Selling Glaciers: Extracting Value from Nature in Northern Chilean Patagonia

Glaciers are not fixed or stable elements of the landscape but materialize and are imbued with meaning through various practices and forms of enactment. -Li, 2017

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Defining a Glacier

In August 2017, in a glacial ecosystems workshop at the University of Chile, I tried to write my own definition of a 'glacier.' What is a glacier? It is some accumulation of snow and ice, typically found in the mountains and colder latitudes. I had seen glaciers in Chile, and in the Pacific Northwest--they are giant masses of ice on the sides of peaks and volcanoes, nestled into deep valleys and hanging over precipices. Silty rivers rush from their bases in the summer, carrying freshwater and sediment down to the lower forests. I associate them with altitude; glaciers are generally found high up in the mountains in inaccessible, beautiful, and dangerous places. Glaciers also flow slowly over time, retreating and advancing in the valleys with annual fluxes in snow accumulation and melt. They are enormous viscous masses of ice and water pushed downward by gravity and weight, like the way glass collects over the course of decades at the bottom of window panes, or old crystallized honey pours out of a jar.

My professor, a glaciologist at the Chilean water authority, revised and formalized my answers, noting the three foremost attributes of glaciers. Glaciers are terrestrial, *big*, and perennial. In Chile, to qualify as a glacier, a permanent surface of ice or snow must be constantly visible for at least two years, on land, with an area larger than a hectare (DGA-CECs, 2009).

In discussing water and glacier politics in Chile, I'll use the framework published the Chilean water authority (the Dirección General de Agua- DGA) and the recently completed Chilean National Glacier Inventory, which defines glaciers as "the entire surface of permanent ice and snow generated on land, that is visible for a period of at least two years with an area equal or superior to one hectare. Or any rocky surface with superficial evidence of viscous flow produced by a high content of current or past subsurface ice" (DGA-CECs, 2009, translated).

This definition is wordy, technical, and imperfect. Why do we only prioritize the surface of glaciers? Where are the real boundaries of a glacier? When does the water flowing within a glacier cease to be a part of the glacial unit, and join the lagoons or meltwater streams? Defining

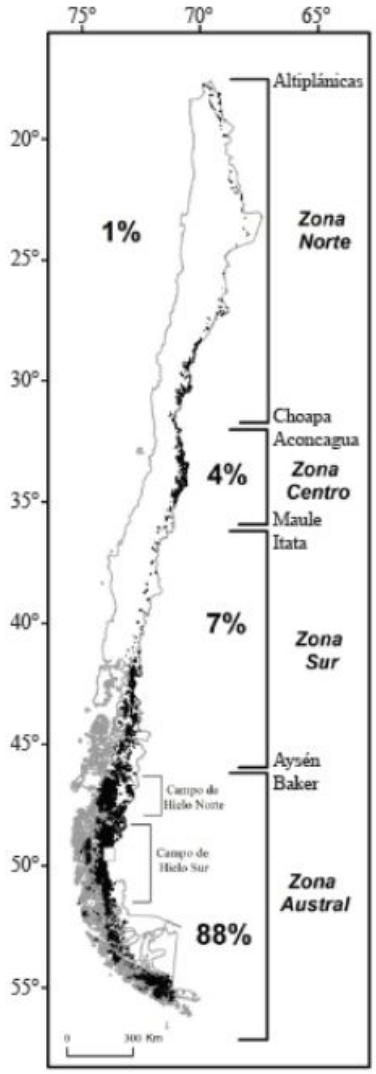
natural phenomena is a sticky process. A glacier is both a static events and an ongoing process. Implicit in the definition of glaciers is their connection to water cycles, movement, and mountain morphology, but also continual occupation of a space. Glaciers melt and rebuild, year after year, meaning that the snow and ice within it are in constant flux. They serve as a reminder that by siloing the messy tangles of geography, definitions cannot fully embody what it is to be a glacier. Glacier research demands interdisciplinarity, just as glaciers themselves require a pluralistic lens.

This paper interrogates the different ways glaciers have been made legible in Chilean politics and society. Who has controlled the vision and value of glacial spaces? How have glaciers accrued value and become an object of concern? Specifically, how have Patagonian glaciers been enrolled in the project of neoliberal sustainable development in Chile? A wide tapestry of actors, including NGOs, governmental offices, international tourist economies, and private landowners, have begun processes which have collectively created the modern Chilean glacial imaginary. I am interested in where the power to shape the political discourse of glaciers lies, and how controversies and different actors have intervened to shift or reframe this socionatural narrative.

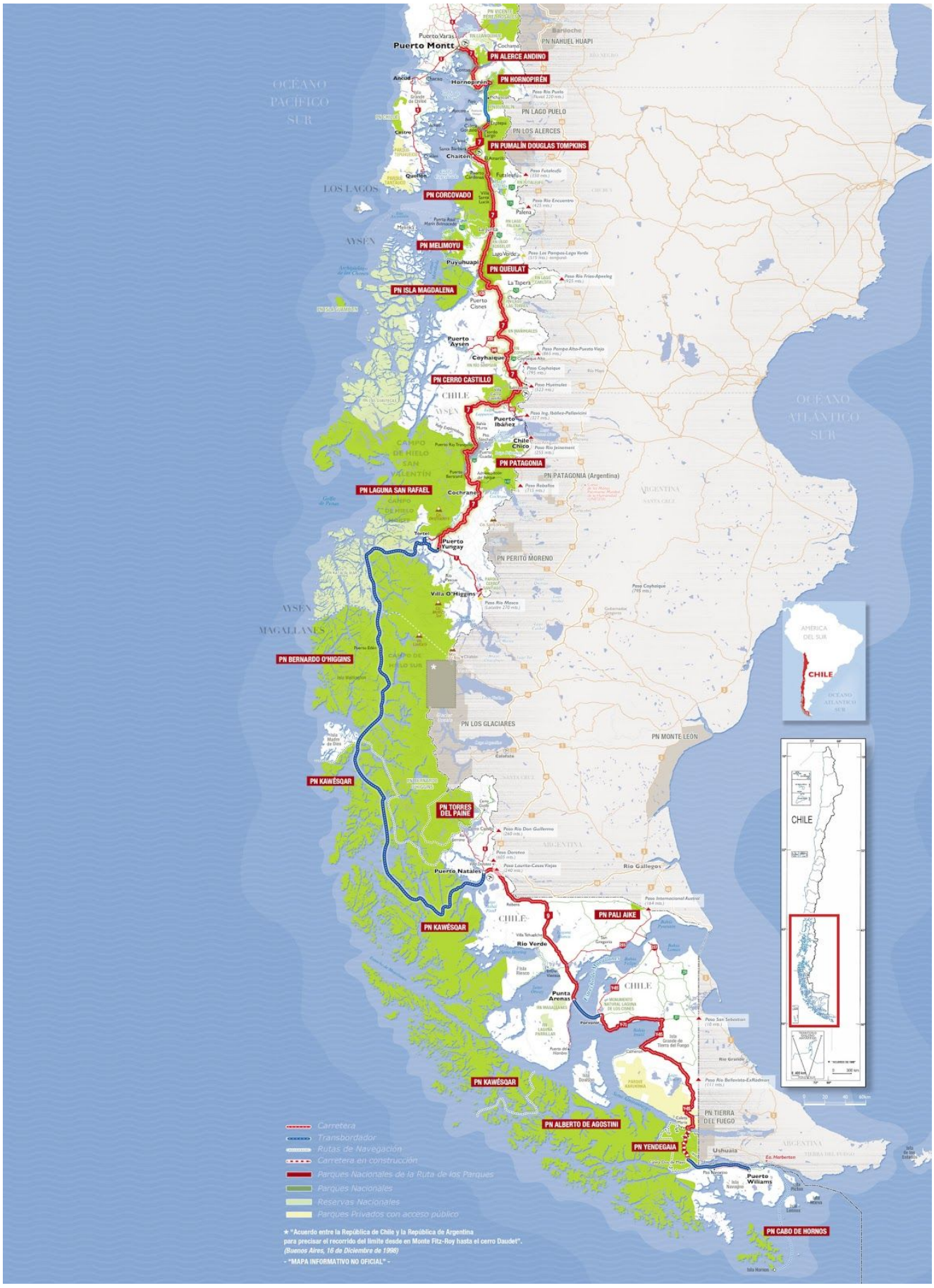
Why Chilean Patagonia?

During the end of the last ice age, glaciers carved out the modern terrestrial landscape of Chile. The sculpted western edge of the Andes Mountain range was terraformed by these retreating ice sheets, and still bears the morphological clues from 10,000 years ago. This collective global retreat left behind glacial watersheds which have sustained human life in the region for the past 14,000 years. Two mountain ranges, the Coast Range (*Cordillera de la Costa*) and the Andes Mountains (*Cordillera de Los Andes*) run the length of Chile. Chile's southern border is marked by the largest non-polar bodies of ice in the Southern Hemisphere. These "Ice Fields," defined as large mountainous regions of interconnected glaciers, are called the Campos de Hielo del Norte y Sur. The Campos de Hielo and other glaciers are now mainly found in the Southern and Austral regions of Chile--known in the collective imagination as Patagonia.

