

PUBLIC

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**MANAGEMENT RESPONSE TO THE ASSESSMENT AND CONSULTATION
PHASE REPORT OF THE INDEPENDENT CONSULTATION
AND INVESTIGATION MECHANISM ON THE PANAMA CANAL
EXPANSION PROGRAM (PN-L1032)**

This document is being released to the public and distributed to the Bank's Board of Executive Directors for information, simultaneously. If the document is subsequently updated, the updated document will be made publicly available in accordance with the Bank's Access to Information Policy.

IDB MANAGEMENT'S RESPONSE TO THE ICIM ASSESSMENT AND CONSULTATION PHASE REPORT ON THE PANAMA CANAL EXPANSION

Management acknowledges the receipt of the Assessment and Consultation Phase Report by the Independent Consultation and Investigation Mechanism (ICIM) in reference to the Panama Canal Expansion Program. Management takes seriously the concerns raised in the ICIM report and acknowledges ICIM's value as an independent forum to address concerns from external parties on IDB-financed operations. Management also acknowledges the positive experiences it has had with the consultation phase of other ICIM cases. We would like to thank the requester Ms. Leila Shelton and the Panama Canal Authority (ACP) for participating in the joint meeting held in December 2011 before ICIM started its consultation and assessment phase and for engaging in the information exchange that followed this meeting facilitated by the IDB. The IDB remains open to continue collaborating with ICIM should this case be deemed eligible for the compliance phase.

Management would like to point out that both the European Investment Bank (EIB) and the International Finance Corporation (IFC) are engaged in a similar exercise and greater collaboration amongst the independent investigation mechanisms would facilitate swifter action and better use of scarce resources. We encourage ICIM to further strengthen collaboration with its counterparts at the IFC and the EIB. The Ombudsperson of the IFC's Compliance Advisor Ombudsman (CAO) issued his assessment report (http://www.cao-ombudsman.org/cases/document-links/documents/AssessmentReport_PanamaCanalExpansion_Feb2012_ENG.pdf) in February 2012.

The ICIM assessment report focused on three issues:

- I. Access to Information
- II. Salt-water Intrusion in the Canal Lake
- III. Seismic Risks.

The ICIM report suggests that the Bank did not comply with its policy with regards to the third item. As a result, and in order to contribute to the ongoing process at ICIM in regards to this case, Management would like to make some clarifications on the issue of seismic risk. For further information on items I and II please consult the annex.

Seismic Issues

The Requestor alleges that the lock design is not appropriate in regards to seismic risks, and the Ombudsperson states that the Bank may not have fully assessed this risk. In fact, Management would like to point out that the seismic risk was taken into account during the structuring of this transaction and in accordance with IDB Policy as illustrated in the attached timeline. In this context it is particularly important to note that the USGS study highlighted in the ICIM Report was available to ACP in 2005. This study was given full consideration through various subsequent studies contracted by ACP, peer reviews by

independent consultants and ACP's three independent Boards: the Geotechnical Advisory Board (GAB), the Seismic Advisory Board (SAB) and the Structural Advisory Board (STAB), which include internationally recognized experts (See attached slides 3 and 4). In addition, the results of the USGS study and other subsequent studies were incorporated into the requirements for the design of the new canal expansion project (See attached slides 1 and 2). These slides show that during due diligence, the internationally recognized engineering firm Louis Berger was hired as an independent consultant to support IDB and its co-lenders in their technical assessment of the Expansion Program, including the seismic risk. Louis Berger analyzed the numerous studies that ACP had contracted since 1992 on the seismic issues, including the USGS study.

Louis Berger concluded that "the seismic risk appears to be medium low and manageable with proper design criteria". Afterwards, URS, another internationally recognized engineering firm, defined the seismic loading included in the design specifications for the new locks and dams. IDB reviewed the specification for the new locks to ensure these reflected the findings and recommendations of these reports. These specifications addressing seismic risks were included in the Request for Proposal (RFP) for the locks and dams and have been incorporated in the design and build contracts for these structures. ACP oversees this process with the support of CH2M Hill, another internationally recognized engineering firm.

