State of Disposal and Recycling for Calendar Year 2019

February 12, 2021

CalRecycle

California Department of Resources Recycling and Recovery

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Executive Summary

This report for Calendar Year 2019 presents data and information on California's waste management activities, including the seaborne export of recyclable materials. Additionally, it provides a snapshot of the state's waste management goals and progress, as well as CalRecycle's efforts and new initiatives in 2019.

Overall waste generation in California was estimated to be about 77.5 million tons in 2019. Of that total waste generation, 48.6 million tons went to disposal and disposal-related activities, including about 42.2 million tons sent to landfill. This equates to a statewide per capita disposal rate of 6.7 pounds per person per day in 2019. Alternative daily cover was the most common disposal-related activity at about 3.9 million tons.

An estimated 28.9 million tons of waste were recycled or diverted in California in 2019, resulting in a statewide recycling rate of 37 percent, down from 40 percent in 2018 and the peak of 50 percent in 2014. Seaborne export of recyclable materials accounted for about 14.4 million tons in 2019, a decrease of approximately one million tons from 2018. Despite the decrease, seaborne exports of recyclable materials were the largest destination for statewide recycling.

In 2019, CalRecycle continued to support source reduction, recycling, and composting through many of its programs, including:

- The Beverage Container Recycling Program redeemed 18.4 billion beverage containers in 2019.
- CalRecycle, in partnership with the Governor's Office of Emergency Services, removed debris from properties destroyed in the Camp and Woolsey Fires. In this role, CalRecycle oversaw the removal of over four million tons of debris in 2019, with over 840 thousand tons of that material recycled.
- CalRecycle also awarded over $105 million across 897 entities through its grant and loan programs, including the Greenhouse Gas Reduction Fund Grant Programs and the Recycling Market Development Zone loans.

California has clear and ambitious environmental goals for reducing waste and managing materials. Although California will not meet the 75 percent statewide recycling goal in 2020 as set out in Assembly Bill (AB) 341 (Chesbro, Chapter 476, Statutes of 2011), the state is preparing for the implementation of Senate Bill (SB) 1383 (Lara, Chapter 395, Statutes of 2016) which will rapidly increase the recycling of organic material and help California meet the 75 percent goal. Meeting the goal to reduce statewide disposal of organic waste by 75 percent by 2025 will reduce emissions of short-lived climate pollutants, greenhouse gas emissions that are more potent than carbon dioxide. Successful implementation of SB 1383 is a critical component of the state's strategy to combat climate change and build healthy soils.

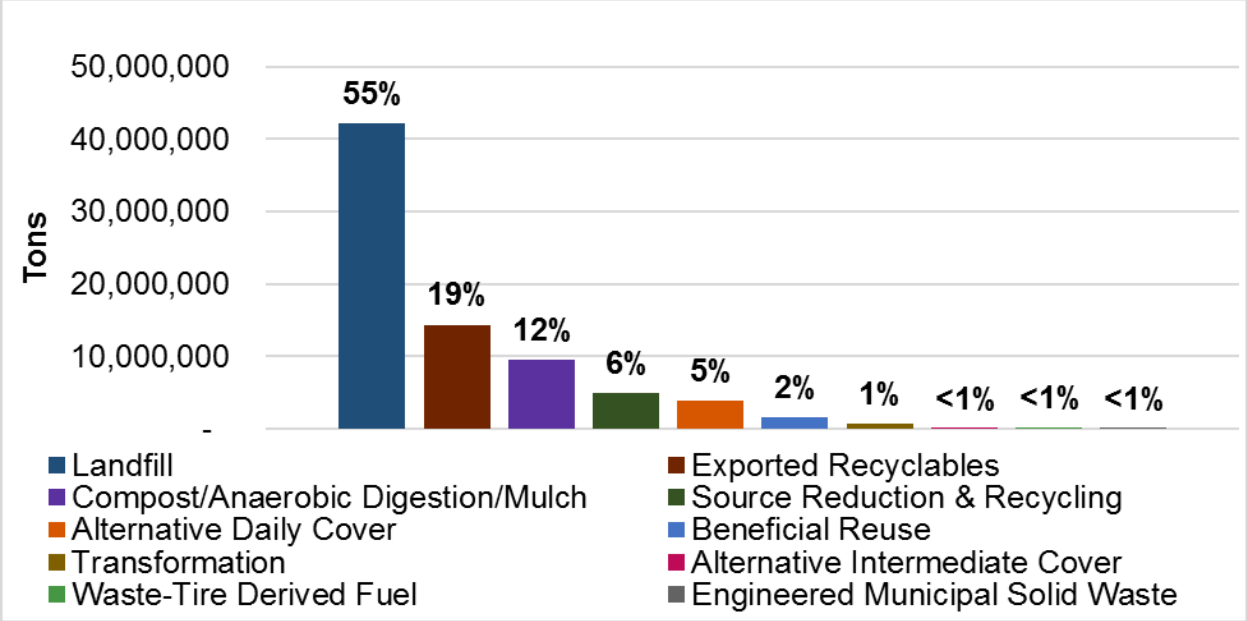
Appendix 1 provides data tables associated with every figure in the body of this report, to ensure Americans with Disability Act (ADA) accessibility for non-sighted readers. Appendix 2 provides detailed graphics and tables on total exports and recyclable materials exports from California ports not included in the body of this report. Appendix 3 provides the country codes for each importing country.

Waste Generation

California's 39.7 million residents and 1.6 million businesses generated an estimated 77.5 million tons of material in 2019*.

Of the total materials generated in 2019, 55 percent were sent to landfill, 19 percent were exported as recyclables, 12 percent were composted, anaerobically digested or mulched, and another 6 percent were recycled or source reduced (see Figure 1). The remainder of the material, less than 10 percent, went to alternative daily cover (ADC), beneficial reuse, transformation, alternative intermediate cover (AIC), waste-tire derived fuel, and engineered municipal solid waste (EMSW).

Figure 1. Estimated Management of 77.5 Million Tons of Materials Generated in California in 2019



CalRecycle derived quantities of landfilled waste, transformation, ADC, AIC, EMSW, and other beneficial reuse from the Disposal Reporting System (DRS) and Recycling and Disposal Reporting System (RDRS). CalRecycle calculated waste tire-derived fuel based on data reported to CalRecycle (1). CalRecycle collected exported recyclables data from WISERTrade (2). CalRecycle collected estimates for materials composted, anaerobically digested, and mulched based on published reports (3; 4)

* CalRecycle determined total generation from the 1990-2010 per person baseline and the 2019 population in California.

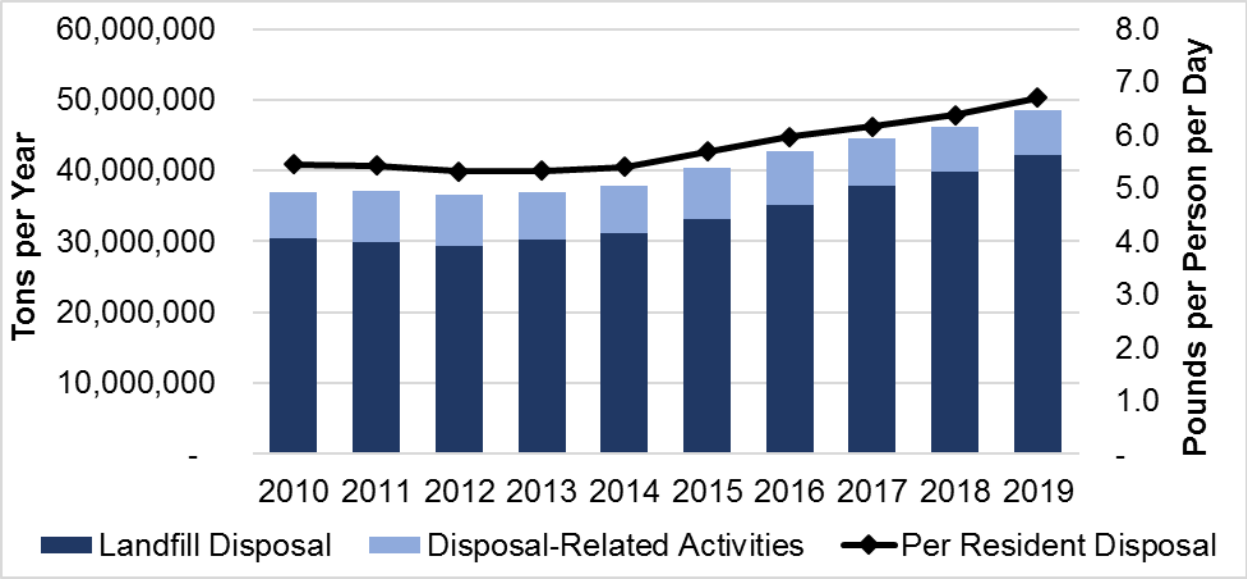
Disposal and Disposal-Related Activities

In order to calculate overall disposal, CalRecycle adds tons of landfill disposal (as used in the Assembly Bill (AB) 939 jurisdiction calculations) to tons from six disposal-related activities: ADC, AIC, other beneficial reuse at landfills (such as construction activities, landscaping, and erosion control), transformation, EMSW, and waste-tire derived fuel.

Based on data reported to CalRecycle, overall disposal in 2019 equaled 48.6 million tons, including disposal of disaster debris and designated waste.

In 2019, 42.2 million tons of waste were landfilled in California or in out-of-state landfills. An additional 6.3 million tons of materials went to disposal-related activities. California had a per capita overall disposal rate of 6.7 pounds per resident per day in 2019 (see Figure 2). This corresponds to about 2,400 pounds of disposal per resident in 2019.

Figure 2. California's Statewide Per Resident and Total Disposal from 2010 to 2019



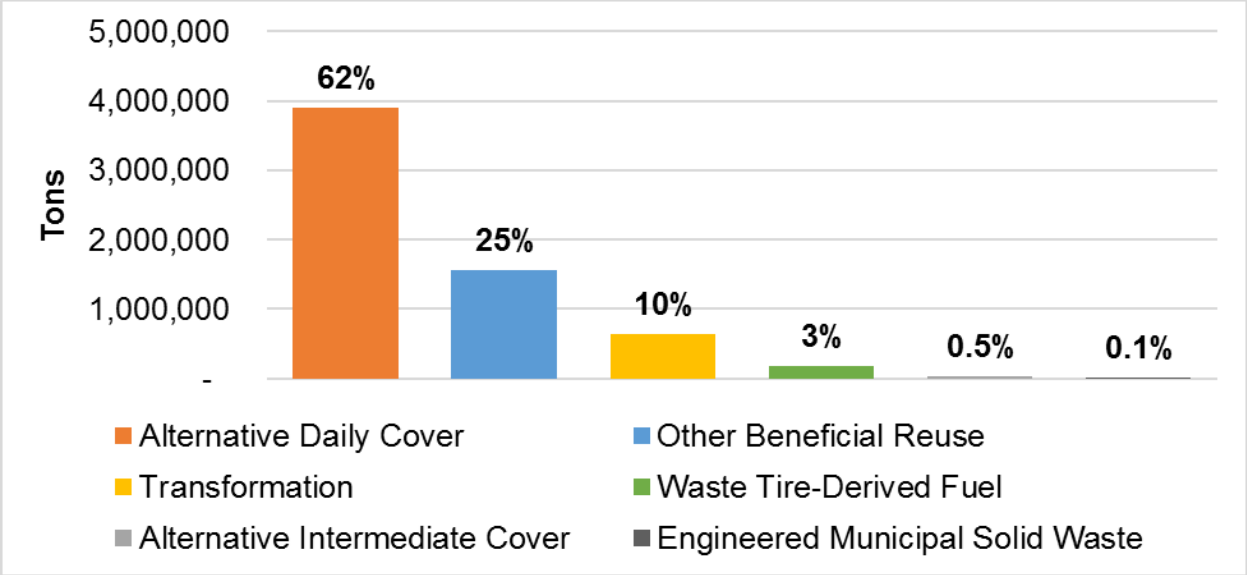
The left y-axis represents tons of disposal per year as shown by the bar graphs. The right y-axis represents the number of pounds of disposal per resident per day as shown by the black line. Data is from the DRS, RDRS with population from the California Department of Finance [5]*. Accessed October 12, 2020.*

Disposal-Related Activities

The six types of disposal-related activities in the state contributed to 13 percent of total disposal. ADC was the most prevalent with 3.9 million tons used in 2019. At landfills, operators used 1.6 million tons of material for other beneficial reuse and about 30 thousand tons for AIC. In 2019, operators processed about 647 thousand tons of

material at transformation facilities, almost seven thousand reportable tons at EMSW facilities, and about 185 thousand tons at waste tire-derived fuel facilities (see Figure 3).

