



Dr. Dibajnia is an internationally recognized expert in coastal and riverine processes. He has 35 years of experience as a coastal and water resources engineer with strong academic background allowing him to provide innovative solutions to challenging problems through an understanding of the underlying processes. Dr. Dibajnia is a senior associate and technical lead in coastal processes at Baird focusing on waves, sediment transport, shoreline erosion control, beach design, dredging and sediment management, shoreline management plan, ICZM, and environmental impact assessment.

## 35 YEARS' EXPERIENCE

Coastal Processes  
Shoreline Management  
Coastal Engineering

## EDUCATION

Ph.D. | Coastal Engineering  
M.Sc. | Coastal Engineering.  
B.Sc. | Civil Engineering

## AFFILIATIONS

PEO, ASBPA, CSCE, CCSEA  
Member, Editorial Board, Coastal  
Engineering, Elsevier

## PROJECT EXPERIENCE

### **Gibraltar Point Erosion Control Project | Toronto Island | TRCA | 2010-Present**

Dr. Dibajnia is the project manager to control erosion of Gibraltar Point on Toronto Island which has been eroding for many years at a rate of approximately 4 m/year. The study involved detail geomorphic assessment and extensive numerical modeling to evaluate more than 10 design alternatives. The final design includes an innovative nearshore reef that serves as a marine habitat system while causing wave energy dissipation thus mitigating shoreline erosion.

### **Ashbridges Bay Park Shoreline Stabilization Project | Toronto | TRCA | 2018-Present**

Dr. Dibajnia is the project manager to control erosion of Toronto's Ashbridges Bay Park shoreline, Lake Ontario. The shoreline has experienced severe erosion since higher lake levels first occurred in 2017. A hybrid design consisting of rip rap revetment and a nearshore reef has been selected to seamlessly merge into the existing landscape while providing a balance between hard protection, marine habitat creation, nearshore ecology, and available budget.

### **Bluewater SPM Project Pipeline Installation TSS Modeling | Texas | Lloyd | 2019**

Dr. Dibajnia was the study manager to assess the impacts of suspended sediments resulting from jet sled laying of a pipeline to the Bluewater SPM project, located in the Gulf of Mexico just offshore of Corpus Christi, Texas. The project required the installation of approximately 26 miles (~42 km) of pipeline from the terminus of horizontal directional drilling (HDD) in 23 ft (~7 m) depth to the offshore terminal location. The three-dimensional MIKE3 model and the Mud Transport (MT) model both developed by Danish Hydraulic Institute were used for simulation of hydrodynamics and dispersion and deposition of the excavated material/sediment, respectively. Maps of maximum sedimentation thickness and maximum hourly SSC experienced during the entire simulation period were provided.

### **CPRA – BA-0203 Barataria Basin Ridge and Marsh Creation – Spanish Pass Increment | Louisiana | CPRA | 2017–2018**

Dr. Dibajnia was responsible for undertaking a technical investigation and modeling effort to assess impacts of a major marsh restoration project near Venice, LA, on channel velocity, storm surge, and water quality in surrounding tidal channels and water bodies on Mississippi Delta. The work involved using the TELEMAC2D model to simulate passage and landfall of several hurricanes over the Gulf of Mexico that would impact the project site.

### **LNG Terminal Sedimentation Study | Sabine Pass, Gulf of Mexico | Cheniere | 2017-2018**

Dr. Dibajnia led the study to investigate sedimentation processes at an LNG facility constructed as a side-basin in the Sabine Pass channel, LA. The study site is impacted by both tidal and riverine processes depositing fine sediment in the basin requiring annual maintenance dredging. A conceptual sedimentation model was developed based on the regional sediment budget, and a series of conceptual sedimentation mitigation measures were developed.