The ICIM Ombudsperson states that IDB did not carry out a Natural Hazard Assessment or implement a Natural Hazard Plan that included seismic risk. In fact, as is Bank practice and in compliance with Bank policy, IDB assessed the multiple natural disasters that could affect the project as well as other risks and reported on such within the 50 page Environmental and Social Management Report (ESMR). As described in the Bank's ESMR, IDB examined the ample coverage of the ACP's Rapid Response Program (ACP management plan for natural disasters), which includes an assessment of the possibilities of not only earthquakes, but flood and landslides. The Rapid Response Program incorporates measures to anticipate accident, injury, natural disasters, and construction problems that create environmental and human hazards. The ESMR does not focus particularly on seismic risk given the conclusions of the Louis Berger report, the ACP Rapid Response Program, and the Expansion Program design specifications. Therefore, Management disagrees with the recommendation by the Ombudsperson that carrying out an additional natural hazard assessment is justified.

After the due diligence and financial closing, the Bank has continued to monitor the progress of the Expansion Program in coordination with the other co-lenders in this transaction. Based on this process Management believes that the seismic risk was appropriately considered during the due diligence and incorporated into the design and build contracts in the Expansion Program, and therefore the Bank complied with IDB Policy OP-704.

Final Clarifications

Management would also like to clarify that the Bank made a first disbursement on June 29, 2012, based on a disbursement request received on June 8, 2012, and following confirmation of full compliance with all contractual requirements.

While Management believes the issues of seismic risks, salinity and information disclosure were duly addressed during the due diligence phase, we stand ready to work with ICIM and other parties to further clarify any concerns regarding these matters.

ANNEX:

Salinity Issues:

The potential of salt water intrusion was recognized as a risk early on by the Project Team and details of this risk are included in both the Environmental and Social Strategy (ESS) and the ESMR. During due diligence, Environmental Resources Management (ERM) was hired to help the lenders analyze these issues in depth, looking in particular at the extensive research that ACP had previously conducted on the subject (See attached slide 5).

The reports by Delft Hydraulics and DHI Water and Environment completed between 2003 and 2005 were used to document in the due diligence the need for additional modeling and conducting high precision salinity measurements in order to determine the long-term concentration of salt in the lake (in the coming years and decades).

In December 2008 WL Delft Hydraulics, completed a comprehensive analysis that included (i) a water quality model of the present situation; (ii) a water quality model of Gatun Lake for Expanded Panama Canal – Modeling of the Future Situation, and (iii) a water quality model of Gatun Lake for Expanded Panama Canal – Water Quality Monitoring. The Bank required ACP to maintain an Environmental, Health and Safety Management System consistent with IFC Performance Standard 1, which includes regular updates and the need to provide documentation management, procedures, performance indicators, responsibilities, human and operational resources, training, and provisions for annual audits and inspections. This approach was consistent with the subsequently released 2008 Delft report. New modeling carried out in late 2008 provided an updated assessment, which confirms the results of previous assessments in that the volume-averaged salt concentrations of the lake will remain well below the freshwater limit.

After financial closing, ACP conducted more detailed modeling and more precise monitoring, identified as a need during the Bank's due diligence and as a result of the peer review conducted by the Danish Hydraulic Institute (DHI) in 2005 at ACP's request. Consistent with the recommendations derived during due diligence, ACP developed specific procedures and plans to accommodate the recommendations for the additional modeling and the adaptive management approach, which includes the incorporation of bubble screens, empty lock flushes, and adjustments in the operation of the water saving basins. In particular, following DELFT/DHI recommendations, ACP has established the first two of eight telemetric continuous stations in Gatun Lake. Continuous water quality monitoring will provide information for adaptive management and help to assess the need for additional mitigation measures.

Based on this analysis Management believes that the salinity risk was appropriately considered and incorporated into the Expansion Program. The risk continues to be monitored closely following the recommendation from the due diligence. A new tri-dimensional model has been completed and will be continuously updated to monitor the salinity. As recognized in the Ombudsperson's assessment report, "the successful calibration

of the models to the current conditions seems to provide a strong confidence to the use of these models for the prediction of salt-water intrusion under the Expansion Program.” Coupled with more detailed information on saline levels, the model is now the basis of an adaptive management approach which will allow any necessary adjustments to safeguard water quality in the future.