Figure 3. Disposal-Related Tonnage in California in 2019

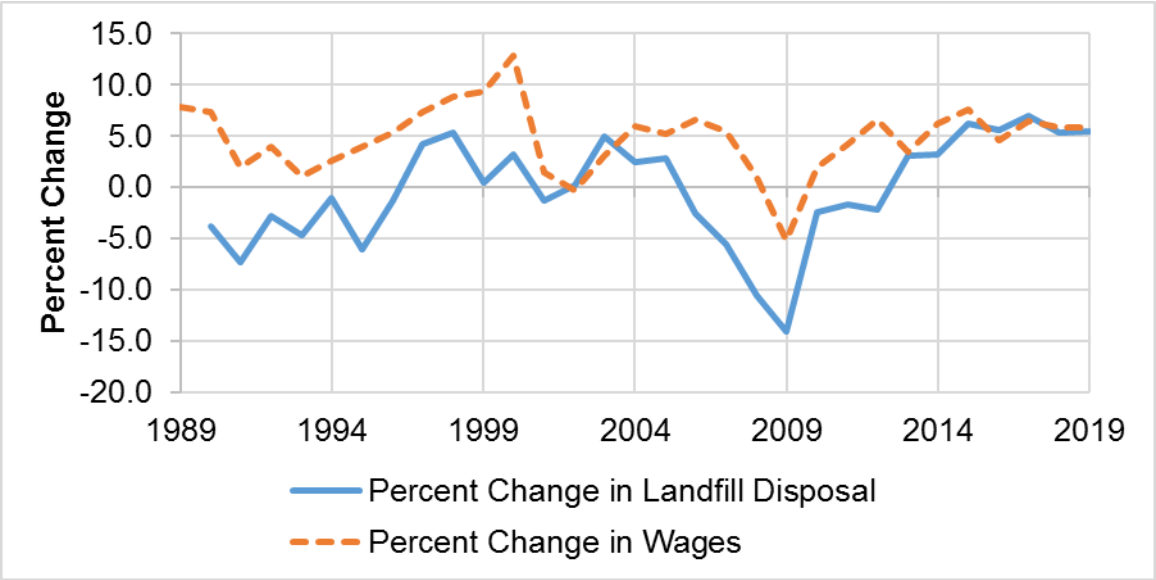


Data is from the DRS, RDRS, and waste tire-derived fuel reports submitted to CalRecycle [(1)].

Economic Factors

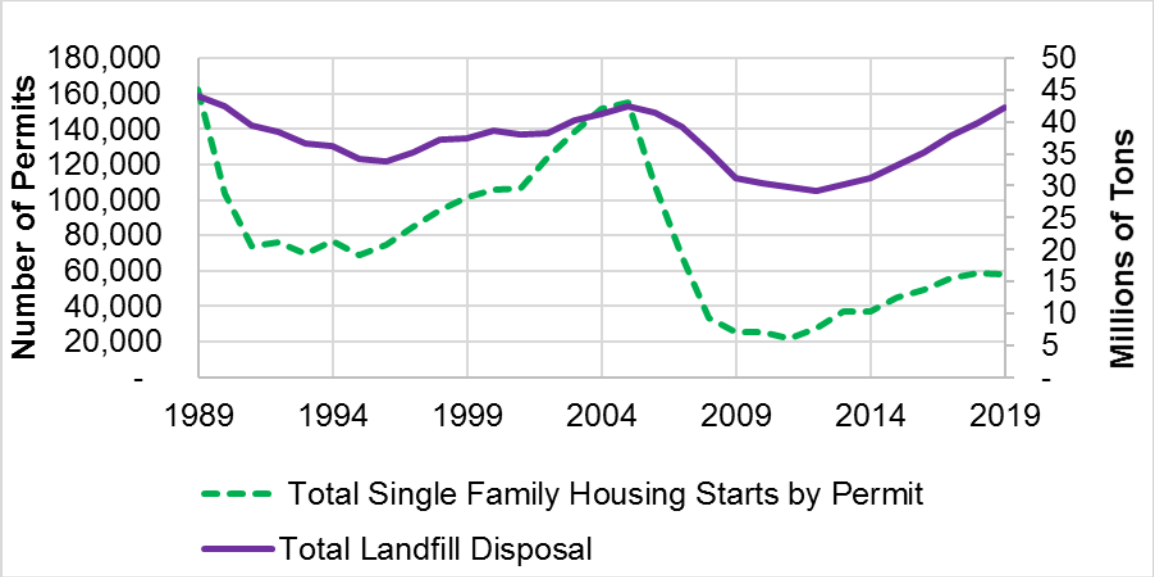
Economic indicators, such as wages and housing construction starts, historically show a positive correlation with disposal (see Figures 4 and 5). In 2019, wages increased by about 5.9 percent over the previous year, while landfill disposal increased by 5.5 percent from the previous year.

Figure 4. Percent Change in Landfill Disposal Compared to Percent Change in Wages in California



Data is from the DRS, RDRS, and the Federal Bureau of Economic Analysis [6]*. Accessed October 13, 2020.*

Figure 5. Landfill Disposal Compared to Number of Single-Family Housing Start by Permit in California

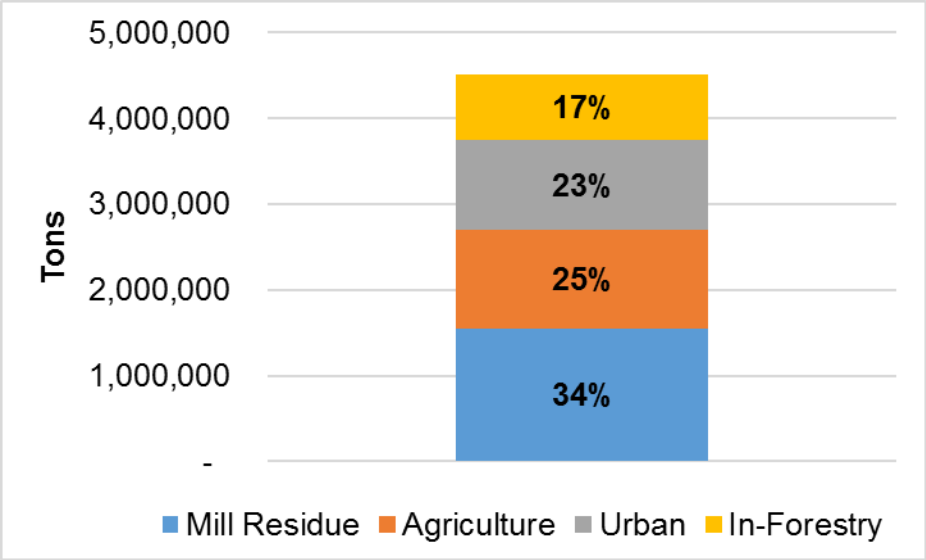


The left y-axis represents number of single-family housing starts by permit (associated with green dashed line). The right y-axis represents millions of tons of landfill disposal per year (associated with purple solid line). Data is from the DRS, RDRS, and California Department of Finance [7]*. Accessed October 13, 2020.*

Biomass

For the 2019 reporting year, all 25 operating biomass facilities submitted reports to CalRecycle. Collectively, these facilities accepted over 4.5 million tons of woody biomass, and rejected 85 tons of the material, primarily due to contamination and incompatibility. As shown in Figure 6, roughly one-third of the wood waste originated from mill residue (about 1.6 million tons), a quarter originated from agricultural sources, and slightly under a quarter originated from urban sources.

Figure 6. Source Sector for Woody Biomass Sent to Biomass Conversion Facilities in 2019



The y-axis represents the number of tons of biomass from contributing source sectors. Biomass conversion facilities reported data directly to CalRecycle pursuant to Public Resources Code Section 44107.

Disaster Debris

CalRecycle, in partnership with the Governor's Office of Emergency Services, frequently supports local governments with debris removal and remediation from disasters. In 2019, CalRecycle oversaw major clean-up projects for the Camp and Woolsey Fires of 2018, totaling more than four million tons of debris that were removed, segregated, and disposed or recovered from more than 20,000 destroyed structures. See Tables 1 and 2 for material composition.

Table 1. Disaster Debris Removed from the Camp Fire in 2019

Debris Material	Tons
Burned Debris and Ash	2,240,000
Concrete Recycled	710,000
Contaminated Soil and Ash	680,000
Metal Recycled	52,000
Total	3,682,000

Table 2. Disaster Debris Removed from the Woolsey Fire in 2019

Debris Material	Tons
Burned Debris and Ash	243,034
Concrete Recycled	72,271
Concrete Landfilled	15,641
Contaminated Soil	85,278
Metal Recycled	5,970
Metal Landfilled	43
Mud Flow and Debris Landfilled	93
Regulated Asbestos-Containing Material	2,643
Total	424,973

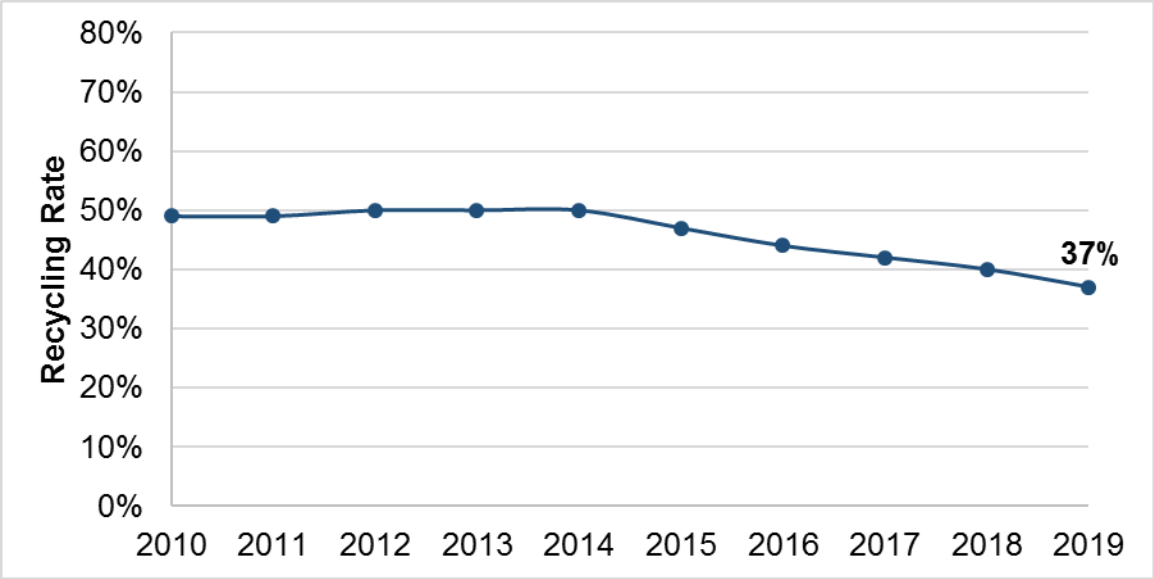
Recycling

Statewide Recycling Rate

To calculate the statewide recycling rate, CalRecycle subtracts the amount of material disposed in landfills and six disposal-related activities from estimated total generation.

According to CalRecycle calculations and comparison with reported disposal, the department estimates that 28.9 million tons of material were recycled (through source reduction, recycling, and composting) in 2019. California's 2019 statewide recycling rate was 37 percent (see Figure 7).

Figure 7. California's Statewide Recycling Rate Since 2010



Beverage Container Recycling

Californians recycled more than 18.4 billion beverage containers in 2019 as part of the Beverage Container Recycling Program. The overall recycling rate for beverage containers was 75 percent in 2019. About 97 percent of recycled beverage containers were collected at 1,253 recycling centers and through 603 curbside programs.

The passage of AB 3056 (Committee on Natural Resources, Chapter 907, Statutes of 2006) created the Plastic Market Development Payment Program to develop California markets for recycled empty plastic beverage containers. The passage of SB 854 (Committee on Budget and Fiscal Review, Chapter 51, Statutes of 2018) extended the Plastic Markets Development Fund through 2022 and allocated payments of up to $15 million dollars for fiscal year (FY) 2018-2019, and $10 million for the following years until 2022.

Recyclable Materials Exports

The following section details recyclable materials exports. After providing details on methods and data limitations, this section presents data on the amount of recyclable materials exported via seaborne container vessels from California ports in 2019. The following sections provide more detail by country of import and specific material types (e.g. unsorted mixed paper). Additionally, appendices one and two contain more detailed information and data tables.

Methods & Data Limitations

The data on recyclable materials exports presented in this report come primarily from the World Institute for Strategic Economic Research (WISERTrade) Database unless otherwise noted [(2)]. The most common mode of international export of recyclable materials from California is via seaborne container vessels. These vessels backhaul recyclable materials to countries in Asia and other parts of the world after delivering goods to American markets. WISERTrade also includes some information regarding materials exported by air, but this is not a typical means for exporting recyclable materials from California. This section includes data available for seaborne recyclable materials exports.

WISERTrade includes data on all material exports from California ports. The Harmonized System (HS) code is an international standard that assigns numeric codes to traded commodities and is used to identify recyclable commodities from the database. To provide the estimates in this report, specific recyclable commodities were combined into custom groups to represent common recyclable categories by type or purpose (e.g. nonferrous metal). All weights shown are in short tons, equivalent to 2,000 pounds, or million tons. WISERTrade also reports vessel value in U.S. dollars (USD)[†]. The data presented are for calendar year 2019 and were accessed in March 2020.

One of the main data limitations of this report is that material is reported by port of export (by state) rather than by origin of material exported. Ports in other states may export materials that were generated in California, and materials generated out of state can also be exported via California ports. Materials may also be transported out of the state by truck and rail. The data presented in this section do not account for these factors.

[†]The “vessel value,” or the free alongside ship value, is the value of exports at the U.S. seaport, airport, or border port of export, based on the transaction price, including inland freight, insurance, and other charges incurred in placing the merchandise alongside the carrier at the U.S. port of exportation. The value, as defined, excludes the cost of loading the merchandise aboard the vessel and any charges or transportation costs beyond the port of exportation.

