Delta stability.

And I would like to skip over a couple of things here in the interest of time though, and just mention that because the Delta facilities are very fragile, and Cal-Fed looked very seriously during stage one of protecting those facilities, they kept alive the idea that if need be, we might have to look at an isolated facility.

And I know that has been mentioned here today, and I just want to make sure that we don't lose sight of that. So stage one of the CALFED program addressed Delta efforts for the first seven years, and said if that doesn't work, then we are going to have to look at those facilities.

I also want to mention that in addition to protecting the Delta infrastructure, I believe that additional storage is needed to meet the water supply and needs of a growing population, and to provide a much needed flexibility in the system to improve water quality and support fish and wildlife restoration efforts.

Reclamation in partnership with California Department of Water Resources is investigating storage, as has been mentioned, and so we are in support of that, and need to look at that in the full context, I believe, of Delta protection.

As was mentioned earlier, and some of the questions inferred, is the Delta alone, and we need to look at it in the scope of the total water management program, and upstream operations is part of that. So I think that reclamation needs to continue to work with the systems it has to provide the precise upstream operations also in support of the Delta.

And we need to be looking hard at storage opportunities where we can as part of that overall package. I would be happy to answer any questions.

[The prepared statement of Mr. Rodgers follows:]

**Statement of Kirk Rodgers, Mid-Pacific Regional Director,  
Bureau of Reclamation**

**Introduction**

Mr. Chairman, and members of the Subcommittee, I am Kirk Rodgers, Mid-Pacific Regional Director for the Bureau of Reclamation. I appreciate the opportunity to appear before you today to discuss the current water related infrastructure conditions in California's Central Valley and the challenges we face in protecting future water supply deliveries. My remarks are focused on the work and activities in the Sacramento/San Joaquin River Delta and on the risk faced in the context of levee failures.

While our attention is understandably drawn to the levees, it is important to keep in mind that the long term reliability and security of water supplies can be heavily impacted by other problem areas being addressed by the CALFED Program. Future water supply projects, ecosystem projects, water management strategies, regulatory decisions, and planning processes currently being developed or implemented by Reclamation and the CALFED Program will determine the future reliability and certainty of the Central Valley Project and State Water Project's water management infrastructure as a whole.

CALFED is a collaborative effort among 25 state and federal agencies to improve water supplies in California and the health of the Bay-Delta Watershed. In August 2000, the CALFED agencies signed a Record of Decision (ROD) that described a 30-

year plan for implementing actions to resolve conflict in the Delta related to water supply, water quality, ecosystem quality, and levee stability. Public Law 108-361, signed in October 2004, authorized the federal CALFED agencies to implement the CALFED Program using the ROD as a general framework.

#### **Importance of Bay-Delta**

The Delta is probably the most important feature of California's complicated water supply delivery system. Water pumped out of the Delta provides drinking water for two-thirds of the state, and supports the most productive agricultural region in the nation. The Delta's channels assist in transporting water from upstream reservoirs to the south Delta, where the Central Valley Project (CVP) and State Water Project (SWP) facilities can pump water into the California Aqueduct and CVP's Delta-Mendota Canal. The stability of the Delta levees that contain the water in these channels is paramount to protecting the Delta infrastructure along with ensuring a reliable supply of water to the Federal and State facilities. The Delta includes nearly 60 islands and tracts lying below sea level that are kept dry by levees whose construction does not meet modern standards, and which in some instances were built to protect crops from flooding. These levees were not built to provide as much protection from loss of life or property damage as they would be if built in accordance with today's construction standards and project purposes. We will defer to the Corps of Engineers and the State of California to more fully address the condition of the levees in the Sacramento/San Joaquin River system.