**National Coastal Risk Information and Planning Platform (NCRIPP) | Barbados | CZMU | 2017**

The NCRIPP project involved assessing coastal and island-wide hazards for Barbados including climate change, hurricane winds, storm surge, rainfall induced flooding, landslides, shoreline erosion, earthquakes, tsunamis and oil spills. Dr. Dibajnia was the study manager to define coastal erosion hazard zones. Hazard and vulnerability maps were developed along with a geodatabase was developed to serve this information into the NCRIPP system.

**Costa Azul LNG Terminal Sedimentation Study | Baja California, Mexico | Sempra Energy | 2016-2017**

Dr. Dibajnia was the study manager to investigate sedimentation processes at the Energia Costa Azul (ECA) LNG terminal site for Sempra Energy LNG. The LNG terminal's seawater intakes had been subject to periodic problems with sedimentation over the years since facility start-up in 2008. Estimation of the actual transport rates was the main challenge due to episodic nature of sand supply and limited sand availability in the nearshore area.

**Javits Center Expansion – Flood Dynamics Modeling | New York City | Epstein | 2016**

Dr. Dibajnia was the project manager and technical lead to investigate potential impacts of the proposed expansion of the Javits Center, located on 12th Avenue, on flood dynamics around its neighboring Lincoln Tunnel. Baird conducted flood simulations to simulate overland flood flow at the site including inundations associated with the 10-, 50-, 100-, and 500-year flood events for post-expansion conditions under various future sea level rise scenarios.

**The Pointe Marina Shoreline Impact Assessment | Nassau Harbour, Bahamas | Caribbean Coastal Services | 2016**

Dr. Dibajnia was the study manager to assess potential impacts of a recreational marina, proposed as part of a larger site development known as The Pointe inside Nassau Harbour, on adjacent shorelines and beaches. Dr. Dibajnia completed a detailed site investigation including snorkeling examination and jet probing of the nearshore seabed followed by numerical modelling to assess project impacts and concluded that only subtle changes are expected.

**Coastal Risk Assessment and Management Program | Barbados | CZMU | 2015-2016**

Dr. Dibajnia was the project manager of a sediment transport study to assess sea level rise impacts on beaches around Barbados as part of the Coastal Risk Assessment and Management Program. A multi component beach sediment budget prediction model was developed that formulates the balance between supply (i.e., carbonate sediment production) and loss of sediment for individual beaches under future sea level rise scenarios.

**Ponta da Madeira Maritime Terminal Hydrodynamics and Sediment Transport Study | Sao Luis, Brazil | Vale | 2010-2016**

Dr. Dibajnia was the project manager to develop a sediment management program for a new terminal in Vale's Ponta da Madeira export facility. Baird's involvement in design and subsequent refinements through construction reduced capital and maintenance dredging (the latter estimated initially at 2.8 million m<sup>3</sup>/yr) requirements by a factor of more than 10. Baird also assisted Vale in obtaining permits for dredging and offshore dumping using numerical modeling.

**Port of Duqm Basin Channel Sedimentation Assessment | Duqm, Oman | Royal Haskoning DHV | 2015-2016**

Dr. Dibajnia was the study manager for this assessment of channel sedimentation at the new port of Duqm on the Indian Ocean. The project involves extensive fieldwork under the direction of Baird and hydrodynamic/morphologic numerical modeling of sedimentation processes. Required maintenance dredging volumes were estimated for a 25-year planning horizon.

**Port of Ehoala | Fort Dauphin, Madagascar | Rio Tinto | 2003-2016**

Dr. Dibajnia was the study manager of sediment transport studies of the new port constructed at the south end of Fausse Baie des Galions in Madagascar. A system of two groynes was designed to mitigate sedimentation in the

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harbour. A 7-year monitoring program involving regular bathymetric and beach profile surveys was subsequently implemented since the completion of the port in 2009 to fine tune maintenance dredging requirements.

**Ashbridges Bay Treatment Plant Outfall Conceptual Design & Receiving Water Assessment | City of Toronto | 2015**

Dr. Dibajnia was the study manager for assessment of sediment transport issues related to the proposed new outfall for this wastewater treatment plant in Toronto. The study involved a geomorphic assessment of historic shoreline and bathymetric conditions as well as comprehensive numerical modelling of nearshore processes to evaluate sedimentation potential corresponding to each outfall location alternative and recommendation of a preferred outfall location.

