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WELCOME TO NAPW 2023!

Dear Colleagues,

Welcome to the North American Productivity Workshop, hosted by the Miami Herbert Business School at the University of Miami. This year we are excited to be back in person and have over 100 scholars across all six continents and over 20 countries represented on the program. We received a large number of submissions and selection for inclusion on the program was challenging.

NAPW 2023 will span four days covering Monday, June 12th, Tuesday June 13th, Wednesday June 14th and Thursday June 15th. We have a total of six parallel sessions along with a keynote speech given by Jordi Jaumandreu, three plenary sessions.

There are also five special sessions at this year's conference. First, we have three sessions sponsored by ERS on this year's program. All three of these sessions feature cutting edge research on various methods applied to agriculture. Second, David Rivers has organized a session on Markups and Productivity. Lastly, to highlight a forthcoming volume in *Advances in Econometrics* in honor of Subal Kumbhakar, a dedicated session to several of the accepted papers is also on the program.

This year we have eschewed the typical Young Researchers' Workshop which typically occurs on the first or last day of the conference and instead have slotted a dedicated session each day to highlight the research of up and coming scholars in our community. We are most thankful for the professors who have volunteered to discuss this important research.

Lastly, the local organizing committee would like to thank ERS and ISEaPA for sponsoring NAPW XI. We will have two receptions, on June 12th and June 14th, both of which will be held at the Miami Herbert Business School. We hope you can attend.

All of us on the local organizing and scientific committees welcome you to Miami and hope that you enjoy your stay!

Christopher F. Parmeter

CONFERENCE MECHANICS

Registration

Registration will be available all four days of the conference from 8:00am-5:00pm in the main lobby of the Storer Auditorium. The registration desk will also be available to provide any needed assistance each day throughout the conference.

Sessions

- All sessions, coffee breaks and lunches will take place at the Miami Herbert Business School.
- Internet access is free everywhere on campus and can be accessed through CanesGuest wifi. There is also an eduroam connection throughout campus.
- Outside of the Plenary Sessions, all parallel and student sessions are 75 minutes long.
- The majority of sessions contain three papers and each paper should be allocated 25 minutes in these instances.
- Those papers in Parallel Session V each have two papers and as such speakers each have 37 minutes.
- The chair of each parallel session is the last presenting author. Time cards of 5, 1 and 0 minutes will be provided in each room along with a presentation clicker. Please do not take these time cards or clickers with you when the session is over.
- In case a presenter is not present in the parallel session, the session will continue and finish early. In this setting the chair can give more time to each paper at his/her/their discretion.
- For the Student sessions it is recommended that students present for 20 minutes with 5 minutes being reserved for the discussants.

Catering

The following are included in the registration fee for all participants

- A light continental breakfast offered between 8:00am and 9:00am each day of the conference.
- Lunch each day of the conference.
- Tea, coffee and light refreshments served continuously every day of the conference.
- Drinks and hors d'oeuvres on Monday, June 12th at the Miami Herbert Business School.
- Drinks and hors d'oeuvres on Wednesday, June 13th at the Miami Herbert Business School.

The Gala Banquet on Tuesday, June 13th is included in the regular registration fee. The Gala Banquet is hosted this year at the Rusty Pelican and tickets for this event will

be included in your registration packet. Please be advised that registrants should plan on making travel arrangements to the Rusty Pelican themselves. The easiest way to get around Miami is through Uber/Lyft. The address of the Rusty Pelican is 3201 Rickenbacker Causeway, Key Biscayne, FL 33149.

CONFERENCE PROGRAM AT A GLANCE

Monday, June 12th

| | |
|-----------------|--|
| 8:00am-9:00am | Breakfast |
| 9:00am-9:10am | Opening Remarks |
| 9:10am-10:30am | Plenary Session I |
| 10:30am-11:00am | Coffee Break |
| 11:00am-12:15pm | Parallel Sessions I |
| 12:15pm-1:30pm | Lunch (Separate JPA Editorial Board Lunch) |
| 1:30pm-2:45pm | Student Session I |
| 2:45pm-3:15pm | Coffee Break |
| 3:15pm-4:30pm | Parallel Sessions II |
| 4:30pm-5:30pm | Welcome Reception |

