

KAILIN KROETZ

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Education

University of California, Davis

- Ph.D., Agricultural and Resource Economics, September 2014
 - Dissertation Title: “The Costs of Restrictions in Tradable Permit Programs”
 - Committee: James Sanchirico (chair), Douglas Larson, Daniel Lew, and James Wilen
 - Fields: Natural Resource and Environmental Economics, Econometrics
- M.A., Agricultural and Resource Economics, September 2011
- M.A. equivalent coursework in Population Biology

Dartmouth College

- B.A., with honors, 2005
 - Majors: Mathematics, Environmental Studies

Cairns Campus of James Cook University, Australia

- Coursework in Ecology and Environmental Policy, Fall 2003

Professional Experience

Current

- Assistant Professor, School of Sustainability, Arizona State University, August 2019-present
- Faculty Affiliate, Department of Economics and [Center for Environmental Economics and Sustainability Policy](#) W.P. Carey School of Business, Arizona State University, August 2019-present
- Faculty Affiliate and Program Lead for Sustainable Fisheries, [Center for Biodiversity Outcomes](#), Arizona State University
- Senior Sustainability Scientist, Julie Ann Wrigley Global Institute of Sustainability, Arizona State University, August 2019-present
- University Fellow, [Resources for the Future](#), October 2019-present
- Senior Research Fellow, [Environment for Development](#), May 2015-present

Previous

- Fellow, Resources for the Future, September 2014 - August 2019
- Senior Research Analyst, Industrial Economics, Incorporated, 2005-2008

Academic Publications

Peer-Reviewed Journal Articles

Forthcoming

- (18) Gammans, M., Sanchirico, J.N., **Kroetz, K.**, Armsworth, P.R. and E. Swiedler*. Are simultaneously-decided referenda substitutable? Evidence from municipal land use ballot measures. *Land Economics*, Accepted.
- (17) Jackson, H, **Kroetz, K.**, Sanchirico, J.N., Thompson*, A and Armsworth, P. Protected Area, Easement, and Rental Contract Data Reveal Five Communities of Land Protection in the United States. *Ecological Applications*, Accepted.

- (16) Stachowiak, C.M., Crain, B., **Kroetz, K.**, Sanchirico, J.N. and P.R. Armsworth. Protected areas established by local communities through direct democracy encompass habitat for species as effectively as protected areas planned over large spatial scales. *Environmental Management*, Accepted.
- (15) Crain, B.J., Stachowiak, C.M., McKenzie, P.F., Sanchirico, J.N., Stachowiak, C.M., **Kroetz, K.**, and P.R. Armsworth. Citizens of Local Jurisdictions Enhance Plant Community Preservation through Ballot Initiatives and Voter-Driven Conservation Efforts. *Ambio*, Accepted.