Table 3. Examples of Material Types Found in Each Recyclable Material Category

Recyclable Material Category	Material Types in Category
Batteries	Waste and scrap of batteries and electric storage batteries
Chemical Pulp	Other paper made mainly of bleached chemical pulp
Copper Wire	Copper wire waste and scrap
Ferrous Metal	Ferrous metal waste and scrap
Glass	Cullet and other waste scrap glass
High-grade Paper	Office paper scrap, deinked waste paper, and paperboard
Mechanical Pulp	Other paper made mainly of mechanical pulp
Mixed Plastics 3-7	Resin types: polymers of vinyl (PV), polystyrene (PS), other plastic not PET
Nonferrous Metal	Aluminum cans, brass, copper (excluding copper wire), zinc, tin, tungsten, and other metals, waste, and scrap
OCC and Kraft Paper	Old corrugated cardboard (OCC), brown paperboard, kraft paper
Other Miscellaneous Mixed Paper	Mechanical pulp paper, chemical pulp paper, newsprint
Plastics 1-2	Resin types: polyethylene, polyethylene terephthalate (PET), PET scrap
Tire and Rubber Scrap	Waste parings and scraps of rubber, and retreads of tires
Unsorted Mixed Paper	Unsorted mixed paper
Used Oil and Grease	Waste oils made of polychlorinated biphenyls (PCBs), and other grease and light oils
Worn Clothing	Worn clothing and other worn items, and rags

Total Seaborne Recyclable Materials Exports

Based on the 2019 WISERTrade data, 14.4 million tons of recyclable materials were exported from California ports to international markets. Compared to 2018, the tonnage decreased in 2019 by about one million tons (see Figure 8). Recyclable materials exported from California ports had a vessel value of about $4.8 billion (see Figure 9). The total vessel value decreased by approximately $770 million since 2018. Recyclable materials accounted for 22 percent of the 64.5 million tons of all material exported from California.

Figure 8. Seaborne Recyclable Materials Exports from California from 2010 to 2019, by Weight

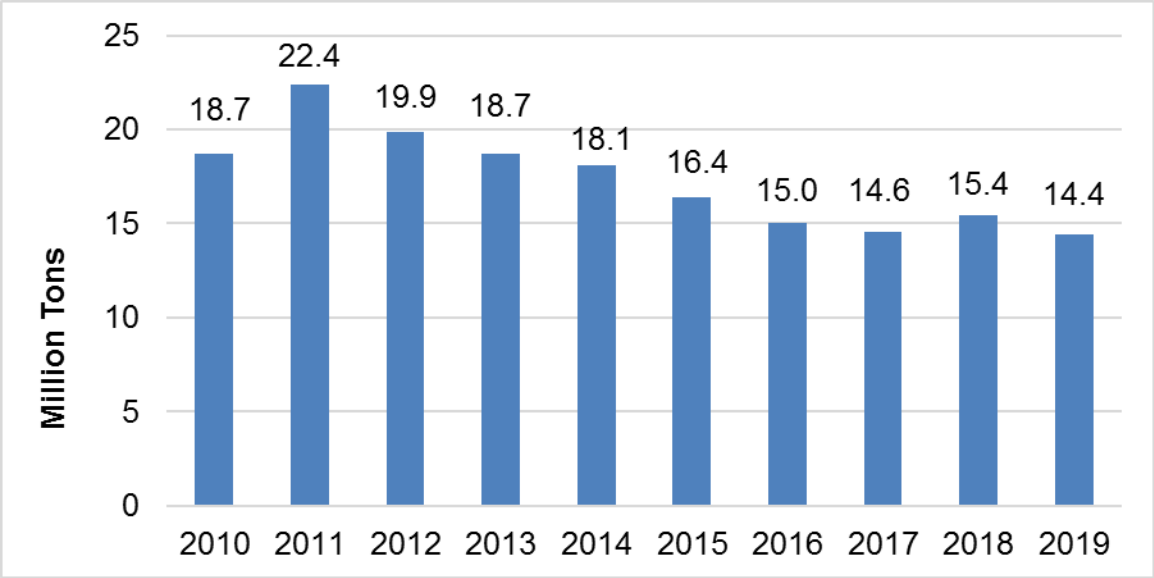
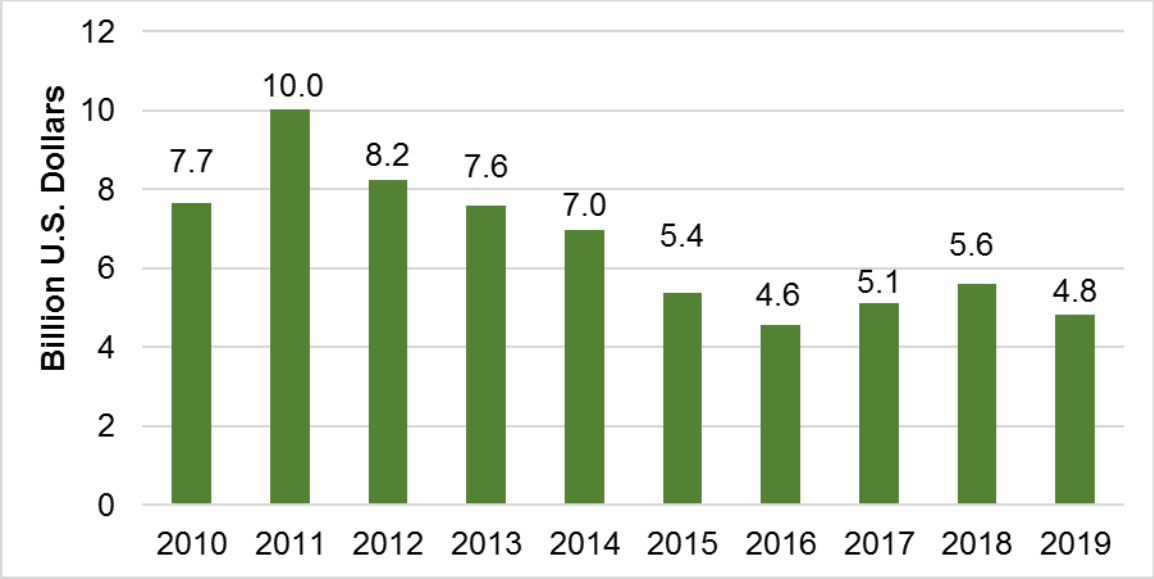


Figure 9. Seaborne Recyclable Materials Exports from California from 2010 to 2019, by Vessel Value



Tables 4 and 5 provide a summary of the recyclable materials exported from California ports in 2019. Table 4 provides the weight (tons) of recyclable materials exported by material category in 2018 and 2019, including the percent change in weight from 2018 to 2019. Table 5 provides the vessel value (USD) of recyclable materials exported by material category in 2018 and 2019, including the percent change in vessel value from 2018 to 2019.

Table 4. Seaborne Recyclable Materials Exports from California for 2018 and 2019, by Weight

Material Category	2018 Tons	2019 Tons	Tonnage Change (Tons)	Percent Change
Ferrous Metal	5,227,278	5,427,865	200,587	4%
OCC and Kraft Paper	5,677,830	5,150,834	-526,996	-9%
Other Misc. Paper	2,097,181	1,673,280	-423,900	-20%
*Mechanical Pulp Paper**	*1,293,955*	*1,229,364*	*-64,591*	*-5%*
*Chemical Pulp Paper**	*132,789*	*95,451*	*-37,337*	*-28*
Non-Ferrous Metal	1,010,362	982,584	-27,778	-3%
Unsorted Mixed Paper	643,967	611,929	-32,038	-5%
Worn Clothing	131,988	133,515	1,527	1%
Plastics 1 and 2	196,921	107,541	-89,380	-45%
High Grade Paper	103,191	107,374	4,183	4%
Mixed Plastics 3-7	199,085	62,622	-136,463	-69%
Tires/ Rubber	54,041	50,757	-3,284	-6%
Copper Wire	22,277	33,886	11,609	52%
Used Oil and Grease	25,703	27,400	1,697	7%
Batteries	25,910	16,593	-9,317	-36%
Glass	1,568	2,696	1,128	72%
Total Recyclable Material Exports**	15,418,798	14,399,816	-1,018,981	-7%

**Mechanical Pulp Paper and Chemical Pulp Paper are sub-categories included within the material category of Other Miscellaneous Paper.*

***The total of all seaborne recyclable materials exports includes material types not included in the selected material categories listed in the table.*

Table 5. Seaborne Recyclable Materials Exports from California for 2018 and 2019, by Vessel Value

Material Category	2018 Vessel Value (USD)	2019 Vessel Value (USD)	Vessel Value Change (USD)	Percent Change
Nonferrous metal	$2,033,931,968	$1,678,859,201	-$355,072,767	-17%
Ferrous metal	$1,795,764,446	$1,617,362,831	-$178,401,615	-10%
OCC and Kraft paper	$861,797,738	$714,822,248	-$146,975,490	-17%
Other Misc. Paper	$374,403,765	$294,622,205	-$79,781,560	-21%
*Mechanical Pulp Paper**	*$245,122,717*	*$230,090,805*	*-$15,031,912*	*-6%*
*Chemical Pulp Paper**	*$29,111,211*	*$21,342,273*	*-$7,768,938*	*-27%*
Copper Wire	$121,264,375	$168,443,857	$47,179,482	39%
Worn Clothing	$107,194,743	$105,784,941	-$1,409,802	-1%
Unsorted Mixed Paper	$81,421,942	$74,107,785	-$7,314,157	-9%
Glass	$5,734,788	$41,242,997	$35,508,209	619%
Plastics 1 and 2	$71,856,342	$40,278,399	-$31,577,943	-44%
High-Grade Paper	$27,392,929	$24,415,641	-$2,977,288	-11
Batteries	$35,484,664	$23,495,032	-$11,989,632	-34%
Mixed Plastics 3-7	$55,425,865	$18,338,696	-$37,087,169	-67%
Tires/Rubber	$12,044,587	$11,138,512	-$906,075	-8%
Used Oil and Grease	$5,982,532	$6,465,461	$482,929	8%
Total Recyclable Materials Exports**	$5,590,595,481	$4,823,080,635	-$767,514,846	-14%

**Mechanical Pulp Paper and Chemical Pulp Paper are sub-categories included within the material category of Other Miscellaneous Paper.*

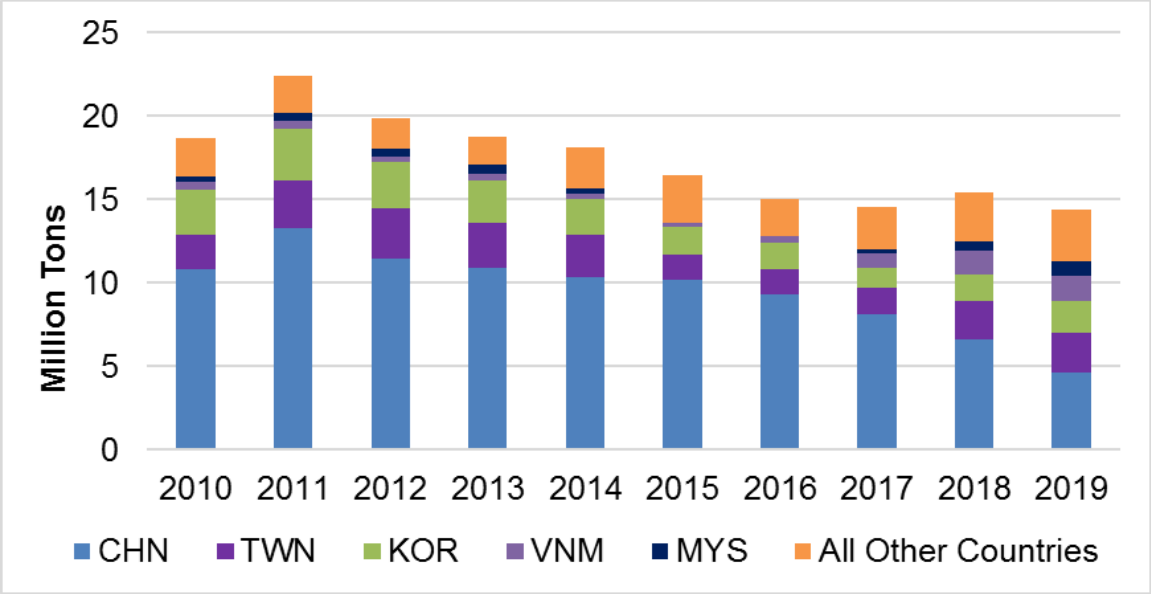
***The total of all seaborne recyclable materials exports includes material types not included in the selected material categories listed in the table.*

Country of Import

China has been the largest importer of California's recyclable materials since 2000. In 2019, China imported 32 percent of all seaborne recyclable materials by weight and 23 percent by vessel value.

The five countries importing the most recyclable materials from California in 2019 were, in order of greatest tonnage: China, Taiwan, Republic of Korea, Vietnam, and Malaysia (see Figure 10). Out of the top five countries, only China's total recyclable imports declined in 2019 compared to 2018, by weight.