The borders of Patagonia are nebulous and historically produced. Patagonia is an internationally recognized bi-national territory at the southernmost tip of the Southern Cone. Mainly constructed through a European gaze, Patagonia is imagined as empty, natural, and unexplored. Argentine Patagonia's northern limit is roughly the city of Bariloche and Nahuel Huapi National Park, considered the gateway to the region of Patagonia. The historical-political articulation of 'Patagonia' in Chile has changed with migrations and treaties, but can be defined in three different ways: by administrative region, by traditional biogeographic region, or by geological characteristics. Sometimes included are the less-southern regions of los Rios and Lagos, or certain cities on the edge of the southern zone (like Pucón- Chile's "adventure capital"). When writing about Patagonia, I'll particularly focus on the Austral Zone, and within that, parts of the regions of Aysén and Los Lagos. These spaces don't provide a cohesive example of Patagonia, but rather pointed manifestations of the territory.



Over 80% of the remaining glaciers in South America reside within Chilean borders, and 88% of these glaciers are in the Austral regions of the country (Segovia, 2014). Geographically, four fifths of Chilean territory falls under the category of 'mountainous', and 70% of Chileans, about 12 million people, depend on Andean glaciers for their meltwater (Chile Sustentable, 2014). In the Santiago Metropolitan region, the residence of over half of Chile's population, glaciers represent between 30% and 60% of watershed sources. In addition, this number rises in years of drought, suggesting that glaciers are central reserves of water during warmer years (Peña y Nazarala, 1987) (Chile Sustentable, p. 66, 2014). Succinctly, Chile is a mountainous, significantly glaciated, meltwater dependent country.


Puerto Montt
PN ALERCE ANDINO
PN HORNOPIRÉN
PN LAGO PUELO
PN LOS ALERCES
PN PUMALÍN DOUGLAS TOMPKINS
PN CORCOVADO
PN MELIMOYU
PN QUEULAT
PN ISLA MAGDALENA
PN CERRO CASTILLO
PN PATAGONIA
PN LAGUNA SAN RAFAEL
PN PERITO MORENO
PN BERNARDO O'HIGGINS
PN LOS GLACIARES
PN KAWÉSQAR
PN TORRES DEL PAINE
PN PALI AIKE
PN ALBERTO DE AGOSTINI
PN YENDEGAIA
PN TIERRA DEL FUEGO
PN CABO DE HORNOS
PN MONTE LEÓN
PN PATAGONIA (Argentina)
OCÉANO PACÍFICO SUR
OCÉANO ATLÁNTICO SUR
LOS LAGOS
AYSÉN
MAGALLANES
CHILE
ARGENTINA
Carretera
Transbordador
Rutas de Navegación
Carretera en construcción
Parques Nacionales de la Ruta de los Parques
Parques Nacionales
Reservas Nacionales
Parques Privados con acceso público
★ "Acuerdo entre la República de Chile y la República de Argentina para precisar el recorrido del límite desde en Monte Fitz-Roy hasta el cerro Daudet". (Buenos Aires, 16 de Diciembre de 1998)
- "MAPA INFORMATIVO NO OFICIAL" -

Chilean glaciers exist in historically produced spaces. They intrude into politics: local, regional, national, and international; and they are politicized in conversations about climate change, economics, indigeneity, water, ecology, tourism, and sustainable futures. The idea of a glacier is not static, but rather conceived of in its relationship to larger phenomena. During the course of the past fifty years, glaciers have been made and remade through different ontological framings: glaciers as a symbol of international climate change, glaciers as vulnerable, glaciers as a neo-colonial tool for sovereignty, glaciers as a critical water reserve, glaciers as a touristic commodity, glaciers as Chilean patrimony. Water and ice are dictated by politics, economics, natural cycles, history, and culture; and ultimately cannot be separated from the various ontological framings which bring them into the public sphere. I mark historical moments like the Pinochet Dictatorship, the Pascua-Lama mining conflict, Republica Glaciar, Wildlands Philanthropy, and the advent of backpacker tourism as processes which have introduced and reconstructed the way that glaciers are understood. Glaciers are also entangled in the international Patagonian imaginary, which reproduces nature through a settler-colonial, Western environmentalist lens. Each framing has extracted a certain value, all of which ultimately have politicized glaciers as an object of neoliberal sustainable development.

In 1976, Chile's military government built the first road into the Austral regions of Chile. Opened to traffic in 1988, the Carretera Austral (*the Southern Highway*) was the first large-scale infrastructural intrusion of the state into the Patagonian resource frontier. Classically, a resource frontier is a peripheral or difficult-to-access area in a region which is opened up to extraction as more central areas are exhausted of their resources. Of the two large ice fields in Patagonia, the Northern Ice Field is situated geographically in a way that predisposes it to human intrusion. Since the Carretera Austral opened, tourists have arrived to take boat rides, hike, and expedition

through this newly accessible region. This road continues to be the point of entry into Chilean Patagonia for any outside actor- which historically included ethnic migrations from Europe, salmon and livestock traders, and strategic settlements to legitimize border disputes. It also set the stage for the entanglements and historical processes which have come to define Patagonian glacier politics.

The past forty years have also seen the birth of the Chilean Water Code, known internationally as "the Chilean Model" which is one of the purest free-market approaches to water distribution in the world. New initiatives such as the Patagonian Route of Parks (*Ruta de Parques*), Glacier Protection Laws (GPLs), and internationally recognized movements like Greenpeace's *Glacier Republic* have also shaped the trajectory of glacier politics in Chile.

Neoliberal reforms instituted during the Pinochet dictatorship created the initial conditions of resource extraction in the glaciated regions of Chile. Later, mining conflicts and antimining coalitions brought glaciers into the public sphere, and operationalized discourses around science and climate change to protect water rights. Various political processes, as pushed and coerced by NGOs like Greenpeace, keep the concept of glaciers in the public sphere. Campaigns like the "Glacier Republic" transformed glaciers into a symbol of national heritage, while also aligning Chilean environmentalism with a Western vision of nature. Concurrently, flares in border disputes with Argentina have operationalized glaciers and hydrological watersheds to define and maintain national borders. Patagonian economies have been transformed by globalization initiatives. Northern Chilean Patagonia, now with five national parks specifically dedicated to glacier fields or glaciers, is increasingly economically supported by backpacker and nature tourism. Patagonia has become an example of North American 'wildlands philanthropy:' moral capitalism by foreign billionaires who enact their personal reimaginings of Patagonia and its geography.

Each of these events has been the catalyst or manifestation of unique constellations of processes and actors. Over time, this tapestry of conflicts, actors, and events have come to define the new

global imaginary which sells Patagonian glaciers as an aesthetic commodity. Similar to the ontologies which shape glaciers, neoliberalism has also been reconfigured through time. Neoliberalism has come to define the "natural" glacial landscapes in the same way it defines economic markets. Glaciers have transitioned from a extractive or unvalued resource to a cultural and symbolic resource, so while the *mode* of extraction has changed, the overarching ontological framing has not.

Methods

This project is the product of archival investigation, media studies, and ethnographic research done while at Brown University and in the Southern Cone. In Chile, I was supported by Harvard's David Rockefeller Center for Latin American Studies (DRCLAS) while studying at the Universidad de Chile and the Pontificia Católica Universidad de Chile, and working at the Chilean branch of the World Wildlife Fund.This paper addresses contemporary glacier politics, which I've defined as beginning with the institution of the authoritarian Pinochet regime in 1973. The Austral region of Chile offers a unique scope and context for understanding the complex constellation of individual and political entanglements which occur surrounding glaciers.

In its initial iteration, this capstone was an ethnographic project- focused on the political implication of glacier tourism in northern Chilean Patagonia. Pulling on key interlocutors from travels and work in Aysén, as well as topic experts and studies in Santiago, I conducted semi-structured and descriptive interviews over the course of nine months. I particularly pursued the narratives of touristic operators in the Northern Chilean Ice Field, whose livelihoods are tied to the climatic state and the laws around the glaciers they work on. I also conducted formal interviews and written exchanges with institutional actors in Chilean, Peruvian, and Argentine government agencies. These institutional connections became available via my participation in glaciology courses in the Masters in Wild Areas and Natural Conservation (MASCN) Program at the University of Chile. My other largest source of data was environmental NGOs and activists who I encountered through my work in Valdivia with the World Wildlife Fund. Through

independent research at Harvard DRCLAS, I collected data on the conservation legacies of private landowners in southern Chile. These four sectors: governmental, non-governmental (NGO), touristic, and private-touristic actors were the focus of my ethnographic and investigative work. In parallel work, I conducted two weeks of ethnographic fieldwork around indigenous water conflicts with the Faculty of Anthropology at the University of Chile. Sensitive to the colonial and extractive legacy of anthropological fieldwork and my positionality, I let the narrative of this paper emerge from my interviews and pointed suggestion from local stakeholders. Ethnography should be the art of describing a group of people in their own words, and I attempted only to negotiate the frames of meaning applied to the conversation we had.