#### **Delta Levees and the CALFED Bay-Delta Program**

Levee stability in the Delta is one of the four primary objectives of the CALFED Bay-Delta Program. The Preferred Program Alternative described in the ROD assumed that a through-Delta approach would continue to be the method of conveyance to south Delta project facilities for the first seven years of Program implementation (Stage 1). The CALFED Agencies did not rule out the possibility in the future of constructing an isolated conveyance facility that would provide superior assurances of a reliable water supply south of the Delta, but because of timing of implementation it was not included in the Stage 1 decision. Instead, the ROD focused on modifications within the current conveyance system in the Delta and a series of studies to determine if improved water supply and reliability, protection and improvement of Delta water quality, improvements in ecosystem health, and reduced risk of supply disruption due to catastrophic breaching of Delta levees could in fact be achieved with the current "thru Delta" means of conveyance. Other ways to convey water through the Delta include "dual conveyance," which refers to the conveyance of water through the Delta as well as around the Delta via a pipeline or canal, or "isolated conveyance," referring to the conveyance of a majority of the water around the Delta via a pipeline or canal. A determination on the adequacy of the existing configuration and the possible need to examine "dual conveyance" or "isolated conveyance" facilities is to be made in the next two years.

Currently, CALFED agencies are focusing on the overall risk of Delta levee failures and developing both short-term and long-term strategies for levee improvements. A current high priority activity is the Delta Risk Management Strategy (DRMS), which is being led by the Corps of Engineers and the California Department of Water Resources. Reclamation's role in DRMS has been limited to agency coordination and tracking of accomplishments and the integration of this activity into the broader CALFED program. The DRMS has the objective of evaluating ongoing and future risk of levee failure; identifying the probable consequences; and identifying levee maintenance and upgrades that are necessary and economically justified to reduce controllable risk. Data gained from this critically important study will help establish the priorities for near-term and long-term actions that will reduce the risk associated with catastrophic levee failure in the Delta.

The goals for levee system integrity and improvement contained in the ROD were well founded when developed; however, the DRMS will reevaluate those goals to determine if they remain valid. The DRMS study is estimated to cost \$6 million and is scheduled to be completed in 2007. In the interim while the DRMS study is being completed, the program will continue to implement levee maintenance, levee improvement, and other components of this ROD.

#### **Reclamation's On-going Water Supply Improvement Activities**

In addition to efforts to protect the Delta infrastructure, expanding water storage capacity is among several integral components of the CALFED program. Additional storage is one way of meeting the needs of a growing population and, if strategically located, could provide additional flexibility in the system to improve water quality and support fish restoration efforts. One element of a reliable water supply is the ability to capture water during peak flows and during wet years, as well as more



efficient water use through conservation and water reuse and recycling, advanced water treatment such as desalination, and non-traditional storage methods such as conjunctive use with groundwater; the flood control benefits of storage capacity are an inherent part of this. Reclamation, in partnership with the California Department of Water Resources, is investigating the feasibility of expanded surface storage capacity at existing reservoirs and strategically located off-stream sites identified in the ROD. Four surface storage feasibility studies are currently in progress, all of which are to be completed between 2008 and 2009. Storage projects are not being developed in isolation but rather as part of an overall water management strategy. As such, storage combined with other program actions such as conservation, transfers and habitat restoration could contribute to and be compatible with the water supply reliability, water quality and ecosystem restoration program objectives.

#### **Conclusion**

Protection of the Bay-Delta is of critical importance to California. Much more needs to be accomplished to ensure the long-term sustainability and reliability of California's water supply. Major decisions will need to be made in the near future regarding the protection of the Delta's critical infrastructure and the many integrated elements of the CALFED program, including the potential construction of new surface storage facilities, that will shape California's water management system into the future. We believe that these challenges will be best addressed through the CALFED Program. That concludes my testimony. Mr. Chairman, I would like to reiterate my appreciation to the sub-committee and others for continuing to work with the Administration to address these significant water issues facing California. I would be happy to answer any questions.

Mr. RADANOVICH. Thank you, Mr. Rodgers. I will start off the questioning. Storage was brought up, and you brought up storage, and actually it was brought up earlier in the hearing as well. Where are you in relation to completing the storage studies in CALFED? You know, the four main projects. But where are you on those?