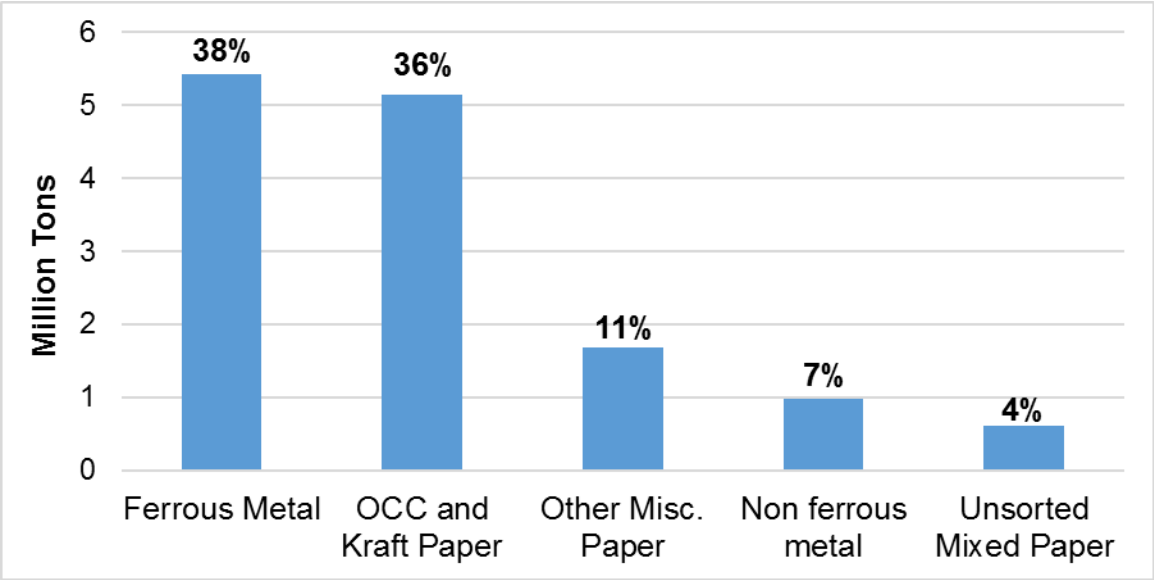
Figure 10. Seaborne Recyclable Materials Exports from California by Country of Import from 2010 to 2019, by Weight



Material Type

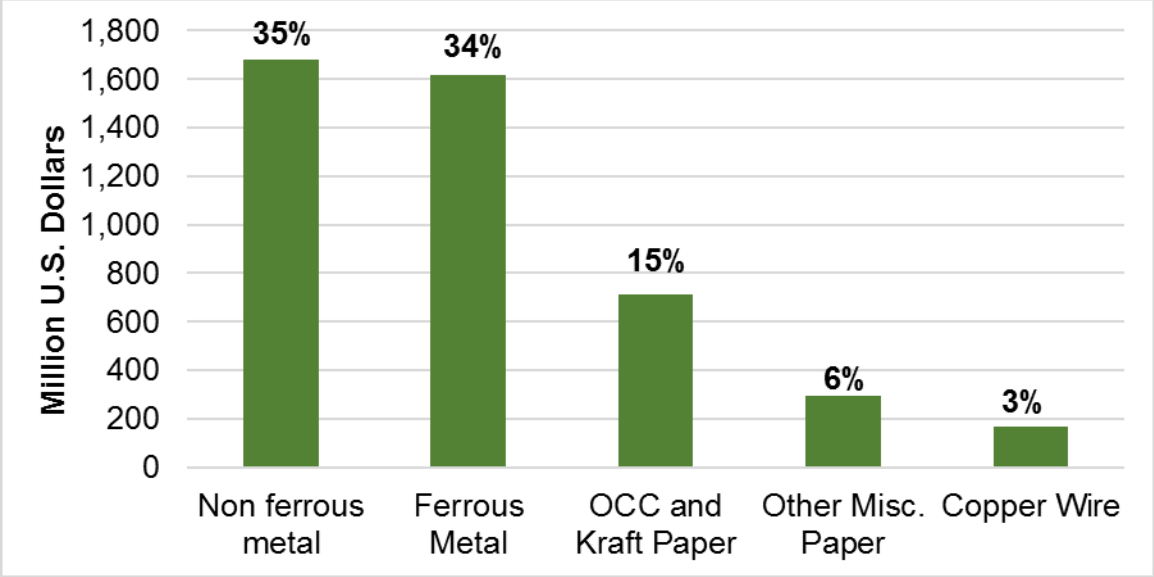
The five recyclable material categories with the most weight exported from California in 2019 were ferrous metal, OCC and kraft paper, other miscellaneous mixed paper, nonferrous metal, and unsorted mixed paper (see Figure 11). By vessel value, the five greatest exported recyclable material types were: nonferrous metal, ferrous metal, OCC and kraft paper, other miscellaneous mixed paper, and copper wire (see Figure 12).

Figure 11. Top Five Exported Recyclable Materials from California in 2019, by Weight



Information presented in terms of million tons and percent of total seaborne recyclable materials exports (14.4 million tons in 2019). Figure only includes top five exported recyclable materials, and thus does not sum to 100 percent.

Figure 12. Top Five Exported Recyclable Materials from California in 2019, by Vessel Value



Information presented in terms of million USD and percent of total seaborne recyclable materials exports ($4.8 billion USD in 2019). Figure only includes top five exported recyclable materials, and thus does not sum to 100 percent.

Old Corrugated Cardboard (OCC) and Kraft Paper

Recyclable materials exports of OCC and Kraft paper decreased from about 5.7 million tons in 2018 to 5.2 million tons in 2019 (see Figure 13). The vessel value also decreased from $862 million to $715 million in 2019 (see Figure 14).

Figure 13. Seaborne Exports of OCC and Kraft Paper from California by Country of Import from 2010 to 2019, by Weight

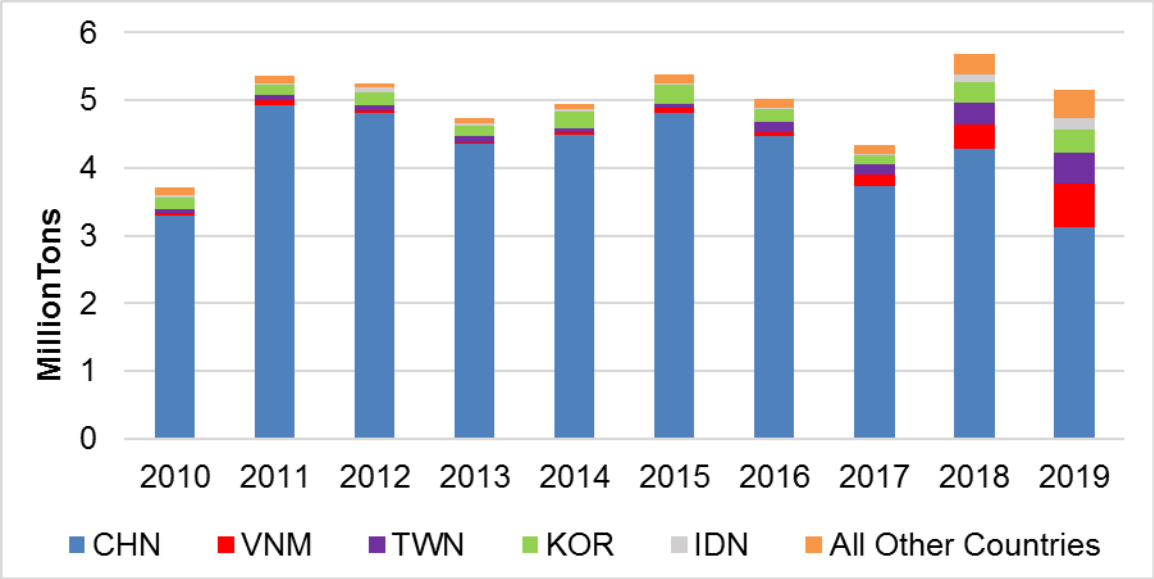
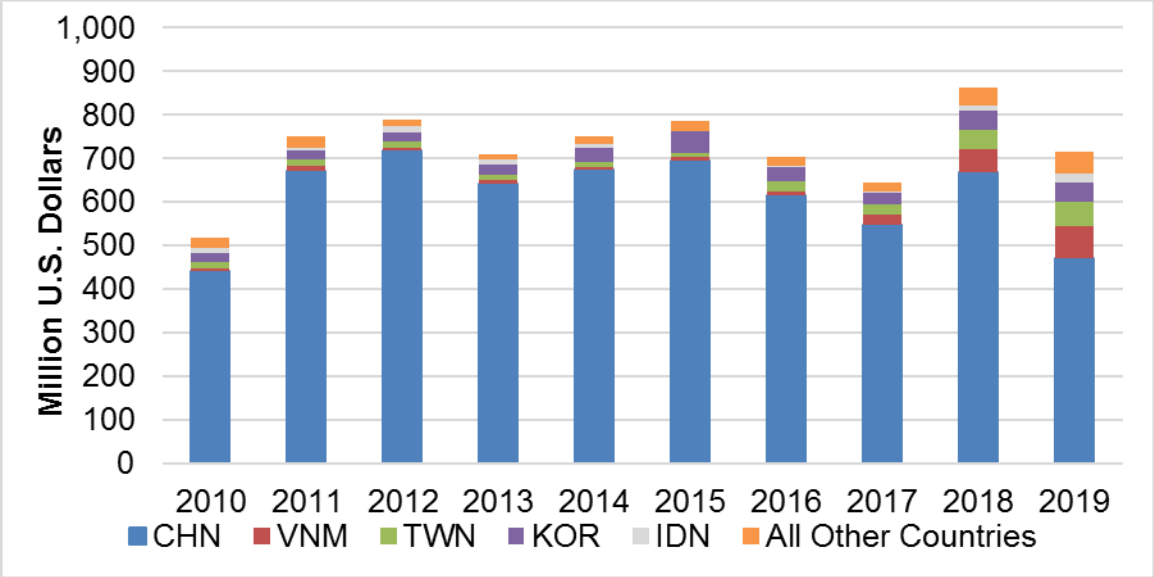


Figure 14. Seaborne Exports of OCC and Kraft Paper from California by Country of Import from 2010 to 2019, by Vessel Value



Plastics 1 and 2

Recyclable materials exports of Plastics 1 and 2 continued to decrease from about 197 thousand tons in 2018 to about 108 thousand tons in 2019 (see Figure 15). The vessel value also decreased from $72 million to about $40 million in 2019 (see Figure 16).

Figure 15. Seaborne Exports of Plastics 1 and 2 from California by Country of Import from 2010 to 2019, by Weight

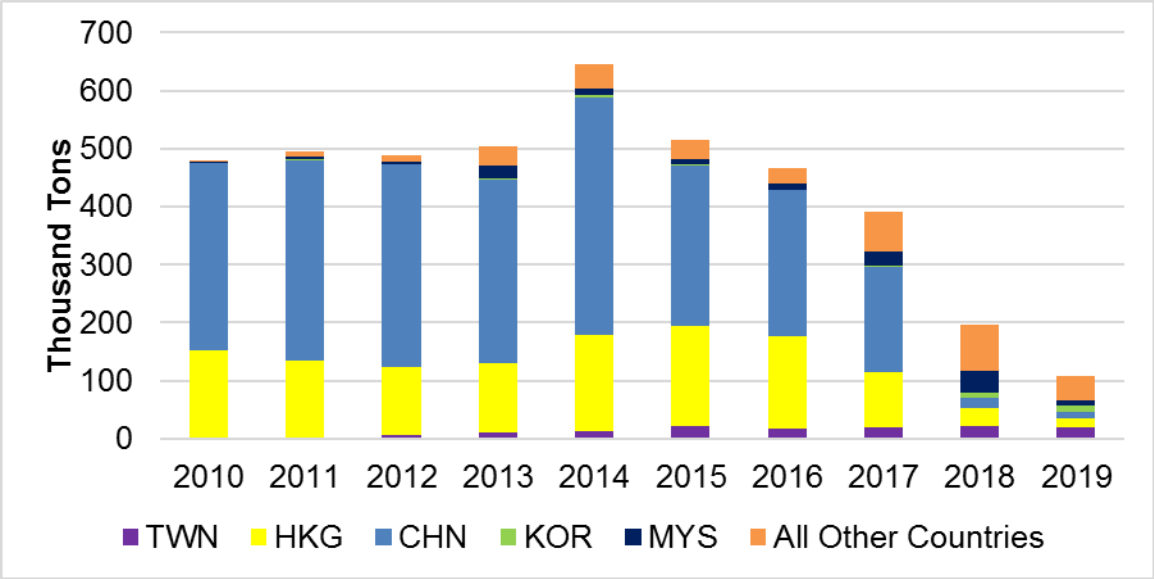
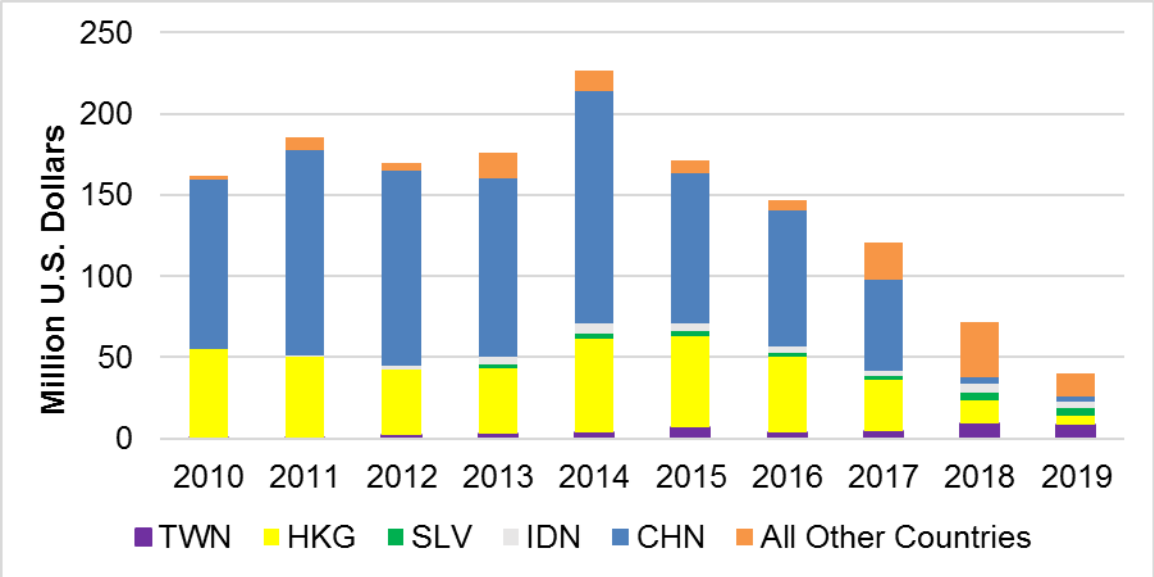


Figure 16. Seaborne Exports of Plastics 1 and 2 from California by Country of Import from 2010 to 2019, by Vessel Value



Mixed Plastics 3 through 7

Recyclable materials exports of Mixed Plastics 3 through 7 decreased from almost 200 thousand tons in 2018 to less than 63 thousand tons in 2019 (see Figure 17). The vessel value also decreased from $55 million in 2018 to about $18 million in 2019 (see Figure 18).