Tuesday, June 13th

| | |
|-----------------|---|
| 8:00am-9:00am | Breakfast |
| 9:00am-9:15am | JPA Remarks (Robert Chambers) |
| 9:15am-10:30am | Keynote Address |
| 10:30am-11:00am | Coffee Break |
| 11:00am-12:15pm | Parallel Sessions III |
| 12:15pm-1:30pm | Lunch |
| 1:30pm-2:45pm | Student Session II |
| 2:45pm-3:15pm | Coffee Break |
| 3:15pm-4:30pm | Special Session in Honor of Subal Kumbhakar |
| 6:30pm-9:30pm | Gala Banquet |

Wednesday, June 14th

| | |
|-----------------|--|
| 8:00am-9:00am | Breakfast |
| 9:00am-10:30am | Plenary Session II |
| 10:30am-11:00am | Coffee Break |
| 11:00am-12:15pm | Parallel Sessions IV |
| 12:15pm-1:30pm | Lunch (ISEaPA Announcements and members vote on new slate of officers) |
| 1:30pm-2:45pm | Student Session III |
| 2:45pm-3:15pm | Coffee Break |
| 3:15pm-4:30pm | Parallel Sessions V |
| 4:30pm-6:30pm | Reception |

Thursday, June 15th

| | |
|-----------------|---------------------------|
| 8:00am-9:00am | Breakfast |
| 9:00am-10:30am | Plenary Session III |
| 10:30am-11:00am | Coffee Break |
| 11:00am-12:15pm | Parallel Sessions VI |
| 12:15pm- | Lunch and Closing Remarks |

SESSION SCHEDULES

Monday, June 12th.

8:00am-9:00am: Arrival and Continental Breakfast

9:00am-9:10am: Welcome and Opening Remarks – Storer Auditorium

9:10am-10:30am: Plenary Session I – Storer Auditorium

Chair: Robert Chambers

New Production Technologies Incorporating Volume and Ratio Inputs and Outputs,

Victor Podinovski, University of Loughborough;

Estimating Flexible Functional Forms Using Macroeconomic Data,

Erwin Diewert, University of British Columbia

10:30am-11:00am: Coffee Break

11:00am-12:15pm: Parallel Sessions I

SFA I – SB 208

The Heckman Selection Model with Stochastic Frontier Analysis and Endogeneity,

Yi-Wun Chen, Binghamton University, State University of New York;

Maximum Likelihood Estimation of the Gamma Stochastic Frontier Model,

Alexander Stead, University of Leeds;

Smooth Interpolated Unit Inefficiency Estimator,

Zangin Zeebari, Jönköping University; Kristofer Månsson, Jönköping University; Pär Sjölander; Jönköping University

Firms – SB 302

Turning Funds (Efficiently) in Innovation and Growth: The Role of Quality of Government in EU Regions,

Pierluigi Toma, University of Salento;

Anatomy of Heterogeneous Production Functions,

Michele Battisti; Università di Palermo; Valentino Dardanoni, Università di Palermo; Stefano Demichelis, Università di Pavia;

Estimation of University Research Spillover Effects on Firm Production,

Shunan Zhao; Oakland University

Sectoral Studies – SB 308

The Determinants of Sectoral Productivity Changes in the Brazilian Economy,

Humberto Spolador, Luiz de Queiroz College of Agriculture - University of Sao Paulo;
André Danelon, University of São Paulo;

Measuring Total Factor Productivity Using the Enterprise Surveys,

Hibret Maemir, The World Bank; David Francis, The World Bank; Nona Karalashvili,
The World Bank; Jorge Rodriguez Meza, The World Bank;

Structural Change at a Disaggregated Level: Sectoral Heterogeneity Matters,
Ali Sen, University of Cambridge

Quantile Methods – SB 408

A Semiparametric Quantile Stochastic Frontier Estimator,

Samuele Centorrino; Stony Brook University; Christopher Parmeter, University of Miami;
Using Quantile Data Envelopment Analysis to Estimate Fishing Vessel Capacity,

John Walden, NOAA/NMFS; Joseph Atwood, Montana State University

12:15pm-1:30pm: Lunch – Finkel Frenker Promenade

Editors' meeting for JPA will be held separately.