Published

- (14) **Kroetz, K.**, Luque, G.M., Gephart, J.A., Jardine, S.L., Lee*, P., Chicojay*, K., Steinkruger*, A., and C.J. Donlan. 2020. [Consequences of Seafood Mislabeling for Fish Populations and Fisheries Management](#). *Proceedings of the National Academy of Sciences (PNAS)*: 117 (48) 30318-30323.
→ ASU Now article available [here](#).
- (13) **Kroetz, K.**, Yusuke Kuwayama, Caroline Vexler*. 2020. [The Economics of the Joint Management of Water Resources and Aquatic Species in the United States](#). *Review of Environmental Economics and Policy*, 14(2): 194-215.
→ Associated RFF Working Paper available [here](#).
- (12) Crain, B., Sanchirico, J.N., **Kroetz, K.**, Benefield, A., and P.R. Armsworth. 2020. [Species Protection on Areas Conserved through Community-Driven Direct Democracy as Compared with a Large Private Land Trust - A Case Study of California](#). *Environmental Conservation* 47 (1), 30-38.
- (11) **Kroetz, K.**, Shih, J., Siikamäki, J., Marianov, V., Krupnick, A., and Z. Chu*. 2019. [Systematically Incorporating Environmental Objectives into Shale Gas Pipeline Development: A Binary Integer, Multi-Objective Spatial Optimization Model](#). *Environmental Science & Technology* 53: 7155-7162.
- (10) **Kroetz, K.**, Reimer, M. N., Sanchirico, J. N., Lew, D. K., and J. Huettelman*. 2019. [Defining the Economic Scope for Ecosystem-Based Fishery Management](#). *Proceedings of the National Academy of Sciences (PNAS)* 116 (10): 4188-4193.
→ RFF press release available [here](#).
- (9) **Kroetz, K.**, Sanchirico, J.N., Galarza, E., Corderi Novoa, D., Collado Duran, M., and E. Swiedler*. 2019. [Examination of the Peruvian Anchovy Individual Vessel Quota \(IVQ\) System](#). *Marine Policy* 101: 15-24.
→ Inter-American Development Bank Working Paper Series (IDB-WP-749) available [here](#).
- (8) **Kroetz, K.**, Sanchirico, J.N., Lew, D.K., and P. Donovan. 2019. [Recreational Leasing of Alaska Commercial Halibut Quota: The First Two Years of the Guided Angler Fish Provision](#). *Coastal Management* 47(2): 207-226.
→ RFF Discussion Paper (DP 16-39) available [here](#).
- (7) Addicott*, E. T., **Kroetz, K.**, Reimer, M. N., Sanchirico, J. N., Lew, D. K., and J. Huettelman*. 2018. [Identifying the Potential for Cross-Fishery Spillovers: A Network Analysis of Alaskan Permitting Patterns](#). *Canadian Journal of Fisheries and Aquatic Sciences* 76 (1): 56-68.
→ RFF Working Paper (WP 17-23) available [here](#).
- (6) **Kroetz, K.**, Sanchirico, J.N., Peña-Torres, J., and D. Corderi Novoa. 2016. [Economic Impacts of the Chilean Jack Mackerel ITQ System](#). *Marine Resource Economics* 32 (2): 217-241.
→ Inter-American Development Bank Working Paper Series (DB-WP-672) available [here](#).
- (5) Beaudrot, L. et al. 2016. Limited Carbon and Biodiversity Co—Benefits for Tropical Forest Mammals and Birds. *Ecological Applications* 16.4: 1098-1111.
- (4) **Kroetz, K.**, Sanchirico, J.N., and D.K. Lew. 2015. [Efficiency Costs of Social Objectives in Tradable Permit Programs](#). *Journal of the Association of Environmental and Resource Economists* 2(3): 339-366.
→ Associated RFF Discussion Paper available [here](#).

- (3) **Kroetz, K.** and J.N. Sanchirico. 2015. [The Bioeconomics of Spatial-Dynamic Systems in Natural Resource Management](#). *Annual Review of Resource Economics* 7(1).
→ Associated RFF Discussion Paper available [here](#).
- (2) **Kroetz, K.**, Sanchirico, J.N., Armsworth, P.R., and H.S. Banzhaf. 2014. [Benefits of the Ballot Box for Species Conservation](#). *Ecology Letters* 17 (3): 294-302.
→ Full-text available [here](#).
- (1) **Kroetz, K.M.** and A.J. Friedland. 2008. [Comparing Costs and Emissions of Northern New England Space Heating Fuel Options](#). *Biomass and Bioenergy* 32:1359-1366.

Peer-Reviewed Book Chapters

- (1) Fuller, K., Kling, D., **Kroetz, K.**, Ross, N. and J.N. Sanchirico. 2013. [Economics and Ecology of Open-Access Fisheries](#). In: Shogren, J.F., (ed.) *Encyclopedia of Energy, Natural Resource, and Environmental Economics*, Vol. 2, pp. 39-49 Amsterdam: Elsevier.
→ To request a copy of the paper via email click [here](#).

Non Peer-Reviewed Reports

- (4) **Kroetz, K.** 2019. [Fishery Catch Shares and Leakage of Impacts](#), PERC Policy Report, *February 2019*.
- (3) **Kroetz, K.**, Donlan, C.J., Cole*, C. E., Gephart, J.A., and P. Lee*. 2018. [Examining Seafood Fraud Through the Lens of Production and Trade: How Much Mislabeled Seafood do Consumers Buy?](#), Resources for the Future, Report, *December 2018*.
- (2) **Kroetz, K.** and J.N. Sanchirico. 2010. [Economic Insights into the Costs of Design Restrictions in ITQ Programs](#). Resources for the Future Report.
- (1) Breetz, H., Fisher-Vanden, K., Garzon, L., Jacobs, H., **Kroetz, K.**, and R. Terry. 2004. [Water Quality Trading and Offset Initiatives in the U.S.: A Comprehensive Survey](#). Prepared for the U.S. EPA, National Center for Environmental Economics, Washington, D.C.