In addition to interviews, I carried out fieldwork and participant observation during 9.5 weeks in the Chilean regions of Patagonia. My fieldwork was supported by my long-term presence in the region and continued participation from my base in Santiago. Following my time in Chile, I continued to conduct remote follow-up conversations on phone calls, Skype, and Zoom Conferences during August and September of 2018. Concentrated work engaging the Chilean *cryo-community* in-situ occurred in the nine months between October 2017 and June 2018.

Fieldwork Timeline	
Administrative Region	**Dates**
Metropolitana (Santiago)	July 2017- July 2018
Aysén	October 2017 (12 days) June 2018 (14 days)
Lagos	August 2017 (5 days) December 2017 (14 days) March 2018 (8 days)
Magallanes & La Antartica Chilena	December 2018 (14 days)

Understanding that analysis is iterative, and building on the themes that emerged during my early work, this project began to focus more heavily on *key events*. Probing key events and their

embedded meanings proved tremendously productive in constructing a cultural snapshot of glacier politics in Chile. I began to shift to a project created around tracing the historical legacies of key events in the contemporary politics. Rich investigative pockets of knowledge were situated around conflicts and controversies like the Pascua Lama mining conflict or the Glacier Republic. As such, my secondary data analysis, ie. archival documents, scholarly work, statistical data, and popular media and products, is now the centerpiece of my research.

To understand glaciers, it is essential to understand the histories, institutions, and cultural factors which have mediated their representations. While cultural immersion was central to the production of this piece, the final product brings together elements of environmental history, political ecology, and human geography. These elements are bound together by the ethnographic narrative which emerged from my time in Chile, and an investigation of the socio-cultural contexts and meanings of glaciers within the unique Chilean cultural system.

Previous Work: Glaciology in Chile & Abroad

Chilean and international glaciologists have shaped the history of glacier science and monitoring in Patagonia. Academic fieldwork by Rivera during the 1990s and 2000s categorized and cataloged over 2000 uncovered glaciers without the help of remote sensing or centralized databases. During the 2000s, the Chilean Water Authority- the Dirección General de Aguas (DGA) oversaw a complete inventory of glaciers in Chile. The roughly 24,000 glaciers in Chile have been databased and uploaded to the World Glacier

Monitoring Services, and serve as the only complete national glacier inventory in South America. The Chilean government now monitors 140 strategic glaciers for frontal changes, 50 within that for ice albedo and surface topography, and 20 for mass-energy balances. Only four glaciers in the country are under constant and detailed monitoring. Glaciers which are water sources in populated regions usually have longer more consistent, though not always institutionalized or publicly recorded data. This standardized database has formed the foundation for many scientific endeavours.

Barcaza et al., in *Glacier inventory and recent glacier variations in the Andes of Chile, South America,* used USGS images and remote sensing to categorize and catalog all of the glaciers in Chile. This data was then used to measure changes in size due to glacier retreat and melting. Rocha & Giering (2016) in their paper on the *Glaciological Characterization of Chile*, used data from the national inventory of glaciers to determine the number and volume of water reserves in glaciers in the whole country, including the glaciers not protected by national parks or public land laws. Other studies have delved into the effects of climate change, hydrological cycles, and monitoring techniques on glaciers (Rivera et al., 2007; Llilbouty et al., 1998; Janke et al., 2015; Izagirre et al, 2018). Chile even has its own glaciology website, *glaciologia.cl*, and the Ministry of Public Affairs has a website partnered with ArcGIS (a geospatial mapping tool) which offers free interactive maps to the public of glacier satellite images, relief, roads, and glacier names. More recently within Chile, authors are writing about the strategic value of glaciers. These papers frequently position glaciers as a critical source of freshwater (Bórquez, 2018), citing law proposals from other nations and statistics on the national importance of water. Chile Sustentable, an important NGO and policy influencer in Chile, has a detailed online body of literature on the legal history of Chilean glacier protection laws. In the context of Chile, a dedicated literature exists examining the scientific and legal dimensions of glaciers.

Scholars have also produced papers examining the effects and conflicts surrounding glaciers. Many newspapers and journalists have covered current events, and academic glaciologists have involved themselves in the creation of new glacier protection law proposals (Angle, 2018;

Bórquez et al., 2018; Anacona et al., 2018; Cortez & Maillet, 2018). Most of this scholarship treats glaciers as a static resource, immutable parts of the landscape which provide water. Glaciers are the means by which environmental conflicts are legitimized in political space. In the same vein, academic work has also concerned itself with indigenous politics and mining interests as it relates to glaciers in the north of Chile (Fuenzalida & Otárola, 2008; Richards, 2014; Yáñez, 2005).

Outside of Chile, there is ample scholarship on the intersection of development and glaciers. In Peru, much work has been done about the indigenous and political conflicts regarding Andean glaciers. Mark Carey, in *In the Shadow of Melting Glaciers: Climate Change and Andean Society* (2010), writes about the "neoliberal waterscape" (p. 166) in the Cordillera Blanca. During a wave of privatization, Peru's national glaciology lab was closed, sparking international outrage and concern. Suddenly, "people and groups in England, Austria, and the United States were now deciding what melting Andean glaciers represented and how they would be managed" (ibid., 171-172). Different actors took interest in extracting different deliverables from the mountain range: hydrological data, climate data, power through governmental control, political support from local constituents, personal safety initiatives, or case studies for global climate change. Peruvian neoliberalism predisposed a historically complex regions to vulnerability to environmental hazards and foregrounded glaciers as a site of struggle and political conflict. Indigenous and anthropological knowledges, as ontological counterpoints to neoliberal and western development, have also been studied in the Urubamba Valley, where Quechua communities in and around Cuzco adapted to changing water resources during colonial and neocolonial encounters (Bolin, 2009). Ethnographic work has been done on the cultural framing of glaciers in Peru- focusing on the traditions of pilgrimage to glacierized peaks (Orlove et al., 2008, p. 8) as well as regional and national identity in Peru and Bolivia.

Indigeneity frequently becomes the medium by which 'nature' intrudes on politics (De La Cadena, 2010). Many political ecologies frame glacier struggles as a contest between western capitalism and under-represented indigenous communities. In *Indigenous Cosmopolitics in the*

Andes, De La Cadena describes the ways in which contested natural sites like glaciers make 'earth-beings' legible in a political sphere (336). Due to indigenous genocides during the 19th century, contemporary politics in southern Chilean (Austral) Patagonia do not frequently include indigenous voices or advocacy. I want to acknowledge this knowledge gap and violent erasure as well as the active land claim made by the Mapuche nation on parts of Northern Chilean and Argentine Patagonia. Patagonian glacier politics are a realm where nonhuman geography *does* enter a political sphere, but regional indigenous voices have been displaced or invisibized by forced migrations or genocides.

Studies of neoliberal conservation exist within and outside of Chile. Jones (2013) investigates *Ecophilanthropy, Neoliberal Conservation, and the Transformation of Chilean Patagonia's Chacabuco Valley.* This essay dives into the relationship of capitalism and conservation in the south of Chile, paying particular attention of the production and commodification of images of Patagonia as a sustainable development policy and practice. Similarly, Li (2018), in *Moving Glaciers: Remaking Nature and Mineral Extraction in Chile*, writes on the neoliberal policies which influenced resource extraction and glaciers in the case of a mining site called Pascua-Lama. The author's analysis discusses the production of different realities, and utilizes socionatural assemblage theory as a way to understand the subsequent making and remaking of glaciers in Chile. The author reviews in-depth the details of Pascua-Lama conflict to contextualize the subsequent visualization and controversies around the protection of glaciers. I center this investigation around the concept that the meaning of glaciers is created from the relationships around the glaciers rather than the glaciers themselves. Glaciers are valued and perceived in accordance with the cultural systems and ideologies which exist around them, rather than by some intrinsic merit.

All spaces conceived of as "nature" through a western lens are socially-historically situated spaces. Drawing from Brown's *The logic of settler accumulation in a landscape of perpetual vanishing* and Cruikshank's *Do glaciers listen? Local knowledge, colonial encounters, and social imagination*, (2005) I reframe this knowledge erasure as an active space of settler

colonialism. This absence is an active and ongoing process in my place of study, and can be used to understand historical interactions and relationships that Chileans and non-Chileans have with the land. Bruce Braun's book *The Intemperate Rainforest* (2011) similarly understands non-human space, like glaciers or in this case the 'forest' as not a static object, but as a concept only legible through historical, political, and cultural practice. The way British Columbia's forest is understood and managed is dependent on how different actors perceive and imagine it. This is a broad way of understanding socionature- the blend of human and nonhuman geographies which define and develop spaces. Braun also utilizes assemblage theory to understand nature as commodity which is made materially and semiotically by multiple actors (ibid., 3). Events and individual opinions are not fixed, but a constellation of fluid and changeable interactions through time.

I use this critical political ecological framing to create a new interpretation of understanding glaciers and glacier politics in Chile. This approach makes glacier politics become less static, and more dynamic entanglements -- where different ontological frameworks meet at the site of struggle, in this case glaciers. By understanding history and space as the result of socio-political assemblages, I can interrogate the ontological framing of these entanglements and understand their limitations and successes. The future of glaciers in Chilean Patagonia is a classic question of political ecology- how and what information is digested about glaciers? What institutions and power structures have privileged this viewpoint? Is this an appropriate model for working with glaciers in other spaces or is it situated knowledge?