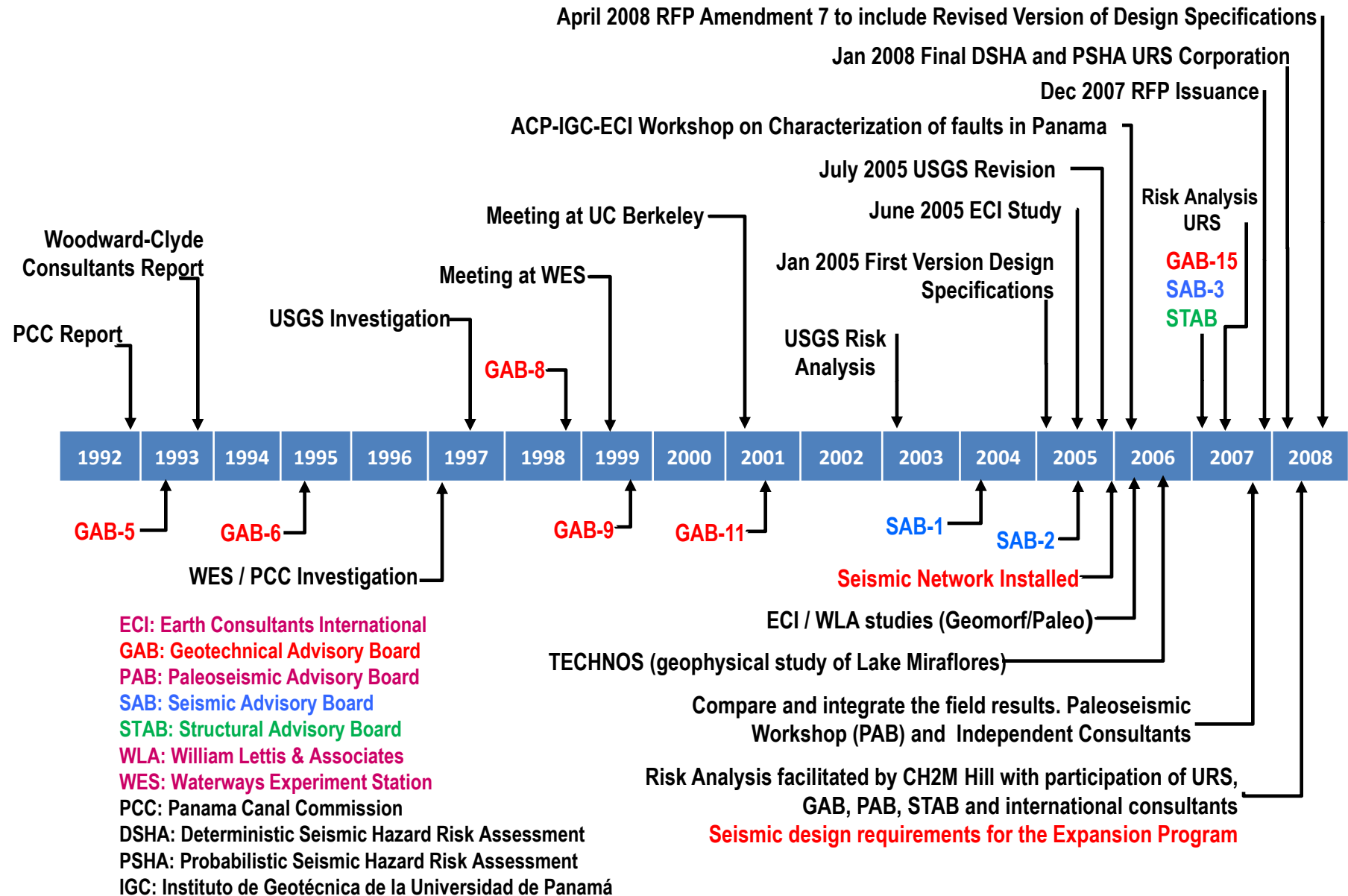
Information Disclosure Issues:

As was correctly stated in ICIM’s assessment report, IDB disclosed the required documentation as mandated by its Disclosure of Information Policy.