*RFF interns and RAs

Non-Academic Publications

- (8) [The Environmental Threat Posed by Mislabeled Seafood](#), Resources for the Future, *Common Resources*, *November 24, 2020*
- (7) [Visualizing Economic Connections among Fisheries: A New Tool for Ecosystem-Based Fisheries Management](#), Institute of Social and Economic Research (ISER), Blog Post, *November 15, 2019*
- (6) [Tradeoffs between Gas Pipeline Development Costs and Habitat Impacts. We Run the Numbers](#), Resources for the Future, *Common Resources Blog Post*, *May 29, 2019*
- (5) [Understanding Linkages across Fisheries Can Inform More Effective Policy Design](#), Resources for the Future, *Resources Magazine*, *July 11, 2018*
- (4) [Network Analysis Reveals Hidden Patterns in Fishing Enterprises](#), Resources for the Future, *Common Resources Blog Post*, *May 23, 2018*
- (3) [Evaluating Fishery Catch Share Programs in a Developing Country Context](#), Resources for the Future, *Common Resources Blog Post*, *April 26, 2016*
- (2) [The Costs of Competing Goals in Fishery Management](#), Resources for the Future, *Resources Magazine*, *September 24, 2015*
- (1) [Competing Goals in Fishery Management: A Case Study in Alaska](#), Resources for the Future, *Common Resources Blog Post*, *March 25, 2015*

Presentations

- Lessons from Fisheries Catch Shares for Water Markets, *Agricultural and Resource Economics (ARE) Discussions*, February 9, 2021
- Human and Ecological System Characteristics Influence Gains from Ecosystem-Based Fisheries Management, University of Michigan Complex Systems Seminar, February 2020
- Applications of Network Analysis to Fisheries Management, *Universitetet i Stavanger*, September 25, 2019

- Enabling Conditions Exist for Seafood Mislabeling to Generate Negative Environmental Impacts, *Arizona School of Sustainability Seminar Series*, September 4, 2019
- Economic Connectivity of Fisheries: Defining the Policy Scope for Ecosystem-Based Management, *2019 Association of Environmental and Resource Economists (AERE) Summer Conference, sponsored session*, June 2019
- Resilient Ecosystem-Based Fishery Management Policy Design Requires Reconciliation of Micro- and Macro- Scale Measures, *North American Association of Fisheries Economists (NAAFE) Forum 2019*, May 2019
- Biological Impacts of Seafood Mislabeling, *North American Association of Fisheries Economists (NAAFE) Forum 2019*, May 2019
- Forecasting Human Behavior and Outcomes in Socio-Environmental Systems, *2019 Ecological Forecasting Initiative Conference*, May 13, 2019
- Local-Scale Contributions in Dynamic Top-Down Conservation Planning, *Pennsylvania State University*, November 28, 2018
- Costs and Benefits of Trading Restrictions in Individual Transferrable Quota Programs, *Las cuotas individuales de pesca en la gestion pesquera a nivel mundial: Aportes a la discusion para el sector pesquero peruano*, organized by The Nature Conservancy (TNC), Lima, Peru, October 11 - 12, 2018
- Fisheries Leakage, *Distributional Effects of Environmental Market Design PERC Conference*, Bozeman, Montana, July 8-11, 2018
- Broadening Fishery Management Policy Scope to Account for Economic Connectivity and Leakage, *International Institute for Fisheries Economics and Trade*, July 2018
- Broadening Fishery Management Policy Scope to Account for Economic Connectivity and Leakage, *World Congress of Environmental and Resource Economists*, June 2018
- Broadening Fishery Management Policy Scope to Account for Economic Connectivity and Leakage, *University of Maine*, April 2018
- Economic Connectivity of Fisheries and Leakage: Defining the Policy Scope for Ecosystem Based Fishery Management, *Economics of Property Rights and the Environment Seminar Series, Center for Growth and Opportunity, Utah State University*, April 18, 2018
- Using Economics to Study Socio-Environmental Systems: Research Examples, *SESYNC Postdoc Immersion Program*, February 2018
- Broadening fishery management policy scope to account for economic connectivity and leakage, *Institute of the Gulf*, November 2017
- Examination of the Peruvian Anchovy Individual Vessel Quota (IVQ) System, *World Bank*, November 27, 2017
- Competing Impacts of Local Actors on Large Scale Conservation Outcomes, *Northeastern Agricultural and Resource Economics Association (NAREEA) meetings*, June 11-13, 2017
- Evaluation of the Chilean Jack Mackerel Individual Transferable Quota (ITQ) System, *Environment for Development Annual Meeting*, Pucón, Chile, November 10-13, 2016
- Implications of Catch Share Design on Community Vulnerability and Fishery Participation, *International Institute of Fisheries Economics and Trade (IIFET)*, July 12 - 15, 2016
- Dynamic Efficiency Costs versus Benefits of Non-Efficiency Objectives in Tradable Permit Programs, *Triangle Resources and Environmental Economics Seminar Series (TREE)*, April 7, 2016
- Dynamic Efficiency Costs versus Benefits of Non-Efficiency Objectives in Tradable Permit Programs, *Montana State University*, October 12, 2015
- Dynamic Efficiency Costs versus Benefits of Non-Efficiency Objectives in Tradable Permit Programs, *2015 Occasional Workshop*, October 2 - 3, 2015
- Potential Benefits of Ecosystem-Based Forage Fish Management, *2015 American Fisheries Society Meeting*, August 16 - 20, 2015
- Optimal Management of Spatial-Dynamical Natural Resource Systems: The Addition of Dispersal Controls to Traditional Metapopulation Models, *2015 Annual ESA Meeting*, August 9 - 15, 2015