Neoliberal Governance: Glaciers & Extraction

Neoliberalism arrived in Chile at the hands of Augusto Pinochet, the military dictator who successfully led a coup d'etat on Chilean president Salvador Allende in 1973. This overthrow came following three years of radical socialist reform by Allende's government and systematic opposition and destabilization by United States government economic sanctions and covert operatives. In 2000, as per the Freedom of Information Act, the National Security Archive

released documents detailing the history of US intervention in Chile. CIA reports on "Project FUBELT", record the paper trail of covert efforts to economically destabilize Chile, promote the military coup, and “isolate Allende's government diplomatically, between 1970 and 1973” (Kornbluh, 2017). These documents also include minutes to a famous meeting which record President Nixon advising CIA officials to “"make the [Chilean] economy scream" and to “do everything we can to bring Allende down” (NSC Meeting- Chile, 1970). The Nixon Administration considered Chile a potential “next Cuba” and exerted indirect and direct actions on the state and economy to prevent this from happening. Regionally, US interventions in Latin America were fueled by Cold War-era politics and a fear of communism. In Chile, as well as other Southern Cone nations, this later culminated in *Operation Condor*, a state-sponsored campaign of political repression and terror involving assassinations, intelligence operations, media misinformation campaigns, and witness and dissident disappearances. This was all carried out with carried out with the explicit purpose of maintaining the neoliberal reforms and capitalist economy as championed by Pinochet and other US-sponsored military regimes.

Neoliberal reform was primarily instituted by the “Chicago Boys,” a group of Chilean economists trained under Milton Friedman at the University of Chicago. These individuals returned to Chile, assumed roles of power in the military government, and began to implement an extreme form of free-market capitalist economics. This economic style, marked by privatization, deregulation, and free-trade emphasizes reducing the role and spending of the state and trusting the self-regulatory power of the free market. A coalition of gremialistas (a pro-business and social order movement during the Allende presidency), the Chicago boys, and the business sector of Chile established and upheld this hyper-capitalistic economic project (Vergara, 1985; Tecklin et al., 2011). This explicit economic policy, designed and codified during the Pinochet regime, is the birth of modern “Neoliberalism” in Chile and around the world (Valdés 1995).

The unique combination of military authoritarianism and political power of the Chicago Boys allowed for what Naomi Klein describes as a “shock doctrine” (2008). Effectively, the shock of

political upheaval following the coup d'etat in Chile allowed Pinochet to institute and legitimize "conditions for social pacification and sustained capital accumulation" (Taylor, 2006, p. 31) which would otherwise would have never succeeded. The essence of neoliberalism was a "fundamental attempt to restructure the relationships and institutions through which capitalist society is reproduced materially, politically, and ideologically" (ibid., 6-7). While the field of scholarship on neoliberalism now far reaching, it originally appeared in reference to the "explicit policy approach designed by Chile's military government in the 1970s and institutionalized in the 1980 Constitution and subsequent government-wide reforms" (Tecklin et al., 880). This operating definition of neoliberalism characterizes Chilean economy, and has had profound implications for the country's emergent environmental and administrative regimes.

Pinochet's administration made key decisions which permanently entrenched neoliberalism in the codes of Chilean environmental governance- including establishing the Ministry of Mining and rewriting the Water Code. In terms of land use, the Chilean government heavily prioritized private property rights and put into place globalization initiatives to attract foreign business. Policies encouraging foreign investment in Chile have drawn mega-mining companies from Europe and North America- many of whom presently own large portions of Chile's water resources and mountainous regions.

In 1981, the dictatorship rewrote the constitution-- which is still in use today. This military constitution solidified the Mining Ministry at the top level of governance, which gave private and transnational mining interests a high level of autonomy and decision-making power. This policy was accompanied by the formal nationalization of the copper industry in 1976. Today, mining still makes up over 50% of Chile's GDP and CODELCO, Chile's nationally owned and operated mining corporation is the largest copper producer in the world (Taylor, 2006, p.129). Such nationalization runs counter to the claims of privatization and free-market policy, suggesting an uneven or conditional adherence to neoliberal ideas. That said, by establishing mining interests in the uppermost levels of government, and formally linking it to the constitution and budget, the Chilean government prioritized extraction and a natural resources

platform. For glaciers, frequently located in mineral-rich mountainous regions, this governmental change devalued ice-bodies and prioritized the precious minerals underneath the mountain's surface. During the subsequent twenty years, glaciers were moved, melted, and built around with little supervision or documentation.

The constitutional revision also drastically changed the Chilean Water Code. The new code, internationally known as the "Chilean Model" is considered one of the most free-market, highly privatized water systems in existence. The country now operates as if water were private property- separate from the land around it and a good that can be traded and auctioned (Bottaro et al., 2014) The government has no control over the price of water (Library of Congress, 2017), but a government regulatory agency- the Chilean General Directorate of Water (DGA) manages the distribution of water and monitoring of water quality. They also maintain all the records of individuals with water rights in the country. This Chilean neoliberal waterscape creates two distinct water markets. On the public market, individuals or communities can sell their permanent shares of water (their *water rights*) through the DGA. Far more commonly, individuals "rent" the water to others, while maintaining control of the water permanent water shares. Many communities temporarily sell their water, but not their water rights, to mining or industrial concessions. This hyper-privatization maintains active two legitimate markets of water, one with a governmental paper trail and one without. While water conflicts contain their own unique discursive constructions and processes of politicization, mining intrusions have similarly situated glaciers in the collective Chilean imaginary.

Bottaro et al. call glaciers the "third discursive dimension of great relevance in the Chilean water-mining relationship" (2016, p. 104). Neoliberalism de-politicizes economic interaction and labels them as natural. José Piñera, one of the Chicago boys and former Minister of Mining (1980) describes how "*the laws of economic science merely unearth and reveal objective aspects of reality, a reality which cannot be ignored because it is known that to act against nature is counter-productive and self-deceiving* (Valdés 1995:31; Taylor 2006:41). By framing economic interests as a natural law, mining operations were seen as natural and productive rather than

extractive. Glaciers were the first object that carried enough international symbolic power to complicate and publicize mining intrusions as a site of struggle.

The first time glaciers entered the political scene in Chile was through a mining conflict at a site called Pascua Lama. The Pascua Lama conflict occurred on a transadean mining site 75% in Chile and 25% in Argentina. Canadian company Barrick Gold, the largest gold mining company in the world, bought the land following a 1997 bilateral integration treaty between Argentina and Chile, allowing mining interests to operate on land in both countries. At Pascua Lama, Barrick proposed to "transplant" 20 hectares of glacier (roughly 300,000 to 800,000 cubic meters) in their Environmental Impact Assessment (Kronenberg, 2013). Exploration, which began in 1970, had already destroyed more than 62% of the Toro 1 glacier; 71% of Toro 2, and 70% Esperanza through drilling, excavation, and road construction as "shown in comparative photographs (years 1955, 1981 and 2000) recorded in the study paid by Barrick itself to the consultant Golder Associates" (Coordinadora por la Defensa del Agua y la Vida, 2005). The notorious "Glacier Management Plan" which intended to 'move' the remaining glacier fragments quickly became a national and international issue. Both local indigenous communities and environmental organizations weaponized the "moving glaciers" discourse and oriented their activism towards an international public, emphasizing glaciers as a concern for all humanity (Urkidi 2010; Yáñez 2005). In response, Barrick moved to minimize and depoliticize glaciers. In interviews, Top engineers at Barrick Gold refer to the site's "ice bodies" and "glacierettes" rather than glaciers (Rookes, 2009). In later interviews, the Vice President for Barrick in South America, Rodrigo Jiménez, stated that "*in the case of Pascua Lama, there are no glaciers in the areas around Pascua Lama [and] operations do not impact glaciers in the area*" (2009). The company tried to minimize the importance and legitimacy of the glaciers to uphold their own interests in the region. However, in this instance, anti-mining opposition, both local and international, successfully destabilized the smooth transition of capital. The project was eventually put on pause in 2013, and forced to pay the maximum Chilean fine for misconduct- about 16 million dollars.

The Pascua Lama conflict was the moment where the concept of 'glacier' arrived in Chile. Before, the term 'glacier' (*glaciar*) was not a normalized or common term. According to Li (2015), "people had other ways of talking about the snow on the mountains and the changes that had taken place during mine exploration and construction activities. Some said that older generations spoke of hielos eternos (eternal ice), but most simply talked about the "snow on the Cordillera"" (ibid., p.107). The glacier as an object became a key tool in anti-mining water rights and climate change discourses. As a local agriculturist in the Huasco Valley below Pascua-Lama stated "disappearing glaciers is not just a problem of this valley, nor of Chile, but a problem on a global level" (Azkarraga, p.74). Pascua Lama was a key event in which glaciers accrued value as part of the hydrological system, as a fragile system which needed protection, and as a symbol of global climate change (Li, 2011). The material transformation of glaciers, destruction and excavation, served as a catalyst for their symbolic transformation.