**Euclid Beach Hydrodynamic Study | Cleveland, Ohio | Cleveland Metroparks | 2015**

Euclid Beach protected by a series of detached breakwaters had relatively steep beach slopes and localized water depths in excess of approximately 14 feet during periods of high lake levels which were problematic with respect to swimming safety. Dr. Dibajnia was the study manager to numerically investigate the hydrodynamic conditions at the beach and to propose potential improvements through installation of underwater sills between the breakwaters.

**FEMA Compliance Review | Southampton, Long Island | New York | HFZ Capital Group | 2015**

Dr. Dibajnia was the project manager to assess if the proposed changes to the subject property in Southampton was consistent with FEMA regulations, review plaintiff affidavits and objections and attend at the Village of Southampton Zoning Board hearing as expert witness. The project involved detail review of FEMA recommendations, site reconnaissance and literature review to gain adequate understanding of ongoing coastal processes at the site.

**Saginaw River 516e | USACE, Detroit District | 2015**

Dr. Dibajnia was the study manager to develop a detailed scope of work for a study to address sedimentation issues in the Saginaw River and Saginaw Bay and evaluate the effectiveness of watershed sediment management practices enacted by GLRI. The challenge was to design the scope of work in such a way to distinguish between sediment newly delivered to the river and those resuspended sediment from existing sources.

**Ashland/NSP Lakefront Site Superfund Dredging Project | Ashland, Wisconsin | Xcel Energy | 2015**

Baird & Associates was responsible for design of a breakwater structure under fast-track schedule conditions to provide wave sheltering in order to carry out dredging of contaminated sediments in Chequamegon Bay, Lake Superior. Dr. Dibajnia was in charge of the corresponding sediment transport studies including extensive numerical modelling of nearshore processes to predict future sedimentation rates and assess potential project impacts.

**City of Whiting Sediment Transport Study, Lake Michigan | Indiana | City of Whiting | 2015**

The City of Whiting had sedimentation problems at their newly expanded Lakefront Park Boat Launching Facility. Dr. Dibajnia conducted a sediment transport study to review coastal processes and evaluate opportunities to reduce annual dredging expenditures and improve navigation. It was found that sediment was mainly coming from the opposite direction to what the designer had assumed when defining the harbor expansion layout.

**Baileys Harbor Sediment Transport Study, Lake Michigan | Wisconsin | Town of Baileys Harbor | 2015**

Dr. Dibajnia was the study manager to investigate the cause of the accumulation of sediment in the entrance channel to the Baileys Harbor marina and develop possible recommendations to reduce or eliminate annual dredging requirements and expenditures. Geomorphic assessment and comprehensive numerical modelling were completed to define sediment transport pathways, quantify transport rates, and propose a number of mitigation concepts.

**Newtown Creek Superfund Remediation | Confidential | 2014**

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Dr. Dibajnia was Baird internal reviewer for the study completed to evaluate sediment processes in Newtown Creek the approximately 3.8-mile tidal waterbody that forms the westernmost portion of the border between the boroughs of Brooklyn and Queens in the City of New York. The primary objective of this multi-disciplinary modelling study was to develop a reliable management tool to evaluate remedial.

**Impact Assessment for a Proposed Revetment on Lackawanna Slag Shoreline | Lake Erie, Lackawanna, New York | GEI Consultants | 2013**

The shoreline of the former Bethlehem Steel Corporation facility was mostly formed by deposition of slag material forming a unique bluff and shoreline system after several decades of disposal. Dr. Dibajnia was responsible for the coastal processes and shoreline impact assessment studies to review shoreline conditions and bluff stability/erosion issues and evaluate and design a revetment structure proposed as part of slope stabilization measures.