- Optimal Management of Spatial-Dynamical Natural Resource Systems: The Addition of Dispersal Controls to Traditional Metapopulation Models, *4th Annual AERE Summer Conference*, June 3 - 5, 2015
- Dynamic Efficiency Costs of Non-Efficiency Objectives in Tradable Permit Programs, *North American Association of Fisheries Economists (NAAFE) Forum 2015*, May 19 - 22, 2015
- The Tradeoff between Economic Efficiency and Non-Efficiency Objectives in Tradable Permit Program Design, *Seminars in Environmental and Resource Economics at Virginia Tech*, April 24, 2015
- Dynamic Efficiency Costs of Non-Efficiency Objectives in Tradable Permit Programs, *NMFS-Sea Grant College Graduate Fellowship Program in Population Dynamics and Marine Resource Economics Annual Meeting*, June 16 - 18, 2014
- Dynamic Efficiency Costs of Non-Efficiency Objectives in Tradable Permit Programs, *Resources for the Future*, October 31, 2013
- Dynamic Efficiency Costs of Non-Efficiency Objectives in Tradable Permit Programs, *UC Davis Environmental and Energy Economics Workshop*, October 25, 2013
- Dynamic Efficiency Costs of Non-Efficiency Objectives in Tradable Permit Programs, *Camp Resources XX*, August 4 - 6, 2013
- Dynamic Efficiency Costs of Non-Efficiency Objectives in Tradable Permit Programs, *3rd Annual AERE Summer Conference, sponsored session for graduate student research*, June 6 - 8, 2013
- Efficiency Costs of Social Objectives in Tradable Permit Programs, *North American Association of Fisheries Economists (NAAFE) Forum 2013*, May 21 - 24, 2013
- Dynamic Efficiency Costs of Non-Efficiency Objectives in Tradable Permit Programs, *NMFS-Sea Grant College Graduate Fellowship Program in Population Dynamics and Marine Resource Economics Annual Meeting*, April 30, 2013
- Costs of Restrictions in Tradable Permit Programs, *Giannini Foundation of Agricultural and Resource Economics, Student Conference*, May 26, 2012
- Efficiency Costs of Restrictions in Tradable Permit Programs, *Agricultural and Resource Economics 2012 Open House (for prospective PhD students)*, March 9, 2012
- Efficiency Costs of Social Objectives in Tradable Permit Programs, *PERC*, July 26 - 29, 2011
- The Efficiency Costs of Restrictions on Quota Trading: The Case of the Alaskan Halibut Individual Transferable Quota (ITQ) Program, *AERE Summer Conference*, June 10, 2011
- Insights into the Economic Costs of Restrictions in Tradable Permit Programs, *UC Davis 2011 Interdisciplinary Graduate and Professional Student Symposium*, April 22, 2011
- The Environmental Tradeoffs of Various Space Heating Fuel Options: The Case for Wood, *The Campaign for the Dartmouth Experience - NYC Launch*, November 13, 2004