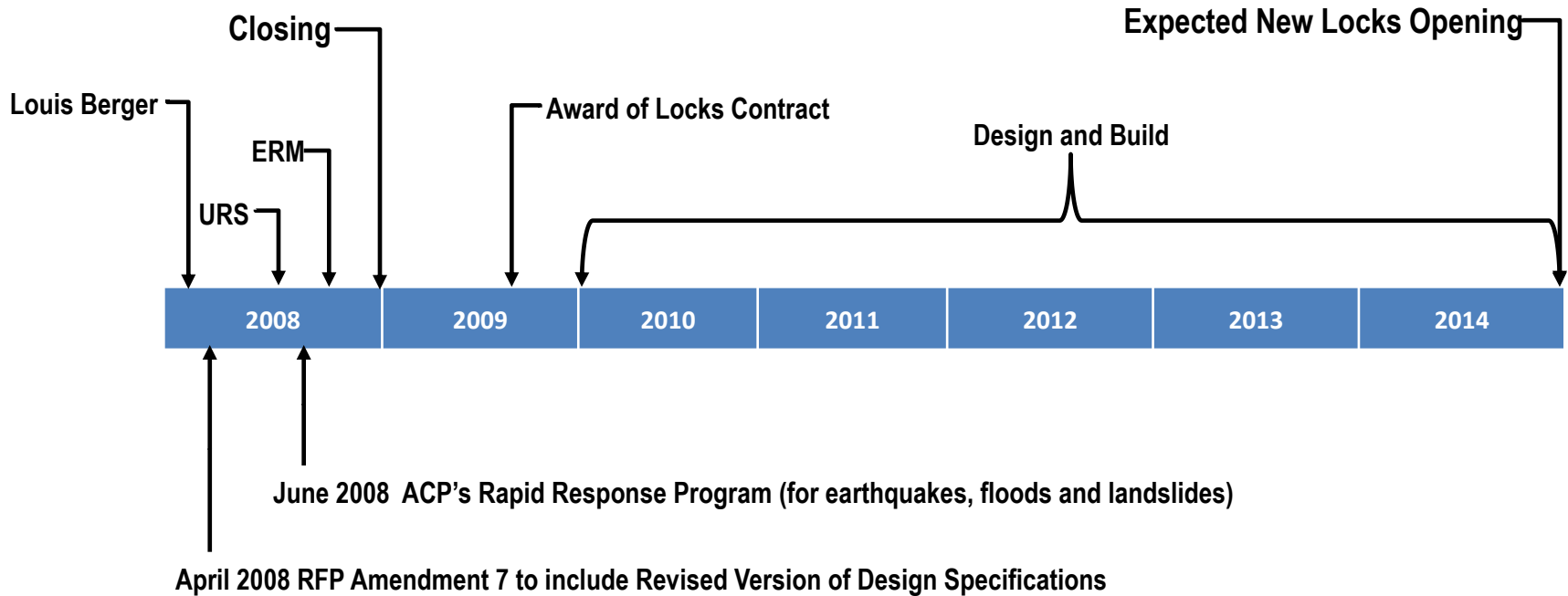
With respect to the semi-annual Environmental and Social Monitoring Reports prepared by the firm Environmental Resources Management (ERM), acting as an independent third party reviewer, it should be noted that these documents are available at ACP’s web page. (“Verification of the Implementation and Effectiveness of the Mitigation Measures for the Panama Canal Expansion Project” <http://www.pancanal.com/eng/expansion/rpts/anam/i-2012-en.pdf>). These reports are also submitted to the *Autoridad Nacional del Ambiente*, and thus are public documents.

ACP conducts periodic visits to remote communities facilitated through participatory consultation mechanisms (quarterly “consejos consultivos” and monthly “comités locales”) to discuss and listen to concerns in regards to Expansion Program and Canal operations. The representatives to these forums are democratically elected by the local communities. ACP’s Environmental Division is ISO 14,001 certified in its process to conduct and maintain records of each of these meetings.