The glaciers at Pascua-Lama "variously appeared, changed form, and disappeared as the project was developed" (Li, p.103). The project was a key inflection point in which glaciers entered the Chilean imaginary, and for the first time were conceived of as a valuable resource. On a public visit to Canada in 2013, Chilean President Sebastian Piñera publicly condoned the Pascua-Lama struggle and reminded Barrick Gold that Chile is a "democratic and lawful" country. This metered tone was a change from Chile's traditionally free-market, pro-foreign investment and mining stance. Pascua Lama planted the seeds for the development of a sustainable development discourse for glaciers in Chile. The conflict was marked tensions between the value of nature, glacial symbolism, and the production of scientific truth (Bartolotta et al.). It reframed glaciers as subjects of environmental management, built and legitimized anti-mining coalitions, and publicly showcased the issues of neoliberal extraction in a system set up to enable rather than regulate markets (Tecklin et al., 2011). With Pascua-Lama, glaciers became objects of concern in Chilean environmental development.

Glacier Protection Laws

Environmental law and regulation in Chile is a recent institution (Carruthers, 2001, p.348), and before the 1990s, no established environmental regime existed. Created in 1994, the central legislative piece of environmental law is 19.300, the General Fundamental Environmental Law (La Ley de Bases Generales del Medio Ambiente) (Orlove et al., 2008, p. 196). CONAMA, the National Commision of the Environment (Comisión Nacional del Medio Ambiente) was the lead regulatory agency, until its dissolution in 2010, when it was replaced by the Ministry of the Environment. One of the ministry's main functions is the Environmental Impact Assessment (SEA)-- the regulatory process which publicized and sealed the fate of Barrick's Pascua Lama project.

Though neoliberal policy in Chile reduces most political process to the market, the governments following the dictatorship implemented idealistic and progressive environmental policy. Carruthers notes that both CONAMA and the Ministry of the Environment were charged with tasks fundamentally in contradiction with the neoliberal development model implicit in Chile's government and economy. However, the Chilean state environmental framework is laden with "powerful structural incentives that incline the state to side directly with business and development interests" (p. 349). This has created an institutional doublespeak, in which an industry tasked with explicitly environmental purposes has to conform to neoliberal standards. Most sectors of the Chilean government view glaciers as a natural resource: an naturally occurring material which can be leveraged for economic gain. While the Ministry of the Environment speaks to a greater vision of the natural world, power hierarchies and neoliberal policies of the dictatorship constrain its actual effectiveness.

These same issues have burdened the creation of Glacier Protection Laws (GPLs) in Chile. Ever since glaciers became an object of concern in the Pascua-Lama conflict, different governmental agencies and party interests have attempted to define them. Defining a glacier enables those who define it to operationalize their management regime upon glaciers, whether that means enabling

control, exploitation, or protection. Environmental, energy, and mining organizations all have a vested interest in shaping the parameters of a definition and the protections afforded to glaciers- one which minimizes their economic and symbolic value. GPLs are the result of environmental lobbies, and are the result of socionatural (socioambiental) conflicts which bring a wide range of traditionally underrepresented actors to the table. Glacier conflicts end up not being about the specific resources at risk but deeper questions of values, ethics, economic development, and futurities. Glaciers beg the question: it is really the specific resource at stake? Or a greater question of how Chileans will value their landscape. GPLs represent a reconfiguration of neoliberal conservation in which the object of value and the way of valuing shifts. Instead of valuing minerals for material extraction, GPLs value glaciers for their non-material contributions. GPLs underscore the flexibility of neoliberal thought, and how endless ideologies of value can apply to the same framework so long as there is profit.

As of November 2018, glaciers posses "no judiciary statute or legal definition" in Chile (Rocha, p. 52). In 2005, the first proposed Glacier Protection Law (GPL) arrived to Chilean congress. The project, sponsored by delegates Leal, Sanchez, Delmastro, and Longton proposed establishing an additional article to the Fundamental Environmental Law (19.300) which would ban all development projects in "glacial zones" except scientific investigation, ecotourism, and water distribution. This law was archived in 2009. A second project, the Horvath Law, was proposed to congress in 2006. This law was on the "Value and Protection of Glaciers" and conditioned the activities allowed on glaciers, as well as sanctions in the case of infractions. The law only allowed for activities that were not consumptive (ie. tourism, recreation, scientific investigation, etc). However, this project would have allowed for extractive activities so long as an Environmental Impact Assessment report was approved. Similarly, this law did not pass.

In 2014, a group of congress members, calling themselves the "Glacier Caucus" proposed the Bancada Glacier Law (*Towards a Law to Protect…*, 2015). Geothermal and mining interests immediately criticized the proposal, which forbade mining and similar activities near or on glaciers. The Bancada Glacier Law was proposed in 2014, by eight delegates, and highly

publicized and supported by environmental NGOs like Fundación Terram, Chile Sustentable, and Greenpeace. The law hoped to provide "preservation and conservation of glaciers, glacial environments, peri-glaciers, and permafrost. This law prohibited "irreversible harm" to glaciers, their "removal, transfer, or destruction", and activities on or below the surface of glaciers which affected the glacier's functions, dynamics, and essential properties.

In 2015, a representative from the Committee on the Environment and Natural Resources presented a revision of this law in which glacial terrain was limited to 500 meters below the limitus of the glacier, and only prohibited activity on glaciers within National Parks or Virgin Reserves. This revision was controversial, as glaciers were already afforded protection within any publicly owned conservation land. The revision effectively nullified the potential effects of the GPL, and this version was similarly aborted in 2018.

Legislative drafts have stagnated in the congress for the past 15 years. The laws which have been proposed legislation towards a conservationist vision of nature. Industrial and mining interests fervently oppose these laws, as they would stagnate mining productivity. Each meter of land or glacier at stake is terrain that can be used for industry or protected. Environmental NGOs have long championed a vision of glacier which highlights their intrinsic worth, a vision in which the value extracted from the glaciers themselves supersedes that of the mining industry.

Chilean governmental politics are still inextricably tangled in mining interests and extractive neoliberal policies. The Chilean political environment feels strong pressures to ensure continued capital accumulation, as steady positive rates of exploitation constitute a fundamental pillar in the long-term success of Chilean capitalism (57, Taylor, 2006). A tangential law proposal, modeled after the "Right to Roam" laws of Norway is called the Law of Mountain Access (Moscoso, 2018). This proposal, brought forward by delegate Torrealba, would allow for free recreational and education access to mountainous terrain in all of Chile. While not a direct measure of protection for glaciers, a mountain access law reconceives natural landscapes as a site of recreation and education. With evolutions in the political landscape like the "Glacier Caucus"

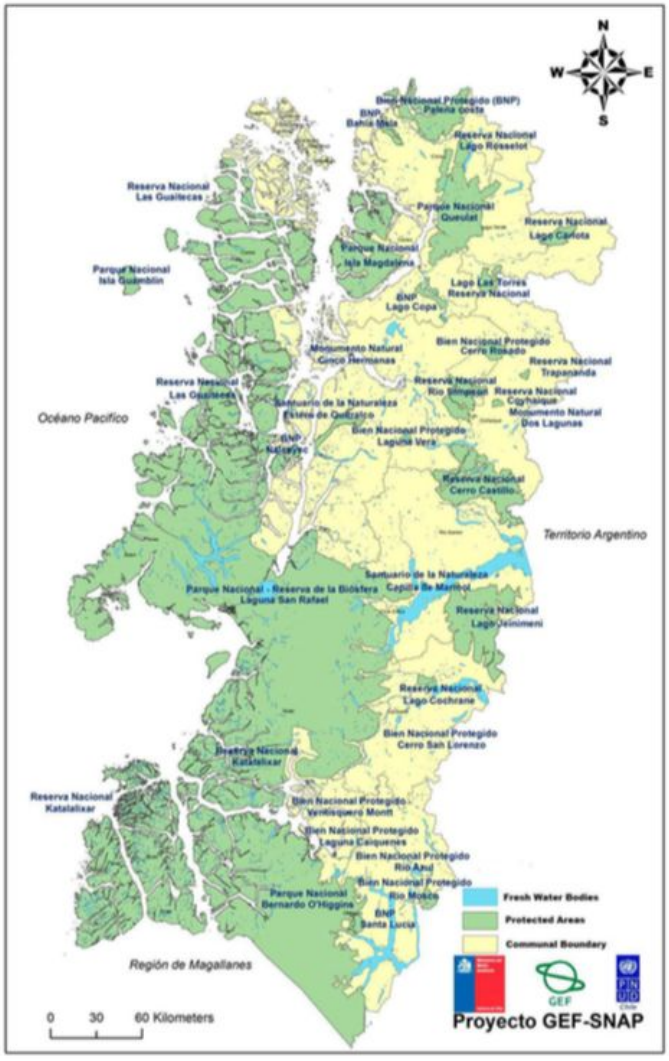
and the GPLs, glacier have transcended their purely physical incarnations, and have become a proxy for controlling the future of the Chilean neoliberal landscape.

Lines in the Ice: "Public" Lands & National Glaciers

Glaciers have also entered discourse as a tool for national sovereignty over land. The geography of glaciers, their remote and usually invisible positions in the mountains makes *control* a principle question. Who do the glaciers belong to? How and what should be governed?