**APM Container Terminal | Moín, Costa Rica | CH2M HILL | 2012**

Dr. Dibajnia was the study manager for sedimentation and shoreline impact assessment studies for a new large container terminal in Moín. The geomorphology of the project site was fairly complex due a 1.5 m uplift of the Moín area caused by the strong April 22, 1991 earthquake. A post-earthquake sediment budget was established and used to evaluate dredging requirements as well as potential project impacts. A monitoring program was also proposed.

**Harbour Sedimentation, Erosion and Wave Agitation Assessments | Al Ashkarah and Quriyat Harbours, Oman | MOAF | 2012-2013**

Dr. Dibajnia was the study manager for the evaluation of sedimentation, erosion and wave agitation problems and to propose mitigation solutions at these existing fishery harbours in Oman. The work included a comprehensive field program including bathymetry survey, meteorological monitoring, ADCP measurements of waves and currents, tide measurements, sediment sampling, jet probing and boreholes followed by extensive numerical modeling.

**Oshawa Port Consolidation Project | Oshawa, Ontario | Oshawa Port Authority | 2012**

Dr. Dibajnia was the study manger to investigate potential impacts of a proposed port expansion project on harbor sedimentation, maintenance dredging requirements, and neighbouring shorelines at Oshawa Port located on Lake Ontario approximately 50 km east of Toronto. Detailed geomorphic assessment and extensive numerical modeling was completed to estimate sedimentation rates and define future maintenance dredging needs.

**Belledune Xstrata Intake Sediment Study | Baie des Chaleurs, New Brunswick | Xstrata | 2012**

Dr. Dibajnia was the study manager to evaluate sediment processes and make recommendations regarding relocation of intake pipes for Xstrata Zinc Brunswick Smelter facility in Belledune. A detailed geomorphic assessment was completed to better understand the historic and recent behavior of the shoreline after expansion of the Port of Belledune. Recommendations for intake relocation and required future studies were provided.

**National Park Service | Great Lakes Region | National Park Service, USA | 2012**

Dr. Dibajnia was the study manager for a series of five projects related to restoration of natural processes at five separate sites within the National Park Service system. The projects were sited in a variety of coastal areas on Lake Superior and Lake Michigan and mainly involved preparing solutions to restore sediment transport along previously developed shorelines. The work included extensive analysis of historic shorelines and numerical modelling.

**Source Water Protection Initiative, Province of Ontario | Government of Ontario | 2006- 2011**

Dr. Dibajnia was involved on several projects to evaluate the vulnerability of surface water intakes to contamination. The work involved development and application of policy for evaluation of surface water intakes. Numerical modeling was completed for over 60 surface water intakes to determine the threats and vulnerability from various pollutant sources including rivers, wastewater treatment plant outfalls and spills at ports and harbours.

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**Musandam Gas Plant Hydrodynamic Modelling and Met-ocean Design Conditions | Musandam Peninsula, Oman | Oman Oil | 2010-2011**

Dr. Dibajnia was the project manager to investigate various coastal engineering aspects in relation to construction of a new onshore oil and gas processing plant proposed for the Persian Gulf shore of the Musandam peninsula in Oman. The project involved measurements of waves and currents for calibration of the hydrodynamic model, development of preliminary design conditions, and projection of future shoreline changes and project impacts.

**MacLean Beach Erosion Study | Eastern Beaches, Toronto | TRCA | 2010-2011**

Dr. Dibajnia was the project manager to undertake a coastal engineering study and develop conceptual designs to address erosion of the recreational beach immediately west of the storm water detention tank at MacLean Avenue. The problem was studied in the framework of a regional sediment budget for the Eastern Beaches area to include issues related to sediment supply through longshore processes and propose erosion mitigation alternatives.

**St. Joseph Harbor Impact Assessment | Berrien County, Michigan | DOJ | 2004-Present**

Dr. Dibajnia is the project manager for this comprehensive assessment of the impacts of St. Joseph Harbour on adjacent shoreline erosion processes. The work is completed to develop expert witness testimony for a trial in the Federal Court of Claims in the USA. Baird's work includes a thorough investigation of the history of shoreline erosion since harbor construction in 1836 and development of a comprehensive sediment budget between 1836 and present.