Chronology of the Seismic Hazard Characterization of the Canal Area and Expansion Program Design Specifications



Chronology Due Diligence and Post-Closing



Board of Consultants

Geotechnical Advisory Board



Dr. Norbert R. Morgenstern
Professor of Geotechnical Eng,
University of Alberta



Dr. James Michael Duncan
Professor of Geotechnical Eng,
Virginia Tech



Dr. Robert L. Schuster Retired
Geotechnical Engineer & Geologist,
USGS



Dr. William F. Marcuson
Retired Chief, Geotechnical
Laboratory, WES



Dr. Robert L. Wesson
Senior Geophysicist, USGS

Seismic Advisory Board



Dr. Robert L. Wesson
Senior Geophysicist, USGS



Dr. Paul Sommerville Principal
Seismologist, URS Corporation,
Pasadena, CA



Dr. Julian Bommer Professor of
Earthquake Risk Assessment,
Imperial College, UK



Dr. Farrok Nadim Director,
International Centre for Geohazards ,
Norwegian Geotechnical Institute



Dr. Lloyd Cluff Director, Earthquake
Risk Management, Pacific Gas and
Electric Co., San Francisco, CA

Structural Advisory Board



Dr. Robert Hall Retired Chief, Geosciences
& Structures Division, WES, USACE



Dr. Anil Chopra Professor of Structural
Dynamics, UC Berkeley



Dr. Sam X. Yao Chief Engineer, Ben C.
Gerwick, Inc., San Francisco, CA



Dr. Enrique Matheu
Chief, Dams Sector Branch, Department of
Homeland Security, Washington, DC



Dr. José Roesset Professor of Structural
Mechanics & Dynamics, Texas A&M



Dr. Martin Wieland Structural Engineer,
Pöyry Energy Ltd., Zurich, Switzerland

Additional consultants involved in the seismic risk characterization

Consultants - US Geological Survey (USGS)

Dr. William Joyner, Seismologist (R.I.P.)

Dr. Mark Petersen, Geophysicist

Dr. Eugene Schweig, Geologist

Dr. Joan Gomberg, Geologist

Dr. Tom Pratt, Geophysicist

Consultants - Waterways Experiment Station (WES)

Dr. Ellis L. Krinitsky, Senior Seismologist

Dr. Mary Ellen Hynes, Geotechnical Engineer

Dr. Don Yule, Geotechnical Engineer

Dr. Rick Olsen, Geotechnical Engineer

Independent Consultants

Dr. Peter Dickson, Geologist, Montgomery Watson Harza

Dr. Hugh Cowan, Geologist and Geophysicist, Geonet, New Zealand

Dr. Aristóteles Vergara Muñoz, Seismologist (R.I.P.)

Eduardo Camacho, Geophysicist, Director del Instituto de Geociencias de la U. de Panamá

Jaime Toral, Geophysicist and Seismologist, Director del Instituto Geográfico de Panamá

Independent Board of Paleoseismic Consultants

Dr. Ray Weldon, Professor of Neotectonics, Structural and Quaternary Geology, Univ. of Oregon

Dr. William Page, Consulting Geologist, Pacific Gas & Electric

Dr. David Schwartz, Earthquake Geologist & Paleoseismologist, US Geological Survey

URS Corporation

Dr. Lelio Mejía, Principal and Vice President Engineering

Dr. C. B. Crouse, Expert Seismic Engineer

Dr. Robert W. Graves, Principal Seismic Engineer

David Schug, Senior Geologist

Earth Consultants Internacional (ECI)

Dr. Eldon Gath, Geologist, President, Senior Consultant
Paleoseismologist

Dr. Thomas Rockwell, Geologist, Senior Consultant
Paleoseismologist

Tania Gonzalez, Geologist, Paleoseismologist

William Lettis and Associates (WLA)