Research Funding

- “Leveraging Satellite Data to Design Habitat Corridors in a Working Landscape,” USDA: National Institute of Food and Agriculture (NIFA), \$500,000, Role: Co-Investigator with Lead Investigator Bryan Leonard, 2020-2023
- “Network Analysis to Support Management of Alaska Fisheries: The Case of GOA Pacific Cod,” National Marine Fisheries Service, Role: PI, \$27,200, 2020-2021
- “The Value of Satellite Earth Observations in Designing Cost-Effective Terrestrial Habitat Corridors for Migratory Species,” Resources for the Future, VALUABLES program, Role: co-PI with PI Bryan Leonard, 2020-2021
- “Advanced Economics and Ecological Systems Models and Data: An Expanded Partnership with RFF,” Socio-Environmental Synthesis Center (SESYNC), Role: co-PI, with Becky Epanchin-Niell, Yusuke Kuwayama, Margaret Walls, Ann Bartuska, and PI James Boyd, \$2,100,000, 2018-2020
- “Socioeconomic Impacts of Fisheries Management Changes: Connecting Fishery Policies to Fishery Portfolios,” North Pacific Research Board (NPRB), Role: co-PI, with Daniel K. Lew and James N. Sanchirico and PI Matthew N. Reimer, \$300,000, 2017-2020

- “Toward a Systematic Understanding of the Impacts of Seafood Fraud,” Angell Foundation, Role: PI with Josh Donlan, \$250,000, 2017-2019
- “Gains from Synchronizing Top-Down and Bottom-up Conservation Activities within Agricultural Landscapes,” USDA AFRI, Role: PD with co-PDs Paul R. Armsworth and James N. Sanchirico, \$500,000, 2017-2019
- “Network Analysis of the Dynamic Evolution of Alaska Fishing Portfolios,” National Marine Fisheries Service, Role: PI with co-PIs Matthew N. Reimer and James N. Sanchirico, \$45,000, 2016-2017
- “The Economic Effects of the Guided Angler Fish Leasing Program on the Halibut IFQ Program,” National Marine Fisheries Service, Role: PI with James N. Sanchirico, \$42,000, 2015-2016
- “Economic Evaluation of Market-Based Fisheries Policies in Latin America (2),” Inter-American Development Bank, Role: PI with James N. Sanchirico, \$30,000, 2015
- “Implications of Catch Share Design on Community Vulnerability and Fishery Participation,” National Marine Fisheries Service, Role: PI with James N. Sanchirico, \$50,000, 2015-2016
- “Evaluation of Market-Based Fisheries Policies in Latin America,” Inter-American Development Bank, Role: Role: co-PI with James N. Sanchirico, \$32,359, 2014-2015
- Association of Environmental and Resource Economists (AERE) Graduate Student Travel Award, \$500, June 2013
- University of California, Davis, College of Agricultural and Environmental Sciences, Henry A. Jastro Research Award, \$1,900, June 2013
- National Institute for Mathematical and Biological Synthesis (NIMBioS), Short-term Visitor, January 2013
- University of California, Davis, College of Agricultural and Environmental Sciences, Henry A. Jastro Research Award, \$1,000, June 2012
- “Evaluating the Effectiveness of Stock Rebuilding Plans Required by the MSA,” National Academy of Sciences, \$3,000, 2012
- “Efficiency Costs of Restrictions in Tradable Permit Programs: Analysis of the Alaskan Halibut and Sablefish Individual Fishing Quota System,” National Marine Fisheries Service - Seagrant Marine Resource Economics Fellowship, \$77,000, July 2012-June 2014

Awards and Fellowships

- Property and Environment Research Center (PERC) Lone Mountain Fellowship (2021)
- Association of Environmental and Resource Economists Dissertation Award (2015)
- National Marine Fisheries Service (NMFS) Sea Grant Marine Resource Economics Graduate Fellowship (2012-2014)
- University of California, Davis, Outstanding Graduate Student Teaching Assistant Award (June 2012)
- University of California, Davis, Graduate Scholars Fellowship (2008-2009)
- Dartmouth College Presidential Scholarship (2004)