**Playa Brava Beach Improvement Detail Design | Chile | Ministry of Public Work, Chile | 2010-2011**

Dr. Dibajnia was the study manger to improve swimming and bathing conditions along Playa Brava Beach in Iquique, Chile. The beach is currently impounded continuously by relatively large swell waves preventing safe use of the beach. The project objective was to design of a series of breakwaters that would mitigate wave and nearshore current conditions to become suitable for beach users. The study involved both numerical and physical modeling.

**Asian Beach Games Harbour Review, Ministry of Tourism | Batinah Coast, Oman | MOT | 2010**

Dr. Dibajnia was the study manager to investigate beach erosion and sedimentation within this newly constructed harbour and to propose solutions to address the problem of beach erosion. The work included development of the wave climate and Boussinesq wave modelling of the harbour basin which provided the basis for development of a spur jetty solution for which Baird developed final design drawings and provided construction services.

**Darlington New Nuclear Geomorphic Assessment | Darlington, Canada | OPG | 2010**

Dr. Dibajnia was the study manger to complete a geomorphic assessment of the shoreline where the New Nuclear Power Plant at Darlington is to be constructed. The study included analysis of historic airphotos in GIS to determine bluff recession rates and quantify the contribution from the bluff to the local sediment budget, and numerical modeling of alongshore transport to determine the expected level of impact of the project on the adjacent shorelines.

**Investigation of Dredging Guidelines for Offshore Ridge and Shoal Regimes | US Mineral Management Service | 2007-2010**

Dr. Dibajnia was the project manager to formulate offshore dredging guidelines to protect and maintain the integrity of the ridge and shoal features found on the Outer Continental Shelf (OCS) which are being targeted as sand borrow sites for coastal restoration efforts. The guidelines were derived based on morphologic evolution of ridge and shoal features, field measurements, a conceptual shoal evolution model, and extensive numerical modeling.

**Assessment of the Flood and Erosion Hazard for the Batinah Coast, SCTP | Oman | SCTP | 2009-2010**

Dr. Dibajnia was the study manager for the development of flood and erosion hazard setbacks for the 250 km long Batinah coast of Oman for the Supreme Committee of Town Planning. The work consisted of evaluation of historic

shoreline change, modeling of cyclones to estimate storm surge and wave runup, alongshore transport modelling to assess sedimentation and downdrift erosion for all harbours, and provision of flood and erosion hazard maps.

### **South Pars Phase 9 & 10 Thermal Modeling and Dredging Impacts Study | Naiband Bay | SNC | 2008**

Dr. Dibajnia was the project manager for an investigation into the thermal discharge characteristics of the seawater cooling system associated with Phases 9 and 10 of the South Pars oil and gas development in the Assaluyeh region on the Persian Gulf. An assessment of the impacts of dredging of the proposed outfall on the nearby corals and benthic communities was also completed. The assessment involved diving reconnaissance of the existing marine habitat in the vicinity of the proposed outfall pipeline trench where a surprisingly large amount and extent of the coral was found. Recommendations for dredging procedures to be used to minimize sediment suspension during the operation were provided together with a monitoring program to be implemented during dredging operations.

### **Oman Sea Tropical Cyclone Design Waves | Makran Coast | PMO | 2007-2008**

Dr. Dibajnia was the project manager for an investigation of tropical cyclones in the Oman Sea to define design wave conditions along the Iranian coastline. The study involved statistical analyses of historical tropical cyclone data from a variety of sources, review of previous tropical cyclone investigations for the region, numerical simulation of waves generated by important historical cyclone events, including cyclone Gonu 2007, Monte Carlo numerical simulations of tropical cyclone-generated waves and statistical extreme value analyses of maximum wave heights in the simulated dataset to define the design waves.