Dr. William Lettis, Geologist, Paleoseismologist

Dr. Dean Ostenaa, Geologist, Paleoseismologist

Technnos

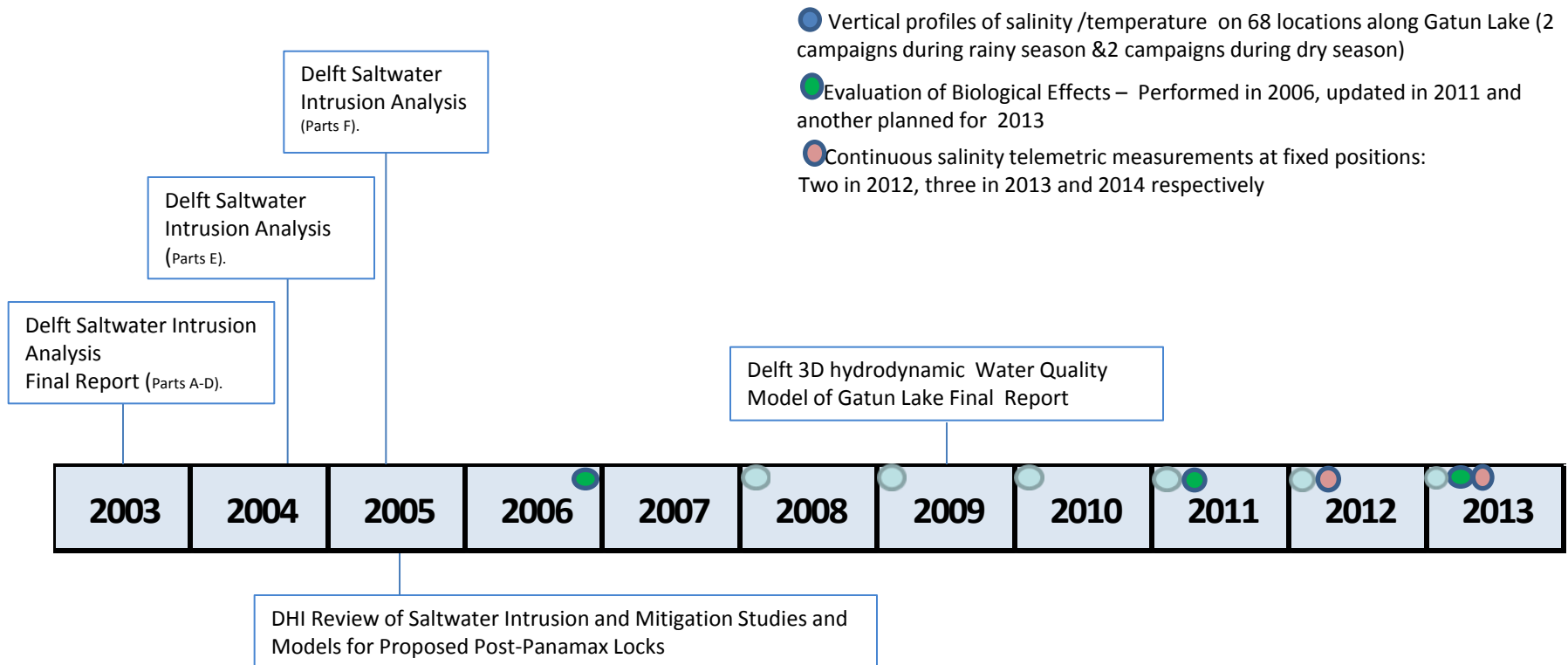
Lynn M. Yuhr, President, Project Manager

Ronald D. Kaufmann, Vice President, Senior Geophysicist

Richard C. Benson, Senior Scientist

Daniel W. Casto, Geophysicist

Chronology of Saltwater Analysis



● Vertical profiles of salinity /temperature on 68 locations along Gatun Lake (2 campaigns during rainy season & 2 campaigns during dry season)

● Evaluation of Biological Effects – Performed in 2006, updated in 2011 and another planned for 2013

● Continuous salinity telemetric measurements at fixed positions:
Two in 2012, three in 2013 and 2014 respectively

Studies Recommended by DHI (Danish Hydraulic Institute):

1. Set up /calibrate a 3D hydrodynamic model of Gatun lake. (**Done**)
2. Determine the long-term salt concentration in Gatun lake. (**On going**)
3. Conduct a series of high precision salinity measurements: (**On going**)
 - Design /location of measurements shall be prepared based on 3D model results
 - Salinity transect measurements perpendicular to the coast at wet and dry season
 - Continuous salinity measurements at selected fixed positions.
4. Evaluation of Biological Effects – Literature Review /Model Based Assessment (**Done and on going**)