1:30pm-2:45pm: Student Session I – Storer Auditorium

Chair: Victor Podinovski

Estimating Changes in Efficiency Over Time Utilizing Panel Data StoNED
- An Applied Study of Danish Electricity Distribution System Operators,

Kjartan Rasmussen, Blekinge Institute of Technology;

Discussant: Mette Asmild

Credit Constraint and Entrepreneurship,

Xueqing Yang, University of Miami

Discussant: Robin Sickles

Mixed Data Envelopment Analysis: Modeling Data Measurement Imprecision and Heterogeneity in DEA,

Saman Mohsenirad, Virginia Tech; Konstantinos Triantis, Virginia Tech

Discussant: Victor Podinovski

2:45pm-3:15pm: Coffee Break

3:15pm-4:30pm: Parallel Sessions II

DEA I – SB 208

Virtual Weight Constraints: Sensitivity and Impact on Benefit of the Doubt Models,

Israfil Roshdi, University of Auckland; Paul Rouse, University of Auckland;

Productivity Growth, Technical Progress, and Efficiency Change in Industrialized Countries Färe, Grosskopf & Norris (1994) Revised and Extended,

Jonas Månsson, Blekinge Tekniska Högskola; Anupama Unnikrishnan; Blekinge Tekniska Högskola

Incorporating ratio inputs and outputs in the assessment of school efficiency,

Grammatoula Papaioannou, Loughborough University; Victor Podinovski, Loughborough University;

Healthcare – SB 302

Accounting for Latent Quality in Stochastic Frontier Analysis: Theory and Application to Hospital Efficiency Analysis,

Bao Hoang Nguyen, The University of Queensland; Robin Sickles, Rice University; Valentin Zelenyuk, The University of Queensland;

Economies of Scale and Scope in Norwegian Hospitals,

Sverre Kittelsen, Frisch Centre;

COVID-19 Underreporting: Spillovers and Containment Strategies of Global Cases,

Subal Kumbhakar, Binghamton University; Yulu Wang, Binghamton University;

Labor – SB 308

Should We Move Away from Labor if We Want to Pursue Efficiency? Evidence from the Greek Economy,

Alecos Papadopoulos, Athens University of Economics and Business;

Employees Presenteeism and Malingering on Return to Work After an Occupational Accident: A Two-Tiered Stochastic Frontier Model,

Laura García Carrizosa, Universidad Autónoma de Barcelona; Pablo Arocena, Universidad Pública de Navarra;

Labor Input Efficiency with Environmental Regulation,

Moriah Bostian, Lewis & Clark College; Hanna Lindström; Umeå University; Tommy Lundgren, Swedish University of Agricultural Science; Mattias Vesterberg; Umeå University

4:30pm-5:30pm: Cocktail Reception – Storer Patio

Tuesday, June 13th.

8:00am-9:00am: Arrival and Continental Breakfast

9:00am-9:15am: JPA Remarks, Robert Chambers – Storer Auditorium

9:15am-10:30am: Keynote Address – Storer Auditorium

Chair: Noah Williams

Productivity and Profitability: Some Recent Developments,

Jordi Jaumandreu, Boston University

10:30am-11:00am: Coffee Break

11:00am-12:15pm: Parallel Sessions III

Special Organized Session – Productivity and Market Power – SB 208

Multi-product Markups,

John Cairncross, University of Toronto; Peter Morrow, University of Toronto; Scott Orr, UBC Sauder School of Business; Swapnika Rachapalli, University of British Columbia;

Market Power in the U.S. Airline Industry, 1990-2019,

Germán Bet; University of Florida;

The ABCs of Firm Heterogeneity when Firms Sort into Markets: The Case of Exporters,

Bernardo Blum, University of Toronto; Sebastian Claro, Pontificia Universidad Catolica de Chile; Ignatius Horstmann, University of Toronto; David Rivers, University of Western Ontario

SFA II – SB 308

Sieve Maximum Likelihood Estimation of Spatial Autoregressive Stochastic Frontier Models with Endogenous Inputs,

Kien Tran, University of Lethbridge; Hung-pin Lai, National Chung Cheng University; ***Halton Draws in the Generalized True Random Effects Model,***

David Bernstein, University of Miami;

Dependence Modeling in Stochastic Frontier Analysis,

Mikhail Mamonov, CERGE-EI; Christopher Parmeter; University of Miami; Artem Prokhorov, University of Sydney