### **Monitor SB&B | Chabahar and Bushehr | PMO | 2006-2008**

Dr. Dibajnia was the project manager at Baird of this multi-year project for Ports and Maritime Organization that involves monitoring and modeling of some coastal parts of Sistan & Baluchestan and Bushehr provinces in Iran. The study was divided into three phases. Each phase involved one year of comprehensive field measurements of waves and hydrodynamics as well as GIS analysis of airphotos and shoreline changes, long-term wave climate hindcast, extensive numerical modeling of the nearshore processes and shoreline classification. The results provide a comprehensive dataset for Integrated Coastal Zone Management as well as other future projects.

### **Integrated Coastal Zone Management | Iran | PMO | 2007-2008**

This was a joint project with JWRC and Dr. Dibajnia was the project manager at Baird of this project for PMO that involved preparation of a Shoreline Management Plan (SMP), an Environmental Management Plan (EMP) and a Monitoring and Evaluation Plan (MEP) for sustainable development of Iranian coastal areas. The study included collection and review of massive volumes of available data, GIS analysis of shoreline change for the entire Iranian coastlines, identification and evaluation of natural hazards, definition of coastal zone management boundaries, preparation of hazard maps, development of setback lines and recommendations for shoreline and environmental managements.

### **Intake Bay Sediment Transport Analysis | Waukegan, Lake Michigan, Illinois | Midwest Generation | 2008**

Dr. Dibajnia was the study manager to investigate sedimentation in the intake channel of Waukegan Station and assess the impact of a proposed land extension. The study involved 3D numerical modeling of hydrodynamics and sediment transport of the intake and assessment of the effect of waves from Lake Michigan on sedimentation. A new design was proposed for the intake to mitigate channel sedimentation and minimize the structure's impact.

### **Keta Sea Defence Project | Ghana, West Africa | Government of Ghana | 2001-2004**

This was a design-build project at Baird since 1996 and Dr. Dibajnia was in charge of monitoring coastal processes and shoreline evolution and modifying the design as the construction works proceed. It was about the development of a sea defence system to protect 7 km of rapidly eroding coastline. The design includes seven large headlands (each constructed with approximately 40,000 m<sup>3</sup> rock), beach nourishment and a flood relief structure.

**Clearwater Beach 4 Seasons Hotel and Villas Development | Barbados, West Indies | Four Seasons | 2007**

Dr. Dibajnia was responsible for the sediment transport modeling and beach erosion assessments related to this large new resort development on the island of Barbados. Work included evaluation of beach stability, impact of proposed amenities (outfalls and jetties) on beach stability, determination of flood and erosion setbacks based on wave and sediment transport modeling, site measurements and GIS analysis.

**Hog Island 4 Seasons Hotel and Villas Development | Grenada, West Indies | Four Seasons | 2007**

Dr. Dibajnia was responsible for the geomorphic assessment, coastal processes and sediment transport modeling and beach erosion/stability assessments related to this new resort development on the island of Grenada. Baird completed conceptual design for enhancement or creation of 6 large beaches on the island and mainland areas of this project. Investigations also included advice on sourcing sand, coral conditions, and field measurements.

**Barbados Coastal Infrastructure Programme | Barbados, West Indies | CZMU | 2002-2008**

Dr. Dibajnia was responsible for all numerical and physical modeling of sand transport as well as design of beach nourishment on this project. This included extensive 2DH, longshore and cross-shore modeling for seven sites and mobile-bed physical modeling of three sites around the island. A new technique to consider the influences of carbonate sand supply from nearshore hardground areas and reefs was developed.

**Cancun Beach Nourishment Study | Cancun, Mexico | Cancun Hotel Association | 2004**

Dr. Dibajnia was responsible for managing the coastal sediment transport aspects of this project to design a \$20 million nourishment project for the beaches of Cancun. Using numerical modelling and extensive data analysis sediment budgets were developed for the last 20 years to describe the shoreline change. The link between the health of reefs and the long-term carbonate sand supply to the beaches was investigated.