Mr. RODGERS. As was mentioned, there are four main projects that we are doing feasibility studies on, and it is the Upper San Joaquin, the Shasta enlargement, the Sites Reservoir, and the Los Varcos enlargement.

Mr. RADANOVICH. Do you have target dates for when those will be completed?

Mr. RODGERS. Between the years of 2008 and 2009 is when those feasibility studies will be completed.

Mr. RADANOVICH. OK. Thank you. Also in your testimony, you mentioned that for the next two years that you will be making a determination on the adequacy of existing conveyances through the Delta, and the possible need to examine dual conveyance or isolated conveyance facilities.

I know that you talked a little bit about it, but what are your plans, including a time line, for completing that determination as well?

Mr. RODGERS. Well, we are working in cooperation with the State Department of Water Resources in looking at those issues. As you are aware, AB 1200 was passed, and the assignment came to the State to take a hard look at the vulnerabilities in the Delta. And we are jointly working together with the State on those issues.

Mr. RADANOVICH. Thank you. The modifications to Folsom Dam would provide Sacramento with protection for about a 200 year flood, which is relatively modest when compared to other large United States cities that have a 400 to 500 year protection. What would it require to bring that level of protection to Sacramento and the San Joaquin Valley?

Mr. RODGERS. From 200 to 400 year flood protection?

Mr. RADANOVICH. Yes. Hint, Auburn Dam.

Mr. RODGERS. Let me say that—

Mr. RADANOVICH. Instream water facility.

Mr. RODGERS. In looking at the 200 year feature, we would be making modifications to the dam and to the spillway structure itself, and I think given the range of alternatives that we have looked at there, we would just about exhaust the flood protection capability of that structure with those additional features.

Mr. RADANOVICH. Making that a more than 200 year feature?

Mr. RODGERS. No, I think it would be about 200, and so I say that as a preface to your question. We would have to look to other features to gain additional flood protection for the Sacramento area.

Mr. RADANOVICH. Do you have in your mind what the completion of the Auburn Dam and the water behind it, would that get you up to a 400 or 500 year feature? Specifically that one flood protection feature?

Mr. RODGERS. There were studies that were performed that showed various sizes of Auburn dam, from small ones for flood control only, up to a very sizable system, up to the 2.3 million acre feet range, all of which would increase substantially the flood protection for Sacramento, although I don't have any updated or current details as to that.

Mr. RADANOVICH. All right. Thank you, Mr. Rodgers. General Schroedel, Mr. Herger mentioned earlier that the Corps found a six foot cave hole behind a Elderberry Bush on the Sacramento River, and I am wondering how long it took to fix that cave hole, if you are familiar with that.

Brigadier General SCHROEDEL. Sir, I am somewhat familiar with that. The hole was discovered as I understand it after one of the floods of either 1986 or 1997. I am not sure exactly which one, but after one of the floods, and when we were asked to go in and do a study to determine why the floods, and why some of the levee failed, we noted a fairly good size hole that was mentioned by Congressman Herger behind some vegetation that had been missed.

But the point that I would like to bring out there if I can, Mr. Chairman, is that the studies that we did after those floods were pretty much as I just characterized them. Basically, trying to identify from visual inspection the kinds of potential failure sites that we could identify.

We then went after and fixed those. Some people, I think, might believe that there was extensive drilling, boring, and those kinds of internal studies that were done to determine the stability of the levees, and that was not the case.

With respect to the environmental aspects, which I think was one of the points brought out, those do present some challenges in some respects, with respect to some techniques that we can use to stabilize the slopes of existing levees, and some of those issues probably do need to be addressed.

Mr. RADANOVICH. I am assuming the cave hole is fixed now?

Brigadier General SCHROEDEL. Sir, it is still not fixed.

Mr. RADANOVICH. It is still not fixed? What is precluding you from going in and fixing it now?