Applications to Dairy Farming – SB 302

Explaining Heat Stress on Short and Long Production Risk and Efficiency in Dairy Farming,

Iordanis Parikoglou, ETH Zurich;

Measuring Dynamic and Static Eco-efficiency in Norwegian Dairy Farms: A

Parametric Approach,

Habtamu Alem, Norwegian Institute of Bioeconomy;

Compost Barn Adoption and Performance of Brazilian Dairy Farms: A Stochastic Frontier Approach with Conditional Persistent and Transient (In)efficiency,

Marcelo Ferreira, Universidade Federal de Viçosa; Andre Simoes; Universidade Estadual de Mato Grosso do Sul; Lindomar Daniel, Mato Grosso State University

ERS Sponsored Session – Agriculture I – SB 408***AgroClimatic Environment Heterogeneity and Productivity Convergence,***

Barnabe Walheer, Universite de Liege;

Impact of Undesirable Inputs and Output on US State Agricultural Productivity,

Roberto Mosheim, USDA-ERS; Sun Ling Wang, USDA-ERS;

On-Farm Herbicide Use Efficacy in Maize (Zea Mays L.) Production According to Preventive Weed Management Technologies,

Stefan Seifert; University of Göttingen; Sabine Andert, University of Rostock; Bärbel Gerowitt, University of Rostock; Silke Hüttel, University of Göttingen; Reinhard Uehleke, Universität Göttingen

Climate Change and Agricultural Production Relationship in Africa: Do Foreign Direct Investments in Agricultural Sector Induce Adaptation Capacity?,

Solomon Amoani, Kwame Nkrumah University of Science and Technology; Anthony Dadzie, Kwame Nkrumah University of Science and Technology

12:15pm-1:30pm: Lunch – Finkel-Frenker Promenade**1:30pm-2:45pm: Student Session II – Storer Auditorium**

Chair: David Saal

Shadow Prices of Agricultural Greenhouse Gas Emissions in Illinois, USA,

Saurav Kunwar, University of Illinois at Urbana-Champaign; Robert Chambers; University of Maryland; Laura F Gentry, University of Illinois at Urbana-Champaign; Teresa Serra, University of Illinois;

Discussant: Alecos Papadopoulos

Assessing the Impact of Plant Level Scale Economies, and Persistent and Transient Efficiency on the Cost of Sewage Treatment in the Large Sewage Plants of England and Wales,

Fionn Cliffe; Loughborough University; David Saal, Loughborough University; Thomas Triebs, Loughborough University;

Discussant: Luis Orea

Investigating the Nexus of Green Innovations and Efficiency: A Study on Norwegian Service and Manufacturing Firms,

Touseef Hameed, Inland Norway University of Applied Sciences; Fikru K. Alemayehu, Inland Norway University of Applied Sciences; Gudbrand Lien, Inland Norway University of Applied Sciences

Discussant: David Saal

2:45pm-3:15pm: Coffee Break

3:15pm-4:45pm: Special Session in Honor of Subal Kumbhakar – Storer Auditorium (Presenters will each have 15 minutes)

Chair: Christopher Parmeter

The Structural and Productivity Effects of Infrastructure Provision in Developed and Developing Countries,

Luis Orea, University of Oviedo;

Improving Predictions of Technical Inefficiency,

Christine Amsler, Michigan State University; Robert James, University of Sydney; Artem Prokhorov, University of Sydney; Peter Schmidt, Michigan State University;

Homelessness on the West Coast and the Role of Health: Inefficiency and Productivity Loss in American Society,

Corey Fuller, Southwest Airlines; Robin Sickles, Rice University;

Random vs. Explained Inefficiency in Stochastic Frontier Analysis: The Case of Queensland Hospitals,

Zhichao Wang, The University of Queensland; Valentin Zelenyuk, The University of Queensland;

The Nash Bargaining Two-Tier Stochastic Frontier Model,

Alecos Papadopoulos, Athens University of Economics and Business;

A System Approach to Structural Identification of Production Functions with Multi-Dimensional Productivity,

Emir Malikov, University of Nevada, Las Vegas; Shunan Zhao, Oakland University; Jingfang Zhang, University of Kentucky

6:30pm-9:30pm: Gala Dinner – Rusty Pelican

Wednesday, June 14th.