**Grand Marais Harbor Environmental Study | Lake Superior, Michigan | USACE | 2006**

Dr. Dibajnia was the study manager for investigation of shoreline response and corresponding piping plover habitat evolution as a result of failure of the old dyke as well as construction of a new proposed breakwater at Grand Marais Harbour. Extensive shoreline change analysis together with site visits and comprehensive numerical modeling were conducted to understand the history of piping plover habitat evolution at the site and predict its future conditions.

**Mauritius Coastal Erosion Study | Mauritius | Government of Mauritius | 2002-2003**

Dr. Dibajnia was responsible for sediment transport modeling on this project including 2DH, longshore and cross-shore modeling for several sites around the island. A special consideration was wave transformation over reefs and potential loss of sediment through gaps in reefs. A new approach was developed, tested and successfully applied, linking long-term beach stability to the health and extent of nearshore reefs and related marine communities.

**Cotonou Sea Defence Project | Benin, West Africa | Port of Cotonou | 2001-2008**

Dr. Dibajnia was the study manager for the development of the sea defence system to protect 5 km of rapidly eroding coastline located downdrift of the Port of Cotonou that acts as a complete littoral barrier. The study includes sea defence (headlands, breakwaters and beach nourishment) and development of a plan to address sedimentation at the harbor mouth. A significant harbor sedimentation problem was also investigated as part of this study.

**Sedimentation in Port of Toamasina | Madagascar | SNC Lavalin | 2006**

Dr. Dibajnia was the study manager for preliminary assessment of hydrodynamics and sediment transport processes in the Tamatave/Toamasina harbor area to evaluate possible effects of the proposed port expansion on harbor sedimentation. The study was based on a site visit, GIS analysis of available hydrographic charts and satellite imagery, together with comprehensive numerical simulation of waves, hydrodynamics and sediment transport in the port area.

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**Generating Plant Intake Sedimentation | Algeria | SNC-Lavalin | 2006**

Dr. Dibajnia investigated sedimentation possibility in the cooling water intake harbor for a proposed power generation facility to be located along the coastline of Algeria. This work was performed on behalf of SNC-Lavalin, who was preparing a bid for design and construction of the facility. The investigation comprised comprehensive numerical modeling of nearshore waves and currents as well as sediment transport.

**Port Washington Porous Dike | Lake Michigan, WI | PWGS | 2006**

This project involved concept development, numerical and physical modeling and final design development for a porous dike cooling water intake structure (CWIS), a key component of the redevelopment of the Port Washington Generating Station (PWGS). The primary function of the dike is to provide a physical barrier to fish. Dr. Dibajnia completed an assessment of sedimentation rate and the extent of the resulting clogging of the dyke.

**Field Monitoring Protocols and Regional Management Strategy for Dredging Impacts on OCS Deposits | US Minerals Management Service | 2004**

Dr. Dibajnia contributed to development of a new understanding of the maintenance/evolution of ridge and shoal features through application of a Boussinesq wave model coupled with a nonlinear sediment transport formulation. The model can be applied to assess potential implications of dredging these features.

**Michigan City Harbor Impact Study | Michigan City, IN | Michigan City | 2004-2005**

Dr. Dibajnia was the study manager for investigation of sediment transport rates and patterns to assess the link between potential by-passing, sedimentation and erosion around Michigan City harbor jetties and breakwater on Lake Michigan. A technique of evaluating bypassing of the entrance channel of jettied harbors that was applied to this project to assess bypassing and understand future nourishment requirements for the downdrift erosion zone.

**Saugatuck Harbor Impact Study | Allegan County, Michigan | USACE Detroit District | 2003-2004**

Dr. Dibajnia was the study manager for investigation of sediment transport rates and patterns to assess the link between potential bypassing and sedimentation around Saugatuck harbor jetties. A new approach was developed to determine whether harbor fillet beaches are still accumulating sand. Dr. Dibajnia applied 2DH models of hydrodynamics and sediment transport to assess the evolution of fillet beaches and the shoal offshore of this harbor.