Brigadier General SCHROEDEL. Sir, I don't know the exact status. I can find that out for you, but I can tell you that as we pursue those kinds of repairs, and where we have environmental challenges, generally mitigation issues are the kinds of issues that cause us some delays. So I could get the specifics back to you for the record.

Mr. RADANOVICH. If you can, give me a description of what is taking so long to get it fixed, and an idea of the mitigation measures being asked for in that fix.

Brigadier General SCHROEDEL. Yes, sir, we will do that.

Mr. RADANOVICH. Thank you. Also, General, the Delta levee study, when the Corps conducts this study, will it use existing studies as well, or are you to start from scratch?

Brigadier General SCHROEDEL. Yes, sir. I think, first of all, that that study is very important, and I would strongly recommend that we fund it. One, to at least get a short term effort to support the collaborative efforts that are ongoing to help identify the priorities that I mentioned at the beginning.

But I would also caution that in a six month period, again, that would not include extensive subterranean investigations or whatever. It would have to rely I think in large measure on the studies that we have already done, and not just the Corps, but any existing studies, any existing thought that is out there.

The best science and best engineering that we could bring to bear to at least try to frame the problem, and help us establish the priorities for the near term, and then I think to address the strategic direction that we take, which was discussed earlier, and which I personally support, would take something beyond, much beyond, a six month study.

But at least to get us all in the same direction, which I think in many ways we are, but to help reinforce that and help us identify what the near term needs are, that six month report would absolutely be something that would be important to do. And it would rely on existing material.

Mr. RADANOVICH. Very good. Thank you, General. Mrs. Napolitano.

Mrs. NAPOLITANO. Thank you, Mr. Chair. Mr. Rodgers, for the surface storage projects now being studied, what is the estimated water yield that each project might yield? Any idea, any ball park idea?

Mr. RODGERS. I would only be hazarding a guess, Mrs. Napolitano. I can get that for you for the record.

Mrs. NAPOLITANO. I would appreciate it, because this is something that is very controversial, or not controversial, but is in question as to one versus the other, and the amount of yield that each one would produce. Then we can look at the cost.

The second question would be has the total amount of the water from the Delta increased in recent years? And then can you tell us what the total delta exports have been for the past six years?

Mr. RODGERS. I can answer the first question. That, yes, the Delta exports have increased. But I would like to add a clarifying component to that if I may, because I think sometimes that component by itself can be a distortion. That in addition, for instance, this year, in addition to us increasing our pumping south of the

Delta to higher amounts than we have done in recent years, we have also seen an incrementally larger amount of water going out under the San Francisco—out through the Bay and out into the ocean.

So if you look at the ratios of how much is pumped, versus how much goes on out to the ocean, you find that it is not just disproportional in that regard at all. And I think that one needs to keep that in perspective.

Mrs. NAPOLITANO. I am glad that you clarified that. One of the things that we would like to have is any numbers that you might have that would clarify for future committee questions in regard to that particular issue which is contentious.

Mr. RODGERS. The total amount of pumping? Now, in asking that question, so that I can make sure that I am responsive, do you want to know the total for both the State and the Federal project?

Mrs. NAPOLITANO. Correct. Yes, as well as the water going into the San Francisco Bay.

Mr. RODGERS. OK. If I may be so bold, and if I could add another commentary. I want to indicate to you that we are not the only removers of water from the Delta. There are a lot of other diverters out there, too, and so that would need to be taken into account.

Mrs. NAPOLITANO. Understood.

Mr. RODGERS. Thank you.

Mrs. NAPOLITANO. How much water has been made available for the Fish and Wildlife under the ROD?

Mr. RODGERS. Are you speaking in terms of like the environment water account, or—I mean, there are lots of water made available to Fish and Wildlife, in addition to the regulatory flows that we put in the river.

As the Bureau of Reclamation put 800,000 acre feet of our yield, called the B-2 water, and to make that available, and we also have acquired water under the Environmental Water Account.