Figure 17. Seaborne Exports of Mixed Plastics 3 through 7 from California by Country of Import from 2010 to 2019, by Weight

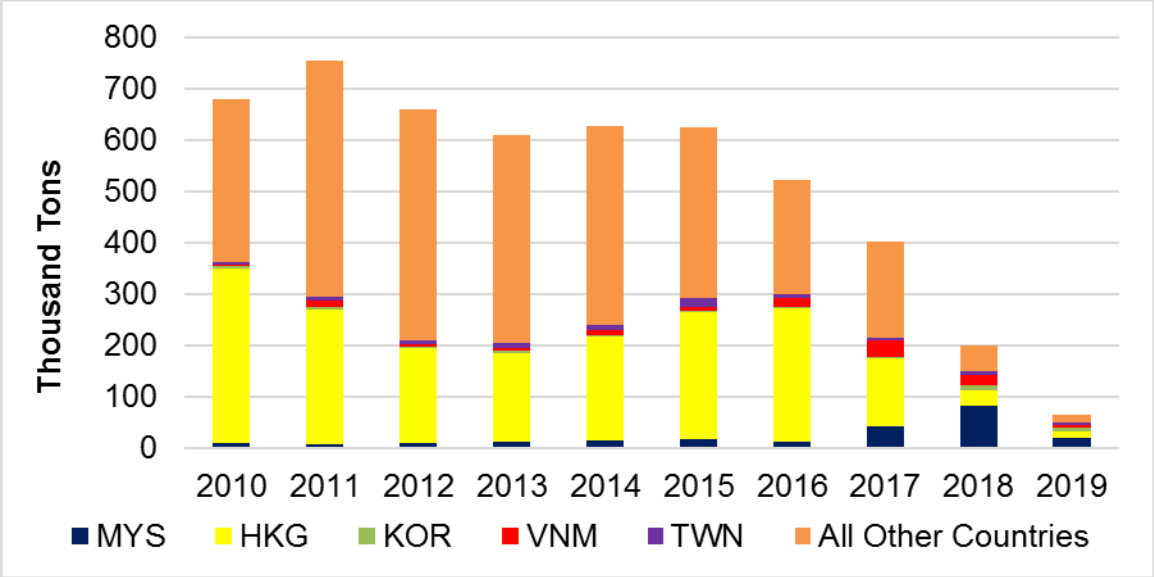
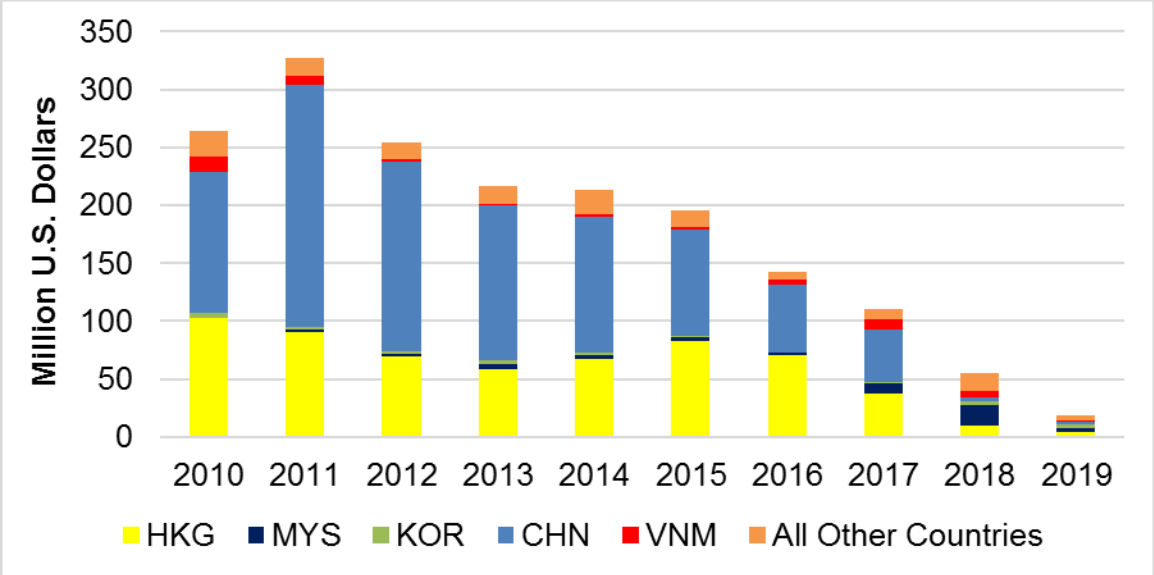


Figure 18. Seaborne Exports of Mixed Plastics 3 through 7 from California by Country of Import from 2010 to 2019, by Vessel Value



Nonferrous Metals

Recyclable materials exports of Nonferrous Metals decreased from about 940 thousand tons in 2018 to about 920 thousand tons in 2019 (see Figure 19). The vessel value also decreased from about $2 billion to $1.7 billion in 2019 (see Figure 20).

Figure 19. Seaborne Exports of Nonferrous Metals from California by Country of Import from 2010 to 2019, by Weight

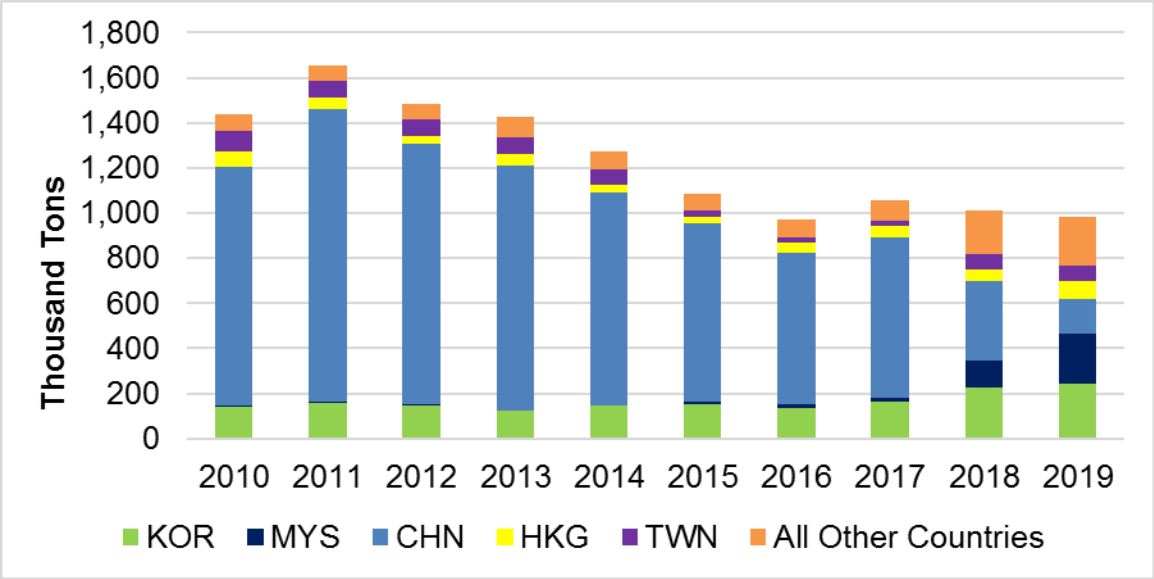
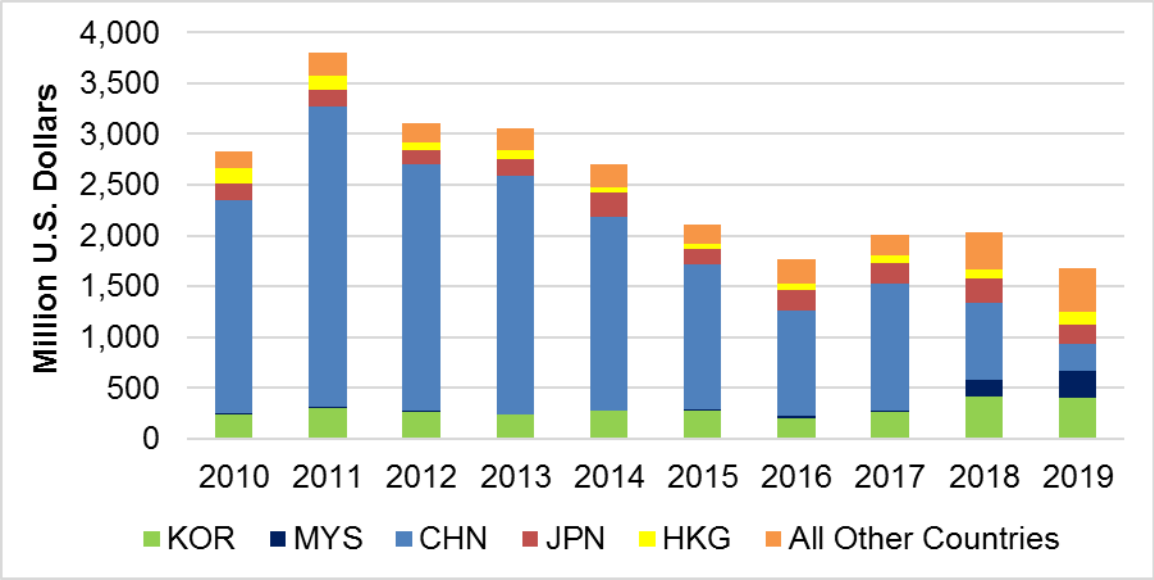


Figure 20. Seaborne Exports of Nonferrous Metals from California by Country of Import from 2010 to 2019, by Vessel Value



Import Restrictions & Policies

Multiple countries have implemented policies related to international trade of recyclable materials. Table 6 provides a summary of several country-specific recyclable scrap import policies from 2013 to 2019.

Table 6. Recyclable Scrap Import Policies Through 2019

Country	Year	Policy
China	2013	Created the Green Fence Policy which restricted the importation of recyclable scrap and increased requirements for inspections
China	2017	Introduced the National Sword Policy to stop the smuggling of illegal scrap imports
China	2017	Implemented the National Sword Policy which banned the import of twenty-four materials beginning December 31, 2017
China	March 2018	Created the Blue Sky Policy which enacted tougher import contamination standards as well as stringent inspection standards and enforcement measures
China	April 2018	Announced additional material bans to go into effect at the end of 2018 and the beginning of 2019
China	May 2018	Enacted a 100 percent inspection rate of recyclable scrap material at all ports and shut down U.S. pre-shipment approvals for one month
China	July 2018	Announced the goal of banning all recyclable material imports by 2020
China	December 2018	Announced restrictions on scrap steel and aluminum to begin on July 1, 2019
Vietnam	May 2018	Imposed a temporary ban on scrap plastic at multiple ports and enacted new requirements for recovered fiber imports
Vietnam	August 2018	Stopped issuing new scrap plastic import licenses
Vietnam	October 2018	Banned plastic scrap until further notice and released new inspection guidelines
Indonesia	May 2018	Required inspection of all scrap paper and plastic imports
Thailand	June 2018	Implemented an indefinite ban on scrap plastic and electronic imports
Thailand	August 2018	Passed a resolution to ban scrap plastic imports within two years
Malaysia	July 2018	Stopped issuing scrap plastic import permits for three months
Malaysia	October 2018	Imposed a new import tax on scrap plastics and tightened import permit requirements
Taiwan	October 2018	Limited fiber and plastic scrap imports
Vietnam	March 2019	Announced a new plan to ban all plastic scrap imports by 2025
Malaysia	May 2019	Rerouted non-recyclable plastic scrap back to countries of origin
China	December 2019	Announced intention to ban all recycled fiber imports by 2021

Highlights from CalRecycle in 2019

Goals & Mandates

CalRecycle implements statutes and policies to achieve statewide mandates and other goals that protect California's resources, public health and safety, and environment (see Tables 7 and 8 for a partial list of goals and mandates).