8:00am-9:00am: Arrival and Continental Breakfast

9:00am-10:30am: Plenary Session II – Storer Auditorium

Chair: Subal Kumbhakar

On the Origins of Aigner, Lovell and Schmidt, 1977, and the Development of Stochastic Frontier Analysis,

Peter Schmidt, Michigan State University;

LASSO and Other Machine Learning Methods for SFA and DEA,

Valentin Zelenyuk; The University of Queensland;

Machine Learning and Efficiency Analysis,

Robin Sickles, Rice University

10:30am-11:00am: Coffee Break

11:00am-12:15pm: Parallel Sessions IV

European Studies – SB 208

A Frontier Analysis of Transient and Persistent Eco-efficiency Gap: Evidence from 25 European Countries,

Golnaz Amjadi, STATEC Research;

Beyond Borders: How Spillovers and Commercial Networks Shape European Productivity,

Andre Carrascal-Incera, University of Oviedo; Weilin Liu, Nankai University; Luis Orea, University of Oviedo; Robin Sickles, Rice University;

Productivity in EU Regions: New Insights from a Conditional Nonparametric Frontier Analysis,

Camilla Mastromarco, University of Calabria; Leopold Simar, Institut de Statistique, Université Catholique de Louvain

Regulation, Marginal Cost and Catch-Up – SB 302

Measuring the Power of Regulation in the England and Wales Water and Sewerage Industry,

David Saal, Loughborough University; Pablo Arocena, Universidad Pública de Navarra; Subal Kumbhakar, Binghamton University

Deregulation, Efficiency and Catch-Up of Italian Public Universities,

Oleg Badunenko, Brunel University London; Gaetano Francesco Coppeta, Università di Modena e Reggio Emilia;

A Comparison of Marginal Cost and Fare of Regional Railroad Companies in Japan: A Hedonic Cost Function Approach,

Tomohiro Kitamura, Doshisha University

Production Functions – SB 308

Estimating Production Functions using Costs when Outputs are Predetermined,

Emir Malikov, University of Nevada, Las Vegas; Shunan Zhao, Oakland University; Subal Kumbhakar, Binghamton University; David Bernstein, University of Miami;

Disruptive and Sustaining Innovations: Do They Matter for Efficiency?,

Olugbenga Adewumi, Inland Norway University of Applied Sciences; Gudbrand Lien, Inland Norway University of Applied Sciences; Ørjan Mydland; Inland Norway University of Applied Sciences;

Unproductive Reallocations: Firms' Markups, Wages and Size,

Giacomo De Giorgi, University of Geneva; Mauricio Prado, Copenhagen Business School; Battista Severgnini, Copenhagen Business School

ERS Sponsored Session – Agriculture II – SB 408

Climatic Effects, Technology Adoption, and U.S. Field Crop Farm Productivity,

Sun Ling Wang, USDA-ERS; Ryan Olver, USDA-ERS; Daniel Bonin, USDA-ERS; Ryan Williams, USDA-ERS; Laura Dodson, USDA-ERS;

Private R&D and U.S. State-level Agricultural Productivity Growth: Long-term and Dynamic Relationship,

Matt Clancy, Open Philanthropy; Sun Ling Wang, USDA-ERS;
Long Run and Short Run Pesticide Inefficiencies in the French Wine Farming Sector,

K Hervé Dakpo, INRAE; Laure Latruffe, INRAE; Yann Desjeux, INRAE

12:15pm-1:30pm: Lunch – Finkel-Frenker Promenade

Remarks on ISEaPA from President Robin Sickles and members vote on new slate of officers

1:30pm-2:45pm: Student Session III – Storer Auditorium

Chair: Artem Prokhorov

Learning Mobility in European Higher Education: How has the Union's Flagship Initiative Progressed?