So the combination of all of those is a fairly large number, and I just don't have the exact numbers for you. Do you want them by year or for a series of years?

Mrs. NAPOLITANO. Yes. It would help to be able to understand, because there is questionable amounts of water that they are stating is not helping some of the fish population. So it would be helpful in clarifying that.

Mr. RODGERS. We can provide you the numbers that would quantify together how much water is being provided for the fish according to our records. If I again could be so bold, I would suggest that we are not really sure what the connection is between why the fish are having a problem and we are not necessarily correlating the volume of water to the fish problem either.

So I would say that we would use caution with those numbers for that purpose.

Mrs. NAPOLITANO. That is fine. We understand that there are some things that do affect the water delivery to Fish and Wildlife for the use of fish. And I will ask one of General Schroedel. How is the physical condition of the levee system monitored? In other words, how do you inspect it? How do you determine that it is failing, or that it needs prioritizing in working on it?

What is needed to improve the monitoring, and how can that be accomplished, as well as who is responsible for the monitoring of the condition of the non-Federal levees, which also then is there any monitoring in real time?

Is there a centralized monitoring effort planned or needed? Is there one in place, and not just for the saline level levees?

Brigadier General SCHROEDEL. Thank you, Ma'am. That is a good question. First of all, the first part of the question, I believe, is who is responsible for the inspection and monitoring, and the inspection and monitoring even of the Federal levee is the responsibility of the State and local authorities, and not the Corps. So once we complete the projects, even the Federal projects, those responsibilities are handed off.

In terms of the monitoring, I frankly think that a much more robust and centralized system of monitoring may be in need, but again, I would underscore the fact that I don't think that anyone can really say what the condition of those levees are.

We should be reminded that those are not engineered levees for the most part, other than the Federal levees. The vast majority of the 6,000 miles of levees are non-Federal. We have learned first after the flood of 1986, we attempted to make some repairs using shallow slurry walls, building up the toes of the slopes to stabilize the levees. Then we learned after the flood of 1997 that under-seepage was the problem, and we had to deepen our slurry walls. So it has been more of a trial and error learn by experience, experience, that I think we have had, as opposed to an active monitoring and proactive prevention program.

And I think that there are a lot of other solutions short of rebuilding the entire system, which is not feasible. There may be other—and this gets back to the strategy. There may be other solutions; taking some of them out of action, taking islands out of action perhaps. I don't know.

Others might be setback levees, which in some cases have been built. Then those are engineered, and then we know that those will protect lives that we place behind them. So I think that the issue is much larger, but in direct answer to your question, the Corps does not maintain those responsibilities, and in fact I think there should be something done about it.

Mrs. NAPOLITANO. And who should be the party who would be—you are laughing—should be at least at the forefront, or the designated hitter if you will?

Brigadier General SCHROEDEL. Well, I think the first question would be what are the standards, and once we establish the appropriate standards, whether they are PL84-99 standards, or Federal standards, and those are not the same.

First and foremost, we should establish a common standard to which we would build any levee in this country. Second, I think in collaboration, as we determine a strategy, we should also determine who is the appropriate lead for whatever we are going to put our resources into, and that is a major issue that is coming out of Katrina.

I was down as a part of JTF Rita, and I can tell you that is a huge central issue, not only to our response, but also to our prevention, and that is what is the appropriate Federal role, and what is

the appropriate State and local role, which as you know is addressed in the beneficiary pays issue within the CALFED process.

So I think it is a very large issue which we are ready to actively participate in, and help get the answers to, and then once given the authority and the resources, to give the American people the best quality for their money.

Mrs. NAPOLITANO. Thank you very much, gentlemen. You were very, very good. I appreciate it. Thank you.

Mr. RADANOVICH. Thank you, Mrs. Napolitano. Mr. Cardoza.