Teaching and Mentoring

Courses Taught

- SOS 325: Economics of Sustainability (in-person 2 semesters; online 3 semesters)

Guest Lectures

- SOS 510: Perspectives on Sustainability
- SOS 525: Social-Ecological-Technical Systems

Graduate Student Mentoring

- [Kaitlyn Lee](#), ASU School of Sustainability, PhD Committee Chair, ongoing

Undergraduate Student Mentoring

- **Erin Azuma**, Honors thesis committee director (2021), Thesis title: *Identifying the extent of spatial alignment between social and environmental systems that drive fire management decisions and outcomes*. Associated storymap [here](#).

Professional Service

Review Contributions

- *Program Committee Member*: 2016, 2017, 2019, and 2020 Annual Summer Conference of the Association of Environmental and Resource Economists (AERE)
- *Program Committee Member*: 6th World Congress of Environmental and Resource Economists
- *Scientific Review Committee*: National Socio-Environmental Synthesis Center (SESYNC), December 2015-Summer 2019
- *Referee*: American Journal of Agricultural and Resource Economics (3), Annals of the New York Academy of Sciences, Conservation Biology, Conservation Letters, Ecological Economics (3), Environmental Science & Technology, Ecosystem Services, Journal of Economic Behavior & Organization, Journal of Environmental Economics and Management (3), Journal of the Association of Environmental and Resource Economists (2), Marine Resource Economics (4), PNAS (2), Resource and Energy Economics (2), Science
- *Other review activities*: Alaska Sea Grant proposal review, California Sea Grant Delta Science Awards reviewer, Delaware Sea Grant proposal review, IUCN (International Union for Conservation of Nature) World Conservation Congress 2020 session proposal review, North American Congress for Conservation Biology 2020 abstract review, Sea Grant Marine Resource Economics Grad Fellowship Technical Review Panel (2)

Working Group and Workshop Organization and Participation

- Workshop on Migratory Ungulates and Private Lands, the Property and Environment Research Center (PERC), September 2020 (*Participant*)
- Working Group on Using Integrated Socio-Environmental Networks to Model Common Pool Natural Resource Use and Improve the Management of Environmental Systems, National Socio-Environmental Synthesis Center (*co-PI with Laura Dee*)
- Working Group on Advancing Integrated Process-Based Modeling of Complex Socio-Environmental Systems, National Socio-Environmental Synthesis Center, February 2019 - present (*Participant*)
- Workshop on the Economics of Seasonal Wildlife Migrations, University of Wyoming, October 2019 (*Participant*)
- Workshop on Advancing Interdisciplinary Research on Social-Ecological Networks to Understand Ecosystem Services Across Scales, National Socio-Environmental Synthesis Center, September 2019 (*Participant*)
- Working Group on [Hierarchies in Conservation Planning](#), National Institute for Mathematical and Biological Synthesis, November 2017 - January 2019 (*co-PI with Paul Armsworth and Christoph Nolte*)

Symposium and Conference Organization

- *Applications of Network Analysis to Fisheries Management*, North American Association of Fisheries Economists: 2019 Forum (co-organizer with Yutaro Sakai)
- Implications of Seafood Supply Chain Certification on Social Outcomes, Resource for the Future public event (Organizer)
- Giannini Foundation of Agricultural and Resource Economics Student Conference, May 2013 (co-organizer)

Other

- Arizona State University, School of Sustainability, Graduate Academic Program Committee, August 2019-present
- Arizona State University, School of Sustainability, Director Search Committee, Fall 2020 - Spring 2021
- SESYNC Distinguished Scholar, SESYNC Immersion Program in Economics, 2018
- Co-Organizer, Resources for the Future Academic Seminar Series (2017-2018)

- Distinguished and Life Member Awards and Outstanding Public Service through Economics Committee, Northeastern Agricultural and Resource Economics Association (NAREA), 2017-2018
- Co-Organizer Environmental & Resource Economics Workshop, University of California, Davis, Fall 2010-Fall 2013
- Graduate Academic Achievement and Advocacy Program Mentor, University of California, Davis, Fall 2011-Spring 2014

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