Table 7. Snapshot of CalRecycle's New Goals & Mandates from 2019

Relevant Policies & Legislation	Goals & Mandates
The California Beverage Container Recycling and Litter Reduction Act (AB 54, Ting, Chapter 793, Statutes of 2019)	Required CalRecycle to report to the Legislature on options to expand, or otherwise reconfigure, convenience zones. Extended the approval deadline of and provided $5 million for the Beverage Container Recycling Pilot program.
The California Recycling Market Development Act (AB 1583, Eggman, Chapter 690, Statutes of 2019)	Directed CalRecycle to convene a Statewide Commission on Recycling Markets and Curbside Recycling, extended the sunset on CalRecycle's Recycling Market Development Zone (RMDZ) loan program, and removed certain requirements for rigid plastic bottles and plastic containers sold in California.
Dual Stream Recycling Programs (AB 815, Aguiar-Curry, Chapter 182, Statutes of 2019)	Specified that CalRecycle will consider whether a jurisdiction has adopted a dual-stream collection system when determining if the jurisdiction has made a good faith effort to implement its source reduction and recycling element (SRRE).
Recycling and Organic Waste Bins (AB 827, McCarty, Chapter 441, Statutes of 2019)	Required commercial waste and organic waste generators to provide recycling and organic waste bins to customers and required CalRecycle to develop model signage by July 1, 2020.

Table 8. Snapshot of CalRecycle's Goals & Mandates Prior to 2019

Relevant Policies & Legislation	Goals & Mandates
Pharmaceutical and Sharps Waste Stewardship (SB 212, Jackson, Chapter 1004, Statutes of 2018)	Required covered entities to implement stewardship programs for the collection and proper disposal of drugs and home-generated sharps waste (SB 212 rulemaking information).
Sustainable Packaging for the State of California Act (SB 1335, Allen, Chapter 610, Statutes of 2018)	Required food service facilities located in or operating on state-owned property to only use food service packaging that is reusable, recyclable, or compostable, as determined by CalRecycle (SB 1335 rulemaking information).
Carpet Stewardship Law (AB 1158, Chu, Chapter 794, Statutes of 2017)	Established a 24 percent recycling goal for postconsumer carpet by 2020 and established an advisory committee to provide recommendations on carpet stewardship plans.
Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reductions (SB 1383, Lara, Chapter 395, Statutes of 2016)	Required a 50 percent reduction in the level of the statewide disposal of organic waste by 2020 and a 75 percent reduction by 2025. Also, required that 20 percent of currently disposed edible food be recovered for human consumption by 2025 (more information in the progress report).
Recycling and Disposal Facility Reporting (AB 901, Gordon, Chapter 746, Statutes of 2015)	Required certain solid waste and recycling entities to report material flows directly to CalRecycle (more information on the Recycling and Disposal Reporting System).
Single-Use Carryout Bag Ban (SB 270, Padilla, Chapter 850, Statutes of 2014)	Prohibited most grocery stores, retail stores with a pharmacy, convenience stores, food marts, and liquor stores from providing single-use plastic carryout bags to customers. Stores may provide a reusable grocery bag or recycled paper bag to a customer at the point of sale for a charge of at least 10 cents.
Mandatory Commercial Organics Recycling (AB 1826, Chesbro, Chapter 727, Statutes of 2014)	Established requirements for businesses to recycle organic waste based on amount of waste generated, ramping up to all businesses that generate four cubic yards of solid waste on January 1, 2019.
Mandatory Commercial Recycling (AB 341, Chesbro, Chapter 476, Statutes of 2011)	Established statewide goal of 75 percent source reduction, recycling, and composting by 2020 and required businesses to arrange for recycling services by July 1, 2012.
California Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989)	Established 50 percent diversion requirement for jurisdictions.
Beverage Container Recycling and Litter Reduction Act of 1986 (AB 2020, Margolin, Chapter 1290, Statutes of 1986)	Established 80 percent recycling goal for aluminum, glass, plastic, and bimetal beverage containers sold in California.

Grants, Loans, & Other Economic Support

CalRecycle has continued its successful history of administering grants, payments, and loans to help develop and maintain the recycling collection and processing infrastructure. In 2019, CalRecycle awarded over $105 million across 897 entities through its grant and loan programs.

Grants

Greenhouse Gas Reduction Fund Grants

Grant programs funded by the Greenhouse Gas Reduction Fund (GGRF), part of California Climate Investments, target infrastructure development and program support for projects that reduce greenhouse gas emissions associated with waste and materials, including food waste prevention and rescue. In 2019, CalRecycle approved the criteria for the new Community Composting for Green Spaces Grant Program. Projects awarded in 2019 through GGRF grant programs will reduce an estimated 86,192 metric tons of CO_2 equivalent that would otherwise be generated in California. Information on specific GGRF grant programs awarded in 2019 can be found in Table 9.

Table 9. Greenhouse Gas Reduction Fund Grants Awarded in 2019

Grant Program	Number of Awardees	Money Awarded
Recycled Fiber, Plastic, and Glass Grant Program	5	$11,675,626
Food Waste Prevention and Rescue Grant Program	36	$11,263,671

Beverage Container Recycling Grants

In 2019, CalRecycle awarded over $12 million across 415 entities to assist with convenient beverage container recycling and to encourage and expand development of uses for beverage container materials (see Table 10). Grants awarded in 2019 will help keep an estimated 26 million pounds of beverage containers out of the landfill. SB 458 (Wiener, Chapter 649, Statutes of 2017) established the Beverage Container Recycling Pilot Program and the subsequent AB 54 (Ting, Chapter 793, Statutes of 2019) was signed into law to allow for greater flexibility and funding to support pilot projects. In 2019, criteria for the new Beverage Container Recycling Pilot Program was approved.

Table 10. Beverage Container Recycling Grants Awarded in 2019

Grant Program	Number of Awardees	Money Awarded
Beverage Container Recycling City/County Payment Program	405	$9,564,950
Beverage Container Recycling Grant Program	10	$2,689,256

Tire Recycling Management Fund Grants

In 2019, CalRecycle awarded almost $13 million across 104 entities from the Tire Recycling Management Fund to decrease the stockpiling of waste tires and to decrease the number of tires going to landfill (see Table 11). Grants awarded in 2019 will help keep over four million tires out of the landfill. These awards target business assistance, market development, amnesty events, cleanups, and local jurisdiction enforcement activities related to waste tire storage and hauling.

Table 11. Tire Recycling Management Fund Grants Awarded in 2019

Grant Program	Number of Awardees	Money Awarded
Local Government Waste Tire Amnesty Grants	38	$1,660,776
Rubberized Pavement (TRP) Grant Program	19	$2,173,397
Tire-Derived Aggregate (TDA) Grants	1	$339,918
Tire-Derived Product (TDP) Grant Program	6	$647,216
Tire Incentive Program	7	$2,189,141
Local Government Waste Tire Enforcement Grants	33	$5,917,044

Other Grants

In 2019, fourteen certified Local Conservation Corps (LCC) grantees operated comprehensive youth development programs for 18 to 25-year-old adults. LCC programs include recycling and conservation activities, education, and career education programs. The LCC Grant Program is funded through a combination of four material funds: 1) Beverage Container Recycling Fund, 2) the Electronic Waste and Recovery and Recycling Account, 3) the California Tire Recycling Management Fund, and 4) the California Used Oil Recycling fund.

In Fiscal Year 2019-20 (July 2019-June 2020), the LCCs collected over three million pounds of beverage container material, more than ninety thousand waste tires, nearly four million pounds of e-waste, and conducted signage reviews at over 1,700 Certified Used Oil Collection Centers.

In 2019, CalRecycle addressed illegal solid waste dumping issues on farms, ranches and agriculturally zoned property in California through its Farm and Ranch Cleanup and Abatement Grant Program. The Department awarded over $772 thousand dollars to twelve applicants. These awards addressed cleanup and recycling of household waste, appliances, tires, used oil, automobiles and scrap metal, construction debris, electronic waste and green waste, and abatement through methods such as fencing and signage that prevent future illegal dumping on these properties.

Table 12. Other Grants Awarded by CalRecycle in 2019

Grant Program	Number of Awardees	Money Awarded
Household Hazardous Waste Grant Program	18	$1,500,000
Local Conservation Corps Grant Program	14	$23,703,137
Local Enforcement Agency Grant Program	59	$1,404,000
Used Oil Recycling Grants	207	$10,854,519
Farm and Ranch Solid Waste Cleanup and Abatement Grant Program	12	$772,506

Loans

CalRecycle provides low-interest loans, technical assistance, and free product marketing to businesses, non-profit entities, and government entities. The Recycling Market Development Zone (RMDZ) loans are available to recycling manufacturers located in one of the 39 zones throughout California that use non-hazardous solid waste materials (organics, fiber, plastic, glass, construction and demolition, and tires) destined for a landfill to manufacture recycled-content products. The Greenhouse Gas (GHG) Reduction loans are available to recycling manufacturers located anywhere in California that divert non-hazardous solid waste materials from a landfill, reduce greenhouse gas emissions, and make recycled-content products (see table 13).

Table 13. CalRecycle Loan Program Awardees in 2019

Loan Program	Number of Awardees	Money Awarded
Recycling Market Development Zone Loan Program	5	$7,050,000
Greenhouse Gas Reduction Loan Program	2	$4,000,000

Enforcement

Local Government Compliance and Enforcement

Local jurisdictions, along with their industry partners, direct the flow of waste and influence the ultimate destinations of materials. CalRecycle staff enforces the fifty percent diversion mandate of AB 939 and the mandatory commercial recycling mandates [AB 341, Recycling of Commercial Solid Waste (MCR) and AB 1826, Recycling of Organic Waste (MORe)]. In 2019, CalRecycle was conducting compliance evaluations on eleven jurisdictions, including five new jurisdictions that were referred to enforcement.

As of December 31, 2019, the status of the eleven jurisdictions under review included:

- Five jurisdiction compliance reviews completed (resulting in the issuance of two compliance orders and three findings of good faith effort)
- Six jurisdictions undergoing continual compliance evaluation

CalRecycle monitored six other jurisdictions for implementation of compliance orders issued in previous years, three of which completed the terms of their compliance orders in 2019.

Over the last three years (2017-2019), CalRecycle issued a total of eight compliance orders to jurisdictions.

Beverage Container Recycling Program Enforcement

In 2019, the Division of Recycling, Recycling Program Enforcement Branch (RPEB) continued to create and implement new enforcement tools and measures in order to reduce fraud in the program. The branch developed a new enforcement program in 2018 and hiring began in 2019 for the Data Analysis and Risk Evaluation (DARE) unit.

Using the tools developed from DARE, RPEB was able to identify fraud and recommend revocation for 38 recycling facilities in 2018 and 2019. In comparison, there were only 34 recommendations in the four years prior (2014-2017). In 2019, the CalRecycle Legal Office filed more than $35 million dollars in accusations and the Probationary Review

unit assessed more than $5.5 million dollars in restitution and civil penalties. Our partners with the California Department of Justice made 29 total arrests in 2019.

Extended Producer Responsibility

Mattresses

SB 254 (Hancock, Chapter 388, Statutes of 2013) established an industry-run, statewide extended producer responsibility (EPR) program to increase the recovery and recycling of mattresses. The Mattress Recycling Council (MRC) is the certified stewardship organization responsible for developing, implementing, and administering the program, under CalRecycle's oversight. The MRC collected 1.4 million mattresses in 2019. Over 29,000 tons of materials were recycled, donated, reused, renovated, or converted to biomass in 2019. Of total mattress weight, there was an increase of 5.5 percent (to a total of 70.5 percent) that was recycled, reused, or sent to biomass facilities compared to 2018. Overall, 64.2 percent of material was recycled into commodities, 3.6 percent was sent to biomass conversion, and 2.6 percent was reused or renovated for a total of 70.5 percent recycled and 29.5 percent was landfilled.

Carpet

CalRecycle also oversees the carpet EPR program mandated by AB 2398 (Perez, Chapter 681, Statutes of 2010) and amended by AB 1158 (Chu, Chapter 794, Statutes of 2017) and AB 729 (Chu, Chapter 680, Statutes of 2019). Carpet America Recovery Effort (CARE) reported that 304 million pounds of carpet were discarded in 2019 with 58 million pounds of recycled output resulting in a 19 percent recycled output rate. CARE had its highest recycling rate quarter yet in the last quarter of 2019 with 22.5 percent.

Paint

The California Paint Stewardship Law (AB 1343, Huffman, Chapter 420, Statutes of 2010) created an EPR program to reduce the generation of paint waste, promote its reuse, and properly manage unwanted leftover paint. PaintCare is the certified stewardship organization responsible for developing, implementing, and administering the program with oversight from CalRecycle. PaintCare reported that 3.9 million gallons of architectural paint were processed in FY 2018-19. Of the 3.2 million gallons of latex paint that were processed, 71 percent was recycled back into latex paint, and four percent was reused. By the end of FY 18-19, PaintCare had partnered with 766 collection sites to provide 98.5 percent of California's population with access to a paint drop-off site within 15 miles of their residence.