Mr. CARDOZA. Thank you, Mr. Chairman. I want to start where Mrs. Napolitano left off, and say, General, that I appreciate your frankness, and your insight. I think you are absolutely right, and I hope, Mr. Chairman, that this committee can sort of inspire the suggestions that the General made, and work on the suggestions that the General just made, because I think they are absolutely critical.

We have to have standards, and certainly if you take New Orleans, for example, building to a Category 3 standard was not a smart move. We needed to have the worst case scenario, because we know eventually that the worst case will happen.

And the same thing is going to happen in the California Delta. We know that is going to happen, and it is a question of when and not if. And we have to develop those standards, and thank you for your frankness.

I want to also thank you and recognize that you brought with you today a very talented individual in Mark Charlton, who I will tell you—and this is going to embarrass him, but I wish frankly more Federal officials acted the way he does, where when you ask him a tough question, he gives you a straight answer.

I find that so rare in Washington that I wanted to recognize him for it, because to work with him has been really special. You mentioned two studies. You mentioned a six month study and then a longer study. How much do you think the six month study would cost?

Brigadier General SCHROEDEL. Sir, right now the study is budgeted for \$500,000, and at this point, we think that could be done for that amount. A longer study, I couldn't give you a good answer today, but I would be willing to give you an estimate in response.

Mr. CARDOZA. I would really like that, and I would also like how long the longer study would take, and what might be the scope of the work done in it, because it is something that we need to look at as a committee, and try and decide on that.

And finally, I would like to ask you one last thing, and that is the Corps of Engineers is one of the critical components when we look at this inoperability question that I have talked about, and frankly, local government isn't going to have the tools to be able to marshal the resources. We are going to call the military.

And it is a question of direction, and command and control, and all of those things that you do very well, but during the crises in the past, local officials have told me that they can't communicate with you folks. Even worse, they can't communicate among themselves.

So it is absolutely critical that your organization be brought in to this process as well.

Brigadier General SCHROEDEL. Sir, if I could respond to that. We are intimately involved at this point in the disaster response training preparedness. Again, standards are key, and common equipment is key, but if I could add one thought that I think is something worth thinking about with respect to the comments that you have made today.

And this is something that I learned again as a part of JTF Rita. Right now most of our planning is based on capabilities. So if I can use this example. Within those capabilities, we say we want the State, the Federal, the local, city, to have the capability to stand up an emergency operations center. That is a capability.

Well, let us think about what happens once the catastrophe hits. Some of those capabilities get wiped out and they are gone.

Mr. CARDOZA. That is right.

Brigadier General SCHROEDEL. So what I would recommend and suggest, strongly suggest, is that in our planning—and we are pushing hard within the Corps and within the teams that we are working with, we really need to think about effects base planning. What is the effect that we are looking for with respect to communication and emergency operations centers. What we are looking for is that all the right people have the right common operating picture of what the situation is so they can respond. If you don't know what the situation is, you don't know what the operating picture is, and you can't respond.

Communication is key to that, but if we think in an effects based manner, as opposed to a capability based manner, it certainly I think helps us think through the problem to the right level, and I would just like to take the opportunity to emphasize that point; a very major lesson that I think we have learned again in the disaster response context, but something that we build our tactical plans around all the time. Effects, not capability.

Mr. CARDOZA. If I could just follow up for a moment, Mr. Chair. I think it is important, especially from our area. Our chiefs, when they were in to see me—and let me share this with you as well—told me that the number of refugees that they anticipate hitting the Modesto area or the Stanislaus County area to be in the hundred-thousands if in fact we have the earthquake, Delta flood scenario take place.

And I respect Mr. Chrisman, who was here earlier, and testified earlier, and I didn't challenge him on it because it is not really his area, but the thought that we are handing out radios is so totally inadequate to dealing with that kind of crisis that it was almost embarrassing that we are still at that level.

And we really do need to have some kind of other mechanism, and we need to have a discussion about it, whether it be here in this committee, or in another venue in Congress. But somehow we from the valley should start raising the issue, and it is not just our area, and I am sure in Grace's area that it is the same way, and other places around the State.