As with current legislation, Chilean glaciers are frequently grouped into legislature and the concurrent imaginary of public lands. In 2018, the Ministry of the Environmental officially announced their support for protecting glaciers underneath the Service for Protected Areas and Biodiversity (SNASPE), in a public statement which noted that "83% of glaciers are currently protected by the system of protected wild areas" (MMA, 2018).

FIGURE N° 4. PROTECTED AREAS IN AYSÉN REGION



This aforementioned system, the Sistema Nacional de Áreas Silvestres Protegidas del Estado, or the National System of State-protected Wild Areas (SNASPE) is the equivalent of the United State's National Park Service. The Ministry of Agriculture works with private non-profit CONAF (the National Forest Corporation), which in turn overseas the SNASPE (Alvarez et al., 1995). While these organization interface with the Ministry of the Environment, the high level of bureaucracy

and division of labor make the two organizations lack coherence. Chile's SNASPE is run with the same concept of protected areas which are typically conceived of and carried out in the Western canon. The Park system was created in the image of the " modern 'pristine' concept of protected areas" (Pauchard and Villarroel, 2002), and roughly abides by the 1978 IUCN (International Union for the Conservation of Nature) categories. There are four types of protected areas: Virgin Reserves, National Parks, National Reserves, and National Monuments (p. 321). The organization overseas only 43% of glaciers in Chile- though this 43% makes up 85.7% of glaciated water resources and 83% of ice surface cover (Rocha, 2016). In units, there are around 10,500 glaciers in protected areas in the country (p. 64). Moreover, according to the "ice and rock" criterion of the United States Wilderness System, 23% of the total state-protected area in Chile is covered by ice fields and non-vegetated land types (Noss and Cooperrider 1994; Luebert and Becerra 1998), suggesting that glaciers and periglacial environments are a central feature of Chilean public lands. That said, the Chilean park system regulatory laws are "strongly oriented toward forest production and not to conservation goals" (Pauchard & Villarroel, p. 319).

Nature is pared from the human- creating an artificial divide with roots in indigenous erasure, colonial dominance, and white, upper-class, bourgeoisie attitudes. William Cronon's classic piece, *The Trouble with Wilderness* famously critiques this non-reflexive modern environmentalism, which fails to recognize wilderness as a human construct, and instead upholds "sexualized tropological notions of pristine and primeval nature" (Braun, 12). The Chilean national park system, much like many western systems, is built on understanding nature as a non-human ecosystem of which we can extract value. SNASPE's park system is nature remade as an aesthetic for tourism and public consumption. The Chilean National Tourism Service, called SERNATUR, explicitly in their mission statement reference their duty to "promote and develop sustainable tourism in Chile" (SERNATUR, 2016, p. 2). In 2016, tourism was one of the top five largest national exports in Chile, bringing roughly 1,300,000 international visitors to Chile. Of those visitors, 67% arrived to travel on vacations.

Glaciers in national parks have also been operationalized as a transnational project to legitimize the Chilean government's ontological framing of public land. The concept of "Peace Parks" (Holston, 2008) is an idea developed in North America in which two "national parks" on opposite sides of an international border collaborate in order to better allocate conservation resources. Chile's Vicente Perez Rosales National Park and Argentina's Nahuel Huapi National Park have utilized this management model to foreground an ontological framing which prioritize concepts like "resources" and "biodiversity," while also underscoring parks as a non-human geography which upholds nation state borders. Ecosystems are thus understood as a national property, which can be managed. Glaciers become a static facet of hydrology which can be understood through a geologic context, which de-emphasizes their dynamism and prioritizes natural phenomena.

The Chilean government has also frequently used glaciers in a statemaking project to declare boundaries in Patagonia. Glaciers are strategically utilized as a neo-colonial tool to demarcate international borders. Since 1991, Chile and Argentina have resolved 22 of the 23 binational borderlines- with a single 50 kilometer stretch between Mount Fitz Roy (Cerro Chalten) and Mount Murallón (El Mercurio, 2006). This specific stretch of terrain, commonly referred to as Section B, includes freshwater reserves and touristic landmarks such as Cerro Torre, Mount Fitz Roy, the Viedma Glacier, Grande Glacier, Upsala Glacier, and Torre Glacier (*Ahora Noticias*, 2018). Argentine and Chile both interpret the border differently, following the Atlantic-Pacific Continental Divide by hydrology or high peaks- resulting in slightly different borders. The site in question has materialized as a site of struggle because of both sides claims to legitimacy. Both the Treaty of 1881, which divided the majority of current borders in Patagonia, or the 1902 Treaty of Laudo are used to express different claims on the glaciers.

Border disputes have occasionally flared up, as when in 2006, the Argentine National Geographic Institute (IGM) editing and released a map without a note about the non-defined border. In response, the Chilean Ministry of foreign relations released a public diplomatic statement noting the necessity of withdrawing and correcting the maps (*Emol*, 2006). Again in

2018, the Argentine government published a National Ice Inventory, which included disputed glaciers in the Southern Patagonian Ice Field. During September 2018, the Argentine Military sent 23 soldiers from seven regiments to participate in terrain exercises in the exact zone of the ice field that is currently contested (*LM Neuquen*). In response to military movement, the mayor of Villa O'Higgins, along with a Chilean geographer, denounced the operation as a "provocation" and made calls to central government officials in Santiago (*Ahora Noticias*, 2018), while the head of the Argentine expedition stated, "This expedition marks a new presence of the Argentine Army in our Southern Ice Field" (*LM Neuquen*). The dearcation of Section B is still pending as of November 2018. In this instance, glaciers are imbued with meaning in a legal sense- they act as the markers of disputed borders. They also materialize as objects in a neoliberal conservation regime, where each nation enacts verbal and physical bids for sovereignty in a region that has been deemed economically valuable.

Operationalizing Dissent : Charismatic Glaciers & NGOs

Social movements and NGOs have contributed to strengthening glaciers as an object of neoliberal sustainable development during key events in the past 30 years. NGOs initially legitimized dissonance towards the classic extractive narrative of development by providing a legitimate and institutionalized venue for expressing opinions. Chile's "market democracy" (Taylor, 2006, p. 103) has created a centralized political hierarchy in which citizens have to bootstrap themselves to larger organizations to make political noise.

International NGO Greenpeace's Republica Glaciar (Glacier Republic) made an indelible mark on the direction of Chilean glacier politics. In 2014, Greenpeace activists formed a fictitious micronation on the glaciers of Chile, claiming that legislative loopholes and lack of judicial protection made glaciers a non-sovereign land (*BBC*; *Eye on Latin America*; Talliant, 2015). Activists established a "flag, a Declaration of Independence, a tent in the Andes serving as the capital, and 40 international embassies" (*Atlas Obscura*, 2016) as well as running a full page ad in the New York Times and applying to the United Nations for statehood (Rivas, 2014). In doing

so, they satisfied all the requirements statehood as delineated in the Montevideo Convention (*United Nations*, 1933). Greenpeace subsequently allowed Chilean citizens to 'apply for citizenship' and heavily publicized Chilean celebrities who joined the cause.

The website, which went offline early November of 2018, had accumulated 165,000 "citizens" including author Isabel Allende, Chilean poet and Cervantes prize-winner Nicanor Parra, the Bishop of Aysén, and famous Chilean bands Los Tetas and Los Bunkers (Greenpeace, 2015; *Eye on Latin America*, 2016). Over 40,000 people signed up to become citizens within the first 10 days, and pushed the conflict over the threshold of national to international issue. Promotional videos of the campaign played erie Enya-esque music while panning over ice blue glaciers. Greenpeace filmed soccer games on the ice and a proposal and marriage ceremony, all narrated by a pleasant, yet urgent, Chilean voice. The videos describe glaciers as in a state of "absolute vulnerability" and "unprotected" while at the same time they are Chile's "natural water reserves" which contribute to river basins and regulate ecosystem temperatures, natural heritage, and help shape Chile's characteristic geography. The glaciers are characterized as "ancient land, our children's inheritance, the land of hope which holds the future in her womb" - Greenpeace plays to the vision of land and glaciers as pristine and wild natural resources.

Greenpeace's president, Matias Asún, commented that "the idea is to spread the message about the need to protect glaciers all over the world, and to generate the necessary strength to gain ourselves a law of protection for Chilean glaciers" (Anacona, 2016). While understood as more of a symbolic dissent rather than a true legal battle (Urquieta, 2014), the Glacier Republic was an instance of dissent which made glaciers an object of concern on a national and international stage (Rivas, 2014).

Glaciers were operationalized to represent the future of Chile as a stable, water dependent nation, and also alluded to Western conceptions of wilderness and nature. This campaign pressured incoming president Michelle Bachelet, to support the Glacier Protection Law (*Eye on Latin America*, 2014). Greenpeace was a venue for legible dissent- it was a international,

well-respected NGO which carried enough weight to pressure the Chilean government. The campaign also represents a broad collective of social groups, who successfully disputed political proceedings in a fragile new government. This campaign re-made glaciers in the public sphere. It invited conversations of climate change, wester environmentalism, and governance to the same table. It further instilled glaciers into the diction of sustainable development- La Republica Glaciar recognized glaciers a a *resource* but also as a natural experience. The video showcases a culturally valuable nature, rather than a material one- ie. glaciers are heritage, national pride, distinctly Chilean. While a different approach than the materially extractive practices of mining, this campaign frames glaciers as having cultural importance. This cultural logic sees glaciers as an extractible experience: it commodifies glaciers as having extratible patrimonial or aesthetic value.