Sharps & Pharmaceuticals

SB 212 (Allen, Chapter 1004, Statutes of 2018) was passed to establish safe and convenient disposal options for pharmaceutical drug and home-generated sharps

waste. In 2019, CalRecycle began the official rulemaking process. Statute requires CalRecycle to adopt regulations with an effective date of no later than January 1, 2021.

Measurement

Recycling and Disposal Reporting System

AB 901 (Gordon, Chapter 746, Statutes of 2015) established a mandate to increase solid waste and recycling reporting through a new database application called the Recycling and Disposal Reporting System (RDRS). In the first half of 2019, CalRecycle notified entities that are required to register with RDRS and created resources to aid entities with compliance. Registration began on April 1, 2019 and over 1,200 reporting entities have registered to date. RDRS reporting started in the third quarter of 2019, and data for disposal and waste tracking for 2019 was split between the old electronic Disposal Reporting System (eDRS) for the first two quarters and RDRS for last two quarters. As of the third quarter of 2019, RDRS serves as the main electronic reporting system for disposal and recycling data in California.

Waste Characterization Studies

CalRecycle gathers information on the types and amounts of specific materials in the waste stream in California through waste characterization studies. These studies are conducted periodically, including the most recent 2018 Waste Characterization Study. In 2019, CalRecycle completed data collection, fieldwork and began analysis for the 2018 study. This study included a disposal-based component and a generator component that focused on food waste. For the first time, CalRecycle analyzed food waste by splitting the category into eight component categories based on edibility and donatability to aid in creating a baseline for SB 1383 (Lara, Chapter 395, Statutes of 2016).

Conclusion

California has clear and ambitious environmental goals for reducing waste and managing materials. In 2019, California's recycling rate was 37 percent, meaning that California is unlikely to meet the 75 percent recycling goal by 2020 as set out in AB 341. CalRecycle remains committed to achieving this goal. Implementation of new legislation, such as SB 1383 and SB 1335, are important steps in reducing waste and building markets for recycled materials.

CalRecycle will continue to work with stakeholders and the legislature to develop new strategies and tools to increase source reduction, reuse, and recycling. CalRecycle will also continue to monitor the state's progress, through a robust mix of research and reporting, and will use the information gained to make necessary and scientifically sound course corrections and innovations to protect California's resources, climate, and communities.

Appendix 1: Table Data for Figures in the Report

Figure 1 Data Table. Estimate Management of 77.5 Million Tons of Materials Generated in California in 2019

The figure displays tonnage estimates for how the 77.5 million tons of materials generated in California in 2019 were managed, including a percent of total generation for each.

Management Option	Tons	Percent of Total Generation
Landfill	42,246,199	55%
Exported Recyclables	14,399,816	19%
Compost/Anaerobic Digestion/Mulch	9,522,164	12%
Source Reduction & Recycling	5,018,419	6%
Alternative Daily Cover (ADC)	3,901,563	5%
Beneficial Reuse	1,558,330	2%
Transformation	646,544	1%
Waste-Tire Derived Fuel	185,234	<1%
Alternative Intermediate Cover (AIC)	30,273	<1%
Engineered Municipal Solid Waste (EMSW)	6,603	<1%

CalRecycle derived quantities of landfilled waste, transformation, ADC, AIC, EMSW, and other beneficial reuse from the Disposal Reporting System (DRS) and Recycling and Disposal Reporting System (RDRS). CalRecycle calculated waste tire-derived fuel based on data reported to CalRecycle [(1)]. CalRecycle collected exported recyclables data from WISERTrade [(2).] CalRecycle collected estimates for materials composted, anaerobically digested, and mulched based on published reports [(3; 4)]

Figure 2 Data Table. California's Statewide Per Resident and Total Disposal from 2010 to 2019

The bar chart in this figure displays tons of landfill disposal and disposal-related activities from 2010 to 2019. The scatter plot displays the per resident total disposal rate, including disposal and disposal-related activities, in terms of pounds per resident per year.

Year	Landfill Disposal (Tons)	Disposal-Related Activities (Tons)	Per Resident Disposal (pounds per resident per year)
2010	30,403,163	6,627,901	5.4
2011	29,890,010	7,176,418	5.4
2012	29,268,861	7,292,221	5.3
2013	30,182,493	6,799,744	5.3
2014	31,195,061	6,611,871	5.4
2015	33,241,828	7,150,561	5.7
2016	35,197,922	7,495,276	6.0
2017	37,810,918	6,654,730	6.2
2018	39,918,872	6,336,633	6.4
2019	42,246,199	6,328,547	6.7

Data is from the DRS, RDRS with population from the California Department of Finance [(5)]. Accessed October 12, 2020.

Figure 3 Data Table. Disposal-Related Tonnage in California in 2019

The figure displays tons of material managed in disposal-related activities for six different activity types which totaled 6.3 million tons in California in 2019. Figure 3 also displays the percent of all disposal-related activities for each activity type.

Disposal-Related Activity	Tons	Percent of Total
Alternative Daily Cover (ADC)	3,901,563	62%
Other Beneficial Reuse	1,558,33	25%
Transformation	646,544	10%
Waste Tire-Derived Fuel	185,234	3%
Alternative Intermediate Cover (AIC)	30,273	0.5%
Engineered Municipal Solid Waste (EMSW)	6,603	0.1%

Data is from the DRS, RDRS and waste tire-derived fuel reports submitted to CalRecycle (1).

Figure 4 Data Table. Percent Change in Landfill Disposal Compared to Percent Change in Wages in California

This figure displays a year-over-year percent change in landfill disposal and wages from 1989 to 2019.

Year	Percent Change in Landfill Disposal	Percent Change in Wages
1989		7.8%
1990	-3.8%	7.4%
1991	-7.3%	2.0%
1992	-2.9%	3.9%
1993	-4.6%	1.1%
1994	-1.1%	2.6%
1995	-6.0%	3.9%
1996	-1.4%	5.3%
1997	4.2%	7.3%
1998	5.4%	8.8%
1999	0.5%	9.3%
2000	3.2%	12.9%
2001	-1.3%	1.5%
2002	0.2%	-0.3%
2003	5.0%	3.1%
2004	2.5%	6.0%
2005	2.8%	5.2%
2006	-2.5%	6.6%
2007	-5.5%	5.5%
2008	-10.5%	1.0%
2009	-14.1%	-5.2%
2010	-2.4%	1.9%
2011	-1.7%	4.2%
2012	-2.1%	6.6%
2013	3.0%	3.4%
2014	3.2%	6.2%
2015	6.2%	7.6%
2016	5.6%	4.6%
2017	6.9%	6.5%
2018	5.3%	5.8%
2019	5.5%	5.9%

Data is from the DRS, RDRS, and the Federal Bureau of Economic Analysis [6]*. Accessed October 13, 2020.*

Figure 5 Data Table. Landfill Disposal Compared to Number of Single-Family Housing Start by Permit in California

This figure displays tons of total landfill disposal and total single-family housing starts by permit from 1989 to 2019.

Year	Total Landfill Disposal (Tons)	Total Single-Family Housing Starts by Permit
1989	44,000,000	162,651
1990	42,400,000	103,819
1991	39,500,000	73,809
1992	38,400,000	76,187
1993	36,700,000	69,901
1994	36,300,000	77,115
1995	34,233,787	68,689
1996	33,774,203	74,923
1997	35,247,509	84,780
1998	37,247,145	94,298
1999	37,421,894	101,711
2000	38,640,282	105,595
2001	38,142,625	106,902
2002	38,221,926	123,865
2003	40,239,688	138,762
2004	41,251,652	151,417
2005	42,461,795	155,322
2006	41,418,514	108,021
2007	39,254,962	68,409
2008	35,519,205	33,050
2009	31,128,136	25,454
2010	30,403,163	25,526
2011	29,890,010	21,631
2012	29,268,861	27,560
2013	30,182,493	36,991
2014	31,195,061	37,091
2015	33,241,828	44,896
2016	35,197,922	49,208
2017	37,810,918	55,827
2018	39,918,872	59,049
2019	42,246,199	58,052

Data is from the DRS, RDRS, and California Department of Finance [7]. Accessed October 13, 2020.

Figure 6 Data Table. Source Sector for Woody Biomass Sent to Biomass Conversion Facilities in 2019

This figure displays the tons of woody biomass accepted in California in 2019 by material source.

Material Source	Tons Accepted	Percent of Total
Mill Residue	1,551,518	34.4%
Agriculture	1,148,242	25.5%
Urban	1,052,008	23.3%
In-Forestry	758,928	16.8%

Biomass conversion facilities reported data directly to CalRecycle pursuant to Public Resources Code Section 44107.

Figure 7 Data Table. California's Statewide Recycling Rate Since 2010

This figure displays the percent recycling rate in California from 2010 to 2019.

Year	Recycling Rate
2010	49%
2011	49%
2012	50%
2013	50%
2014	50%
2015	47%
2016	44%
2017	42%
2018	40%
2019	37%

Figure 8 Data Table. Seaborne Recyclable Materials Exports from California from 2010 to 2019, by Weight

This figure displays the tons of recyclable materials shipped from California ports by sea from 2010 to 2019.

Year	Recyclable Materials Exports (Tons)
2010	18,684,429
2011	22,421,208
2012	19,898,054
2013	18,720,553
2014	18,093,858
2015	16,425,408
2016	15,004,650
2017	14,563,501
2018	15,418,798
2019	14,399,816

Figure 9 Data Table. Seaborne Recyclable Materials Exports from California from 2010 to 2019, by Vessel Value

This figure displays the vessel value of recyclable materials shipped from California ports by sea from 2010 to 2019.

Year	Recyclable Materials Exports Vessel Value (USD)
2010	$7,656,043,029
2011	$10,028,140,634
2012	$8,237,767,017
2013	$7,605,086,054
2014	$6,970,882,999
2015	$5,386,926,247
2016	$4,571,461,619
2017	$5,119,174,368
2018	$5,590,595,481
2019	$4,823,080,635

Figure 10 Data Table. Seaborne Recyclable Materials Exports from California by Country of Import from 2010 to 2019, by Weight (tons)

This figure shows the tons imported by the top five countries importing the most recyclable material from California by weight and all other countries combined, from 2010 to 2019.

Year	China	Taiwan	Korea, Republic Of	Vietnam	Malaysia	All Other Countries
2010	10,849,144	2,003,141	2,750,160	473,324	327,520	2,281,140
2011	13,288,115	2,838,129	3,145,938	450,464	500,933	2,197,629
2012	11,482,347	3,020,865	2,709,196	323,867	510,384	1,851,394
2013	10,930,494	2,639,315	2,566,027	404,530	575,172	1,605,014
2014	10,309,377	2,582,826	2,104,577	311,298	346,749	2,439,032
2015	10,158,486	1,505,953	1,687,983	210,103	61,358	2,801,524
2016	9,272,618	1,551,196	1,607,322	340,523	67,926	2,165,064
2017	8,121,472	1,619,378	1,178,663	869,390	239,571	2,535,028
2018	6,589,277	2,289,217	1,640,048	1,399,666	577,978	2,922,611
2019	4,645,279	2,331,211	1,908,231	1,538,865	836,635	3,139,594

Figure 11 Data Table. Top Five Exported Recyclable Materials from California in 2019, by Weight

This figure shows the top five categories of seaborne recyclable materials exported from California in 2019, by weight and percentage of total weight.

Material Category	Tons	Percent of Total Seaborne Recyclable Exports
Ferrous Metal	5,427,865	38%
OCC and Kraft Paper	5,150,834	36%
Other Misc. Paper	1,673,280	11%
Nonferrous metal	982,584	7%
Unsorted Mixed Paper	611,929	4%

Figure 12 Data Table. Top Five Exported Recyclable Materials from California in 2019, by Vessel Value

This figure shows the top five categories of seaborne recyclable materials exported from California in 2019, by vessel value and percentage of total vessel value.

Material Category	Vessel Value (USD)	Percent of Total Seaborne Recyclable Exports
Nonferrous Metal	$1,678,859,201	35%
Ferrous Metal	$1,617,362,831	34%
OCC and Kraft Paper	$714,822,248	15%
Other Misc. Paper	$294,622,205	6%
Copper Wire	$168,443,857	3%

Figure 13 Data Table. Seaborne Exports of OCC and Kraft Paper from California by Country of Import from 2010 to 2019, by Weight (tons)

This figure shows the amount of old corrugated cardboard (OCC) and kraft paper exported as a recyclable material from California to other countries, by weight (tons). Amount is broken out by country for top five countries importing OCC and kraft paper in 2019. Material exported to all other countries is aggregated into "All Other Countries" category.

Year	China	Vietnam	Taiwan	Korea, Republic Of	Indonesia	All Other Countries
2010	3,293,598	33,703	71,647	164,059	44,666	102,179
2011	4,932,096	60,961	79,287	155,834	27,830	107,888
2012	4,819,120	35,398	80,724	173,226	77,553	70,840
2013	4,350,704	33,692	79,210	154,556	48,881	62,449
2014	4,486,504	36,308	66,248	238,465	38,392	74,024
2015	4,818,615	62,619	59,658	296,634	12,015	134,610
2016	4,469,987	54,969	147,649	201,361	11,392	140,245
2017	3,736,831	163,661	145,323	142,172	17,583	138,304
2018	4,277,652	371,991	315,834	309,314	107,915	295,125
2019	3,133,685	635,371	447,729	358,345	167,156	408,548

Figure 14 Data Table. Seaborne Exports of OCC and Kraft Paper from California by Country of Import from 2010 to 2019, by Vessel Value (USD)

This figure shows the amount of old corrugated cardboard (OCC) and kraft paper exported as a recyclable material from California to other countries, by vessel value (USD). Amount is broken out by country for top five countries importing OCC and kraft paper in 2019. Material exported to all other countries is aggregated into "All Other Countries" category.