**Cat Island Chain Restoration | Green Bay, WI | USACE | 2004**

Dr. Dibajnia was responsible for the evaluation of a sediment transport process influencing a 20-mile-long navigation channel and the influence of this habitat restoration project on sedimentation. Dredged sediment from the Green Bay access channel was used to reconstruct the Cat Island Chain that eroded and disappeared over the last twenty years. Tasks included numerical modeling, analysis of dredging and sedimentation data, and natural island design.

**Sediment Transport Modeling, Imam Port | Iran | PMO | 2003**

This was a project at Water Research Center (WRC) and Dr. Dibajnia was the project manager for Baird to assist WRC and review and approve their work. The objectives of the Imam Port Project were 1) Analysis of sediment transport and siltation patterns around the port and in the vicinity of the approach channel; 2) Development of a calibrated numerical model for investigation of siltation in the study area and 3) Address port extension issues such as channel response to further deepening, best place to dispose dredge material and approaches to reduce sedimentation in the access channel.

**Anzali Port Wave Penetration and Sedimentation Studies | Iran | PMO | 2003**

The project was undertaken by Water Research Center (WRC) and Dr. Dibajnia was the project manager at Baird to assist WRC and review and approve their work. The study included two sets of one month field measurements in calm and storm seasons and mathematical modeling of wave penetration into the harbor, harbor hydrodynamics,



fresh and saltwater interaction, nearshore hydrodynamics, morphology and harbor and its approach channel sedimentation.

**Bhavanapadu Fishing Harbor | Andhra Pradesh, India | Local Government | 2002-2003**

Dr. Dibajnia was in charge of a study to find long-lasting solutions for sedimentation problems at Bhavanapadu Fishing Port, East Coast India. The port is in an intensive sediment transport environment and had never been fully operated since its construction in 1980s due to sedimentation problems. A number of options were proposed to the local government using 2DH modeling of sediment transport and analysis of morphologic evolution.

**Meigs Field Shoreline Improvements | Chicago, IL | City of Chicago | 2001**

The aim of this study was to understand the erosion mechanism of the 12th Street Beach (Chicago) and propose appropriate countermeasures. Dr. Dibajnia completed 2DH numerical modeling of waves and nearshore hydrodynamics were performed to assess the existing conditions and to evaluate different design alternatives. Appropriate beach stabilizing schemes and their corresponding configurations were thus determined by Dr. Dibajnia.

**Harbor Sedimentation Study for Kashiwazaki-Kariwa Nuclear Power Plant | Niigata, Japan | Tokyo Electric | 1992**

Dr. Dibajnia was the study manager at Penta-Ocean in 1992 to give an accurate assessment of the sand transport mechanism around and into this harbor. Detailed field investigations including continuous measurements of water surface elevations, near-bottom velocities and bottom levels were performed to understand the problem and verify the numerical models. Optimum harbor layouts and sediment control structures were proposed.

**Shore Protection of Hamaoka Beach | Hamaoka, Japan | CHUBU Electric | 1998**

Dr. Dibajnia at Nagoya Institute of Technology was the study manager for the Japanese CHUBU Electric Power Company to investigate the possibility and method to protect the Hamaoka beach by using coarse sand. A wide range of flume experiments with graded sand was performed to evaluate different nourishment methods as well as to provide a data set for development of numerical models. Different design options were evaluated and reported.

**Morphology Models for Large Artificial Islands, Japan | Chubu International Airport | 2000**

Large artificial islands were considered as the most desired place for construction of new airports or nuclear power plants in Japan. Dr. Dibajnia was the initiator of a study to develop a new morphology model to replace the conventional shoreline models, as these models cannot provide the details of morphology in the large sheltered area behind the island. The model was applied to the Chubu International Airport constructed in Ise Bay, Nagoya, Japan.