Ana Camanho, Universidade do Porto; Miguel Pereira, INESC TEC;
Discussant: Valentin Zelenyuk

A Theoretical Model of Efficiency Distributions: Deriving the Shape of the Aggregate Efficiency Distribution in Stochastic Frontier Models,

Jaap Bos, Maastricht University; Stefan Weiland, Maastricht University;
Discussant: Artem Prokhorov

2:45pm-3:15pm: Coffee Break

3:15pm-4:30pm: Parallel Sessions V

Indices – SB 208

Improving the SNA: Alternative Measures of Output, Input, Income and Productivity for China,

Erwin Diewert, University of British Columbia; Chihiro Shimizu, Hitotsubashi University;
Cost Competitiveness in Indian Manufacturing: An Interstate Comparison,
 Subhash Ray, University of Connecticut; Kankana Mukherjee, Babson College

ERS Sponsored Session – Agriculture III – SB 302

Productivity Dispersion in EU Agriculture: A Cross-Country Analysis,
 Stefan Wimmer, ETH Zurich;
Analyzing Over- and Underinvestment in Norwegian Agriculture with a Semi-parametric Efficient Investment Model,
 Gudbrand Lien, Inland Norway University of Applied Sciences; Støle Størdal, Inland Norway University of Applied Sciences; Subal Kumbhakar, Binghamton University;

Productivity – SB 308

DEA II – SB 402

Examination of Decomposition Weights in the Additive Two-Stage Network Data Envelopment Analysis Model: An Application to UK Investment Trusts,
 Giannis Karagiannis, University of Macedonia; Stavros Kourtzidis, University of Dundee;
 Nickolaos Tzeremes, University of Thessaly; Suzanne Fifield, University of Dundee
Two Nonconvex Variable Returns to Scale Technologies and Cost Functions: An Exploration on US Banking and Testing Convexity,
 Xiaoqing Chen, Nanjing University of Information Science and Technology; Kristiaan Kerstens, University of Lille; Univ. de Lille; Pieter Jan Kerstens, Flemish Institute for Technological Research

4:30pm-6:30pm: Cocktail Reception – Storer Patio

Thursday, June 15th.

8:00am-9:00am: Arrival and Continental Breakfast

9:00am-10:30am: Plenary Session III – Storer Auditorium

Chair: Robin Sickles

DEA-type Methods for Regulation of Multiple Externalities,
 Mette Asmild, University of Copenhagen;

A Generalized Hyperbolic Distance Function for Benchmarking Performance: Estimation and Inference,
 Paul Wilson, Clemson University

10:30am-11:00am: Coffee Break

11:00am-12:15pm: Parallel Sessions VI

Agriculture IV – SB 208

Digital Extension and Productivity Impacts in Rice Farming: Evidence from a Field Experiment in Nigeria,

Eric Owusu, University of Maryland; Aminou Arouna, Africa Rice Center; Boris Bravo-Ureta, University of Connecticut;

Output Variability and Pesticide Spraying Frequency in Norwegian Grain Production,

Daniel Muluwork Atsbeha, NLA University College;

Measuring the Impact of Irrigated Land Reduction on Crop Output and Revenue in the High Plains Aquifer Region: A DEA Approach,

Bruno Chaves Morone Pinto, University of Nebraska; Lilyan Fulginiti, University of Nebraska; Richard Perrin, University of Nebraska

Productivity – SB 302

A Simple Theory of Inflation-Productivity Trade-off and Empirical Evidence,

Seogwon Hwang, Science and Technology Policy Institute;

Why Do Firms (Not) Adopt Robotic And Digital Capital?,

Luis Orea; University of Oviedo Maria J. Perez-Villadoniga, University of Oviedo; Ana Rodríguez-Álvarez, University Of Oviedo; Robin Sickles, Rice University;

Measuring Firm Productivity and Efficiency in the Service Sector,

Fikru K. Alemayehu, Inland Norway University of Applied Sciences; Subal Kumbhakar, Binghamton University; Gudbrand Lien, Inland Norway University of Applied Sciences

Going Green – SB 308

Do Sustainability-Linked Bonds Provide an Interest Advantage?,

Alfons Oude Lansink, Wageningen University; Magdalena Kapelko, Wroclaw University of Economics and Business;

Impact of Cleaner Energy Transitions on Inclusive Green Growth; Moderating Role of Energy Efficiency in Developing Countries,

Isaiah Magambo, Florida Gulf Coast University; Johane Dikgang, University of Johannesburg;

Investigating the Nexus of Green Innovations and Efficiency: A Study on Norwegian Service and Manufacturing Firms,

Touseef Hameed, Inland Norway University of Applied Sciences; Fikru K. Alemayehu, Inland Norway University of Applied Sciences; Gudbrand Lien, Inland Norway University of Applied Sciences

12:15pm-1:30pm: Lunch – Finkel-Frenker Promenade
Closing Remarks will also be made at this time