This framing of glaciers has tangentially been used in other water conflicts in Chile, such as No a Hidroaysen. This campaign, also known as Patagonia sin represas was a conflict which emerged in response to a plan to build a hydroelectric facility in Northern Patagonia (Vince, 2010). The opposition transformed into a global phenomena- with marches in North America and Europe, podcasts, international news articles, and the eventual pause of the project.

These conflicts have marked the beginning of a reframing of Patagonia by the international public. The rise of the Patagonian imaginary was fueled by environmental conservation projects which look to Western style understandings of land. Many academic articles frame the Hidroaysén conflict as a struggle between a beautiful natural space and resource hungry companies. Vince (2015) describes the southern 'wilderness' of Chile as:

> "home to condors and alpaca-like guanacos, puma, and blue whales, Patagonia is the tail end of the Americas, one of the last accessible nowhere lands on the planet. It contains the Southern Ice Field, the world's third most important reserve of freshwater after Antarctica and Greenland. And in its untamed wilderness of glaciers and mountain peaks companies are preparing to raise not just hydro-dams but also a 70-meter-high

> transmission line to transport power more than 2400 kilometers north to Santiago, Chile's capital, and the energy-hungry mines beyond. The line would require one of the world's biggest clearcuts, a 120-meter-wide corridor through ancient forests—fragmenting ecosystems—and the installation of more than 5000 transmission towers."

Succinctly, "Patagonia is THE symbol of nature in the world" (Aaron Sanger, International Rivers Network; Romero, 2013). Glaciers are strategic constituents in the non-human array of resources which are used to define Patagonia as "valuable". Hidroaysén transformed northern Patagonia into a 'place of concern' (Smits, 2015) in which the vision of the land prioritized a model of sustainable development rather than material industry. Protestors sold a vision of nature, common in Northern America, in which the non-human environment was a pure natural space that should be protected for public land use, ecotourism, and recreation. While many viewed Hidroaysén as a neoliberal model of economic growth (Jones, p. 250), the opposition was equally neoliberal-- just through a lens of sustainable development. Chile has prioritized growth, whether it come from material or aesthetic-cultural means.

No Alto Maipo is another movement which has mobilized in response to a dam project in the Maipo Gorge outside of Santiago. Popular support has come from a wide variety of actors, including glacier policy think-tank Fundación Terram, social collective Glaciares Libres, and pro-glacial protection law NGO *Chile Sustentable.* No Alto Maipo has seen a similarly national and international mobilization around the concept of Chile as a space for profitable conservation rather than material extraction, forming unique coalitions between indigenous, ecotourism, environmental and agricultural actors (Azkarraga, 2008).

Tensions over questions like 'who controls the hydrological regime?' have plagued water and glacier conflicts in Chile since the institution of the Water Code in 1981. The Morado Glacier, which feeds the Maipo River and is protected as a National Monument, has seen an unequal application of the supposed public land protections promised by SNASPE. Romero argues that the manufactured "empty" landscapes of Chile were conceptualised as "natural" and "pristine" to promote the development programs of the state (2013, p. 34). This argument has shifted with the rise of neoliberal reform to support conservation programs of private landowners. Glaciers have uniquely contributed to these conflicts of land and capital- variously being operationalized as vulnerable, mismanaged, controllable, and most importantly *present*. Glaciers and their biophysical processes are both separate from, and foundational to the changing socio-political landscape which reproduces the Patagonian Imaginary.

Economies of Freedom: Glaciers as Commodity in Neoliberal Patagonia

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"Patagonia has been culturally constructed as dramatic, wild, pristine and damned. It has to be understood, therefore, as part of the expansion of imperialism in which a combination of colonial state machinery and modern science created an imaginary geography of "otherness"

-Romero, 2013

Glaciers are integral to the Patagonian landscape. The glacial aesthetic is reproduced in descriptions and images of southern Chile- ie."ancient glaciers, expansive ice fields, unexplored mountain fjords" (*Chile Sustentable*, 2007), in virtually every publication of Patagonia. During the first government of Michelle Bachelet, Chile began to adopt a new political framework for Aysén and the region of Patagonia. The government presented a development strategy centered on "sustainability" in which *sustainability* was understood as a regional strategy to promote the industry of special tourism (EDR, 2009; Romero, 2013). They reframed Patagonian cultural identity around the beauty and quantity of natural resources, and suggested that the region should be exploited for tourism, scientific investigation, and sustainable small-scale entrepreneurship.

Glacier became a resource for aesthetic and experiential extraction, rather than a body of ice which obstructed profitable mining practices. This concept of sustainable extraction is central to neoliberal sustainable development, in which nature is re-evaluated through a capitalist lens and capitalism is promoted as a "fundamental means to save nature" (Büscher et al 2012 Jones). In quantifying touristic value for Environmental Impact Assessments, the National Tourism Service in Chile (SERNATUR, 2016) specifies three relevant values and suggestions for quantifying each: Landscape Value, Cultural Value, and Patrimonial Value. Abstracted values like "beauty" and "nature" are quantified according to their potential for profit. In effect, culture, patrimony, and natural beauty are discrete objects which can hold and accrue value. Via these guidelines, biophysical landscapes are put to work for economic and developmental ends. This framing also values glaciers as a vulnerable resource. The region of Patagonia is home to the condor and huemul, both endangered species; the glaciers- described as melting; and "virgin landscape" - are endangered by extractive development and civilization (Scott, 2006). Southern Chile is understood as a fragile or precarious landscape, which underscores bids to conserve and value it. The Patagonian landscape is a disappearing or scarce commodity which came to be understood as such by the strategic actions of private landowners.

The conservation projects undertaken by private landowners have come to exemplify the neoliberalization of conservation in Patagonia. Wildlands philanthropy, a concept developed in the United States and North America during the twentieth century is a process by which wealthy philanthropists buy land for the express purpose of conservation. Private actors work within a capitalist framework to conserve land. The Conservación Patagonica (now Patagonia National Park) is a project which exemplifies neoliberal conservation- where the "withdrawal of the Chilean state allows conservationists and capital from ecophilanthropists to move in (Jones, 254).

Conservación Patagonica was the long-time project of American conservationists, Doug (deceased in December 2015) and Kris Tompkins, who hoped to create and link seventeen national parks along the Carretera Austral in a global ecotourism destination. The Tompkins and

their related foundations have played a pivotal role in the new Chilean conservationism: reshaping the role non-human landscapes have in the collective Chilean imaginary. Over the past 30 years, they have committed and developed one of the most successful examples, if not the most successful example of "wildland philanthropy" in the world. Over the years, the Tompkins operated from many different organizations - all aimed at “protecting the wild” (*Tompkins Conservation mission statement)* including the Foundation for Deep Ecology, Patagonian Conservation, Pumalín Foundation, Yendegaia Foundation, The Conservation Land Trust and its Conservation Tompkins umbrella organization. The Tompkins Foundation website divides all of its initiatives into four main categories: Park Creation, Activism, Organic Farming, and Restoration. Kris Tompkins personally directs "rewilding" projects in Argentina and Chile. The work of Doug and Kris Tompkins has spanned 25 years, two countries, and has reserved more private lands for conservation than any other human being in history.

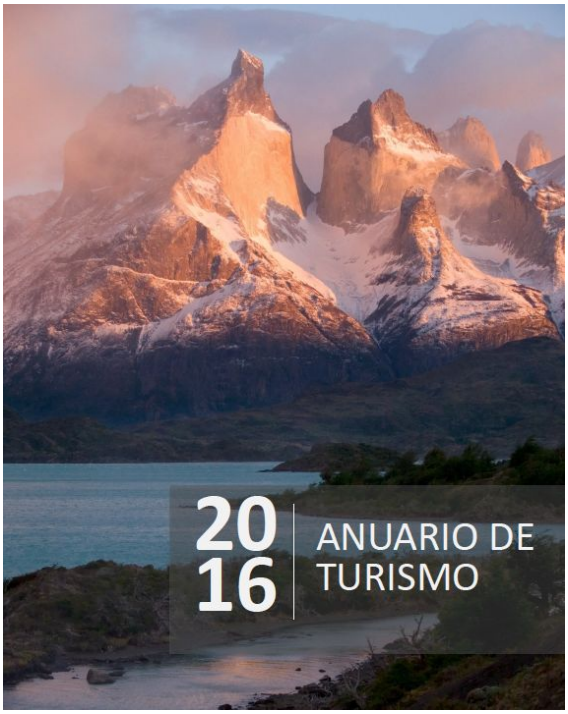
Doug Tompkins founded the The North Face in 1966, traveled with Patagonia founder Yvon Chouinard on their first trip to Patagonia in 1964, and founded Esprit in 1968. He later sold his clothing empire for an estimated value of 125 million dollars. Kris Tompkins is former CEO and board member of Patagonia clothing. Doug Tompkins frequently quoted the evils of “consumer culture and environmental destruction” as his rationale for selling his companies. Much of his later work was informed by the philosophy of Deep Ecology- a “radical environmentalism” delineated by Norwegian philosopher named Arne Naess in the 1970s. Deep Ecology roughly equates to a variant of western environmentalism- but emphasizes decentering human experience and realizing the intrinsic worth of all beings. The Tompkins arrived in Chile post-dictatorship in 1991, bought a farm in the Reñihué fjord in southern Chile, and began purchasing land under the banner of conserving the “pristine and wild Patagonian landscape”.