But it really is a total lack of preparation on our part so far, and we can't let this happen again. Thank you.

Mr. RADANOVICH. Thank you, Mr. Cardoza. I do have one last question for Mr. Rodgers. As you are looking at the temperance flat water storage project, and you are assessing it, I am wondering if

the scope of that project includes assessing the impacts on the current hydropower generation that is operating in that area?

Mr. RODGERS. Yes.

Mr. RADANOVICH. And I want to make sure that if you are not, that you are, and also if those private facilities were affected by the various options that I know are available in that project, that you would have recommendations on how to resolve the impacts to those hydro facilities.

Mr. RODGERS. Yes. Thank you for that question. In a recent review that I went through on that project with my staff, we did have that discussion. They have assured me that we recognize in the various alternatives that we are considering for that project that existing hydro facilities could be impacted if certain of those alternatives were adopted.

And that mitigation or addressing the issue of those effects is a part of and would be disclosed in the study in the report.

Mr. RADANOVICH. Thank you, sir. Any other questions of this panel? If not, I want to thank you very much for being here. Your testimony was very valuable, and with that, it concludes this hearing.

[Whereupon, at 3:40 p.m., the Subcommittee was adjourned.]

[The following statement was submitted for the record by Mr. Herger:]

**Statement of The Honorable Wally Herger, a Representative in Congress  
from the State of California**

I applaud Chairman Pombo and Chairman Radanovich for holding today's hearing, and also for the ongoing leadership they have demonstrated on the water supply and flood control issues important to California and the greater western United States.

These two issues—water supply and flood control—are inextricably linked. This is especially true in my home State of California. Upstream reservoirs, such as Lake Shasta and Lake Oroville in California's second congressional district, the area which I represent, are the centerpieces of the state's two major water supply projects, but they also, working in tandem with the Central Valley's system of levees, weirs, and bypasses, provide critical flood protection for millions of Californians who live downstream.

When contemplating or addressing its water supply vulnerability, the state cannot, nor should not, simply choose to maintain or invest in small local or regional levee projects, without strongly pursuing further development of water detention facilities in upstream areas. Indeed, the multi-million dollar public investment that is required to bring California's levee system up to contemporary standards would be for naught without such a commitment to upstream storage and flood control projects. Impoundment facilities on the major river tributaries north of the Delta, such as the North Fork of the American River, would allow winter and springtime runoff to be held back and then metered out over a period of months, keeping the levee system intact and providing the state with a new source of high quality water and affordable hydroelectricity. Though levees are an important part of keeping people, property, and vital infrastructure safe and functional, they do not, by themselves, provide the answer to shoring up California's water supply vulnerabilities.

In addition, any public investment in levees must be made in tandem with a responsible review and modification of the lengthy and costly environmental review process that accompanies much of the maintenance of this infrastructure. Recently, under the leadership of Chairmen Pombo and Radanovich, the House passed the Threatened and Endangered Species Recovery Act in order to improve the 1973 Endangered Species Act (ESA). This legislation contains a common sense and long overdue provision that will require new regulations to cut some of the environmental red tape that flood protection districts face when trying to make urgent and targeted levee repairs.

My district suffered a terrible tragedy when a levee repair project was delayed for nearly seven years because of the endangered Elderberry beetle, despite an



Army Corps of Engineers prediction that a "loss of human life" would occur unless repairs were made. Yet, repairs were not made because of the inflexibility of the ESA, and three of my constituents lost their lives in the January 1997 flood. One victim was a decorated veteran of World War II; a second victim was the wife of the manager of the levee district that had been prevented from doing the timely repair work.

It's my hope that the provision in Chairman Pombo's ESA reform legislation, as well as today's timely hearing on the relationship between natural disaster and water supply vulnerability, will prevent future tragedies like the one that occurred in my district, or recently in Louisiana and Mississippi, from befalling California's Central Valley, and will play an important role in ensuring that the state is able to maintain its levee and water supply system.