While Chilean governance has typically valued private property rights, initially, the Tompkins were seen as contrary to local economy. Their conservation projects were perceived as an anti-progress narrative which pushed back against the dominant neoliberal economies of the 1990s. Similarly, the amount of land purchased was significant enough to become an issue of

national sovereignty. The creation of private nature reserves was marked with military plane flybys and anonymous death threats. The Tompkins were perceived as neocolonialists, and rumors suggested they were building a landfill of radioactive material, bottling and selling the waters of Patagonia to the world, creating a new Jewish Zionist homeland, bringing women to the park to have abortions, raising a mixed super-breed of African lions and Patagonian cougars to attack the local cattle (The Guardian), being a CIA agents, NAZIs or "radical" deep ecologists. The Tompkins disrupted the dominant narrative of regional identity, and both the Chilean government and the locals carried out defamation campaigns.

As tourism began to arrive in the region around the private parks and conservation reserves the Tompkins had created, local opinion eventually came to accept their presence. Once the "protected wilderness" discourse of western environmentalism that was championed by the Tompkins became profitable, it became the tagline of the whole region of Aysén. The regional government now uses a "Sustainable Tourism Based Livelihood Framework" (Trace, 2012) to run the economy- supported by the eventual turnover of the Tompkins land to the Chilean State.

In January 2018, Chile officially inaugurated eight new National Parks. Initiated by Michelle Bachelet during her second term in office, the official network of parks in Patagonia marks a new era in neoliberal sustainable development. This megaproject extends, discontinuously, from existing Hornopirén National Park in the Los Lagos region to the Alacalufes National Park in the Magallanes and Chilean Antarctic regions. It contains almost 4,520 million hectares - formed by eight areas of fiscal lands, existing national parks and private donations. It is described as "the most scenic and beautiful route in the world" which explores "2,800 kilometers of pristine landscape, fragile ecosystems,



and diverse local cultures" (Ruta de los Parques, 2018). In order to create the route of parks, the Chilean government reclassified three former national reserves, expanded the extent of four national parks, and created two new national parks from private land donation (*Que Pasa Chile*, 2017). The protected land within the network of National Parks of Patagonia is slightly larger than the Gates of the Arctic National Park of Alaska, 5,000 times the size of the Central Park of Manhattan, or three times larger than the national parks of Yellowstone and Yosemite combined. Key among the private sector deliveries was the Tompkins Foundation, who donated over 407,000 hectares of land (a donation larger than the size of Rhode Island).

The Route of Parks is a manifestation of the sustainable development discourse. Doug Tompkins was quoted suggesting that the economic returns of national parks are ten times that of copper. While self-pronounced anti-progress and consumerism, the Tompkins used their wealth (acquired through a capitalist system) to reshape a local economy and build a lucrative profit-based national industry centered around ecotourism. The creation of the Ruta de los Parques represented the largest private to public land transfer in modern history. Thus, even as conservation actors present their contributions as an anti-capitalist discourse of conservation, these spaces actually become opportunities for the expansion of capitalism (Jones, p. 250). The Western-colonial "preservation of pristine spaces" has become the commodity which defines environmentalism in Chile. Private landowners like the Tompkins and new initiatives like the Ruta de los Parques remake glaciers and as a nature tourism commodity.

Glaciers and other symbols of Patagonia are enrolled in a commercial project where their imagery is commodified and made palatable. Globally, nature-based tourism has become one of the fastest growing markets and a central driver of capital in mountainous regions (Scott, 2006). The physical landscape of Chile has come to shape regional discourse and identity. Post-colonial theorist identify how the southern geography of the country has been enrolled in a "third-to-first world marketing project" (Canihuante, 2005), in which media, brands, and images sell "Patagonia" to a western audience.

Between 1990 to 2000, Chilean tourism grew an average of 6% yearly (CONAF 2002; Pauchard and Villarroel, 2002). A semi-structured kind of cultural tourism called "backpacker tourism" (Martín-Cabello, 2014) has glorified and sought out the "sublime landscape" of Patagonia. The region and its natural processes have become tourist commodities for western culture. The environment is qualified by its beauty and purity: an ecological discourse which values the passive aesthetic qualities and non-human ecosystems in place. Touristic enterprises operate within national park limits and travel on boat or by foot around and on the glaciers. Many businesses use the language of frontiers- ie. "expeditions", "the outpost" "trek" in their names. Private operators in Torres del Paine NP take tourists on cruises to see Glacier Grey, and tens of operators work taking visitors to see glaciers in the Laguna San Rafael NP. The advent of Patagonian tourism has shaped the future of how Chile understands its glaciers.

Tourist destinations in Patagonia function on the central axis of the Carretera Austral (Muñoz and Salinas, 2010). Chilean colonization only began in northern Patagonia in 1903, and the existing infrastructure dictates the communities and spaces which receive the most foreign influx. Romero suggests that Patagonia can be understood as a "territorialisation of the colonial state" (2013), in which organized infrastructure further entrenches the presence of the state. These intrusions ultimately are understood to Save Nature by extracting value in a different way- the aesthetic, images produced, and experiences gained are accumulated by foreigners. By positioning these spaces for Westerners as touristic centers, Chile has also seen an influx of "Influencer Travel", in which individuals with large followings on social media travel to Chile and reproduce images of the south for all their followers. This "virtual landscape" becomes the basis for more international tourism in Patagonia. The National Geographic-esque lens on natural space is used to commodify and sell the Chilean landscape. Images are produced and then transformed into commodities as the strategies of business (Jones, 250). Commodified imagery has had an important role in shaping global perceptions in a way that increases consumption.

The Modern Glacial Imaginary

Ultimately, a complex network of historical moments and processes have created the modern Patagonian glacier. Governing bodies, NGOS, and private actors have depoliticized, re-politicized, reframed, remade, and ultimately created the current collective perception of glaciers in Chile. The glacial imaginary is in a continual process of creation.

Beginning with the dictatorship in 1973, glaciers and the neoliberal value system have both undergone changes via key events, processes, and actors. Currently, discourses of neoliberal sustainable development understands glaciers as a valuable object from which nature can be "saved" and also used for profit. This change modifies the flows of money from the pockets of mining companies to local touristic enterprises and national park funds, but still ultimately values glaciers for their economic potential.

This neoliberal system of value is echoed in Chilean glacier politics on a national scale. Glaciers are still disproportionately exploited in the northern ranges of the country because their perceived economic value is not the same as the minerals underneath them. The value of Chilean nature is still deeply rooted in Western evaluations of profit. Who is *right* in their definition and evaluation of glacial worth? How can we value nature? The ultimately capitalist framework which underlies sustainable development in Patagonia privileges discourses of development and capital. What processes can be undertaken to ensure equity in the voices heard in glacier politics? Though valuing glaciers in a neoliberal system is ultimately reductive, does it matter if it worked?

The transformation of neoliberal strategy is successful in 'saving' glaciers in Patagonia, but at the cost of the glaciers in the north. Neoliberalism ultimately forces environmental concerns and glacier activists to shape their arguments towards profit and value: sacrificing some glaciers for the health of others. Moreover, this system evolved out of a violent dictatorial regime, and maintains colonial and imperial power structures in terms of land management and policy. The neutralizing effect of neoliberal markets depoliticizes glacier futures, leaving them in a state of

precarity until benevolent private landowners or well-connected locals can advocate for their conservation.

In the era of global environmental change and glacier tourism, a question of sustainable futures arises. Other countries have noted the "critical need to systematically investigate specific impacts that climate change could have on mountain tourism" (Nepal, 2011). Climate change is increasingly the crux upon which every question revolves: how will fragile landscapes feel the repercussions of a warming world? An economy which revolves around glaciers and landscape must confront the impacts of said economy. Is capitalism ultimately a viable venue for Saving Nature? Do glaciers open a space of dissent for a reframing and complicating of western ideologies of nature?

Glaciers in Chile have rewritten regional identities in the same way they have remade landscapes. In abstract, they have been operationalized in colonial intrusions, national neoliberalism projects, and narratives of health, hazard, and biodiversity. The modern glacier is an active, permeable imaginary, which interfaces and reconfigures itself as new voices are brought to the table. They will inform the future of southern Chile's conservation economy, and continue to produce an ideological space to battle out new environmental discourses. Glaciers point towards the historical-cultural articulation of spaces, visibilize sites of neoliberal contestation, and provide a mirror to the cultural meaning embedded in contemporary environmentalism.

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P. 4 - *Glacial Characterization of Chile,* Rocha 2016

P. 5 - *Map of Chilean Patagonia,* rutadelosparques.org

P. 6 - *Andes Mountains,* personal photo

P. 10 - *San Rafael Glacier,* skorpios.cl

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