Year	China	Vietnam	Taiwan	Korea, Republic Of	Indonesia	All Other Countries
2010	$442,291,621	$6,516,677	$12,558,258	$22,309,025	$9,738,651	$23,586,455
2011	$669,678,009	$12,646,649	$15,190,186	$19,393,665	$6,545,150	$25,989,376
2012	$718,311,019	$6,855,509	$13,706,560	$20,404,534	$14,697,421	$15,611,706
2013	$642,837,906	$6,518,544	$14,223,492	$23,662,048	$8,969,997	$13,851,587
2014	$673,819,685	$6,314,441	$11,368,598	$34,003,090	$6,443,298	$19,257,635
2015	$694,114,003	$9,038,042	$10,166,056	$48,522,326	$1,939,270	$21,854,171
2016	$614,876,396	$7,769,676	$23,672,223	$34,209,883	$1,803,327	$21,061,433
2017	$547,987,974	$22,531,228	$22,662,634	$26,640,593	$2,954,179	$22,143,299
2018	$668,089,298	$53,596,327	$43,438,218	$44,498,419	$12,729,741	$39,445,735
2019	$469,685,491	$75,708,030	$56,163,002	$42,022,471	$20,950,499	$50,292,755

Figure 15 Data Table. Seaborne Exports of Plastics 1 and 2 from California by Country of Import from 2010 to 2019, by Weight (tons)

This figure shows the amount of plastics 1 and 2 exported as a recyclable material from California to other countries, by weight (tons). Amount is broken out by country for top five countries importing plastics 1 and 2 in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	Taiwan	Hong Kong	China	Korea, Republic Of	Malaysia	All Other Countries
2010	1,429	151,425	321,435	423	1,687	3,916
2011	1,754	132,857	346,062	204	4,879	9,314
2012	5,244	119,151	348,116	695	3,591	11,958
2013	10,636	119,477	316,167	1,353	22,154	34,161
2014	13,213	166,185	409,254	4,605	9,943	42,104
2015	22,496	171,451	276,359	2,487	9,839	31,564
2016	16,526	160,515	251,676	209	11,252	25,385
2017	19,634	94,013	182,253	1,775	25,766	66,869
2018	22,235	29,932	17,529	9,187	38,614	79,423
2019	20,300	15,644	10,953	10,205	9,568	40,872

Figure 16 Data Table. Seaborne Exports of Plastics 1 and 2 from California by Country of Import from 2010 to 2019, by Vessel Value (USD)

This figure shows the amount of plastics 1 and 2 exported as a recyclable material from California to other countries, by vessel value (USD). Amount is broken out by country for top five countries importing plastics 1 and 2 in 2019. Material exported to all other countries is aggregated into "All Other Countries" category.

Year	Taiwan	Hong Kong	El Salvador	Indonesia	China	All Other Countries
2010	$661,671	$54,085,818	$0	$59,178	$104,650,746	$2,196,133
2011	$923,966	$49,309,325	$85,081	$1,094,833	$126,129,208	$7,962,843
2012	$1,925,836	$40,249,717	$116,268	$2,480,197	$120,469,677	$4,614,478
2013	$2,827,091	$40,828,953	$1,978,163	$4,769,899	$110,136,562	$15,102,016
2014	$3,797,511	$58,012,345	$2,975,380	$6,495,839	$142,380,927	$12,826,074
2015	$7,161,274	$55,966,143	$2,779,956	$4,810,414	$92,492,663	$8,362,851
2016	$4,035,821	$46,732,154	$2,248,216	$3,371,935	$84,251,493	$5,816,045
2017	$4,447,946	$31,427,025	$2,889,237	$2,934,361	$56,061,897	$22,858,301
2018	$8,984,737	$14,719,481	$4,934,187	$4,931,916	$4,276,395	$34,009,626
2019	$8,624,495	$5,788,925	$4,218,626	$4,034,826	$3,381,052	$14,230,475

Figure 17 Data Table. Seaborne Exports of Mixed Plastics 3 through 7 from California by Country of Import from 2010 to 2019, by Weight (tons)

This figure shows the amount of mixed plastics 3 through 7 exported as a recyclable material from California to other countries, by weight (tons). Amount is broken out by country for top five countries importing mixed plastics 3 through 7 in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	Malaysia	Hong Kong	Korea, Republic Of	Vietnam	Taiwan	All Other Countries
2010	8,290	341,669	4,188	3,144	3,819	317,920
2011	6,785	262,858	3,695	13,559	7,247	460,485
2012	8,446	186,083	2,835	4,308	6,696	450,430
2013	12,516	171,641	4,602	4,182	10,228	405,610
2014	13,773	202,324	3,520	8,656	10,066	386,912
2015	15,181	248,251	2,093	7,456	19,276	330,982
2016	11,283	260,319	1,885	16,830	7,419	223,876
2017	40,501	132,456	2,756	31,973	6,540	186,544
2018	82,275	29,262	9,654	19,319	7,861	50,714
2019	18,353	13,093	7,558	5,656	4,472	13,490

Figure 18 Data Table. Seaborne Exports of Mixed Plastics 3 through 7 from California by Country of Import from 2010 to 2019, by Vessel Value (USD)

This figure shows the amount of mixed plastics 3 through 7 exported as a recyclable material from California to other countries, by vessel value (USD). Amount is broken out by country for top five countries importing mixed plastics 3 through 7 in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	Hong Kong	Malaysia	Korea, Republic Of	China	Vietnam	All Other Countries
2010	$102,143,145	$990,291	$3,394,561	$121,946,652	$13,003,397	$22,816,098
2011	$90,582,493	$1,776,842	$2,425,108	$209,267,705	$7,431,494	$16,215,387
2012	$69,007,862	$2,825,700	$2,112,265	$163,918,921	$1,643,521	$14,124,508
2013	$58,741,418	$3,533,421	$3,368,748	$134,389,549	$1,564,892	$14,967,934
2014	$66,887,887	$3,659,202	$2,222,139	$116,949,724	$2,448,569	$21,069,831
2015	$82,394,056	$3,218,392	$1,890,625	$91,550,736	$2,467,174	$14,088,456
2016	$70,424,811	$2,064,834	$617,515	$58,236,389	$4,739,895	$6,072,687
2017	$37,666,638	$8,854,452	$896,579	$45,602,661	$8,219,635	$8,902,275
2018	$9,407,605	$17,759,163	$3,171,552	$4,165,367	$5,340,345	$15,581,833
2019	$3,911,435	$3,828,638	$2,818,452	$1,954,302	$1,350,671	$4,475,198

Figure 19 Data Table. Seaborne Exports of Nonferrous Metals from California by Country of Import from 2010 to 2019, by Weight

This figure shows the amount of nonferrous metals exported as a recyclable material from California to other countries, by weight (tons). Amount is broken out by country for top five countries importing nonferrous metals in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	Korea, Republic Of	Malaysia	China	Hong Kong	Taiwan	All Other Countries
2010	141,633	5,537	1,058,331	66,099	90,675	74,270
2011	157,244	4,195	1,299,121	48,845	76,540	71,169
2012	146,404	3,931	1,157,292	35,980	73,072	69,413
2013	121,970	1,287	1,086,726	49,512	73,379	95,700
2014	144,138	3,854	941,941	36,644	66,577	80,946
2015	151,472	13,357	788,358	30,060	29,937	71,451
2016	135,337	16,178	674,937	41,423	26,491	75,188
2017	162,514	18,038	713,377	51,369	19,647	91,831
2018	227,604	118,879	352,636	50,318	67,850	193,076
2019	245,609	217,344	154,615	80,745	70,873	213,398

Figure 20 Data Table. Seaborne Exports of Nonferrous Metals from California by Country of Import from 2010 to 2019, by Vessel Value

This figure shows the amount of nonferrous metals exported as a recyclable material from California to other countries, by vessel value (USD). Amount is broken out by country for top five countries importing nonferrous metals in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	Korea, Republic Of	Malaysia	China	Japan	Hong Kong	All Other Countries
2010	$242,393,667	$6,730,990	$2,097,213,364	$160,839,903	$155,786,046	$172,062,477
2011	$301,760,633	$6,041,429	$2,966,216,561	$161,837,038	$138,594,109	$227,504,335
2012	$268,898,703	$6,736,595	$2,421,475,210	$141,021,475	$78,432,632	$196,137,388
2013	$238,877,367	$1,782,528	$2,345,546,397	$160,959,741	$97,258,332	$208,245,172
2014	$275,913,121	$5,190,724	$1,903,918,316	$237,195,715	$58,185,005	$219,999,461
2015	$269,410,847	$12,789,212	$1,435,709,687	$151,201,148	$48,928,005	$191,452,861
2016	$205,318,227	$16,641,002	$1,040,177,841	$201,715,633	$57,723,091	$242,376,745
2017	$256,957,851	$21,921,188	$1,247,207,090	$209,209,358	$64,615,480	$209,433,795
2018	$419,720,936	$157,341,412	$757,129,772	$238,004,823	$93,152,378	$368,582,647
2019	$400,766,981	$270,499,953	$256,063,060	$189,786,408	$136,630,633	$425,112,166

Appendix 2: Additional Information on Total Exports and Recyclable Materials Exports from California Seaports

California Total Seaborne Exports

Table 14. Total Seaborne Exports from California in 2019, by Weight (tons)

Recyclable Materials Exports (Tons)	Other Exports (Tons)	Total Exports (Tons)
14.4 million	50.1 million	64.5 million

Figure 21. Total Seaborne Exports from California from 1998 to 2019, by Weight (tons)

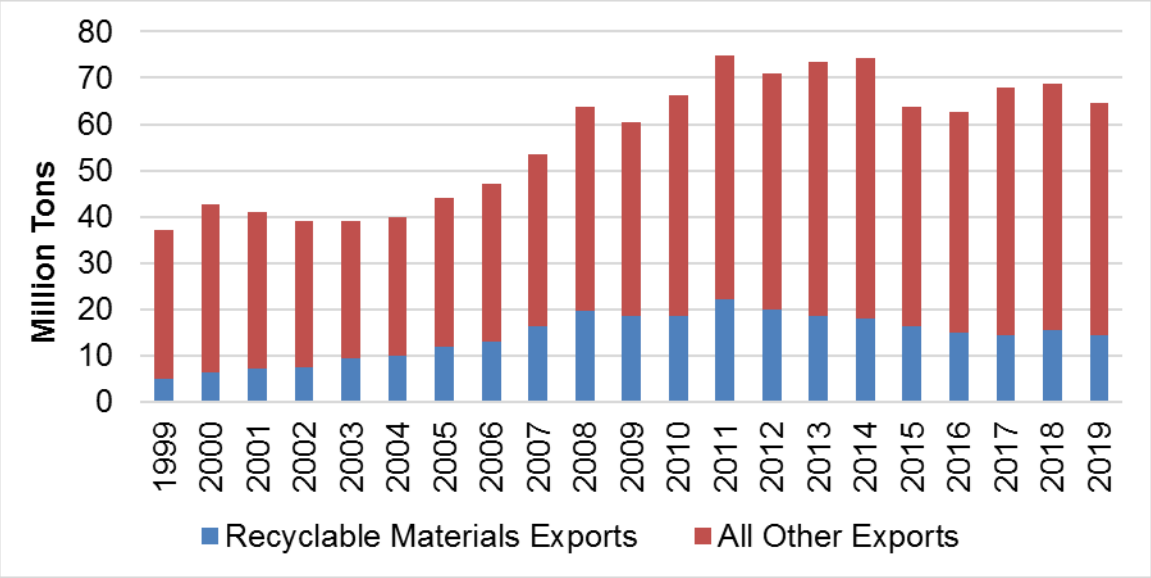


Figure 21 Data Table. Total Seaborne Exports from California from 1998 to 2019, by Weight (tons)

This figure shows total California exports split by recyclable materials and other exports from 1998 to 2019, by weight.

Year	Recyclable Materials Exports (Tons)	All Other Exports (Tons)
1998	4,272,994	33,768,319
1999	5,083,108	31,990,105
2000	6,320,731	36,334,182
2001	7,271,304	33,849,579
2002	7,630,840	31,418,696
2003	9,549,578	29,444,715
2004	10,087,098	29,903,413
2005	11,938,685	32,122,268
2006	13,153,708	34,025,983
2007	16,243,610	37,222,781
2008	19,598,613	44,169,846
2009	18,687,562	41,681,500
2010	18,706,811	47,602,869
2011	22,317,156	52,394,839
2012	19,860,525	51,199,520
2013	18,685,245	54,827,233
2014	18,059,733	56,182,580
2015	16,394,429	47,383,526
2016	14,976,317	47,542,063
2017	14,536,153	53,421,419
2018	15,417,931	53,361,923
2019	14,399,816	50,122,390

Table 15. Total Seaborne Exports from California in 2019, by Vessel Value (USD)

Recyclable Materials Exports	Other Exports	Total Exports
$4.8 billion	$89.7 billion	$94.6 billion

Figure 22. Total Seaborne Exports from California from 1998 to 2019, by Vessel Value (USD)

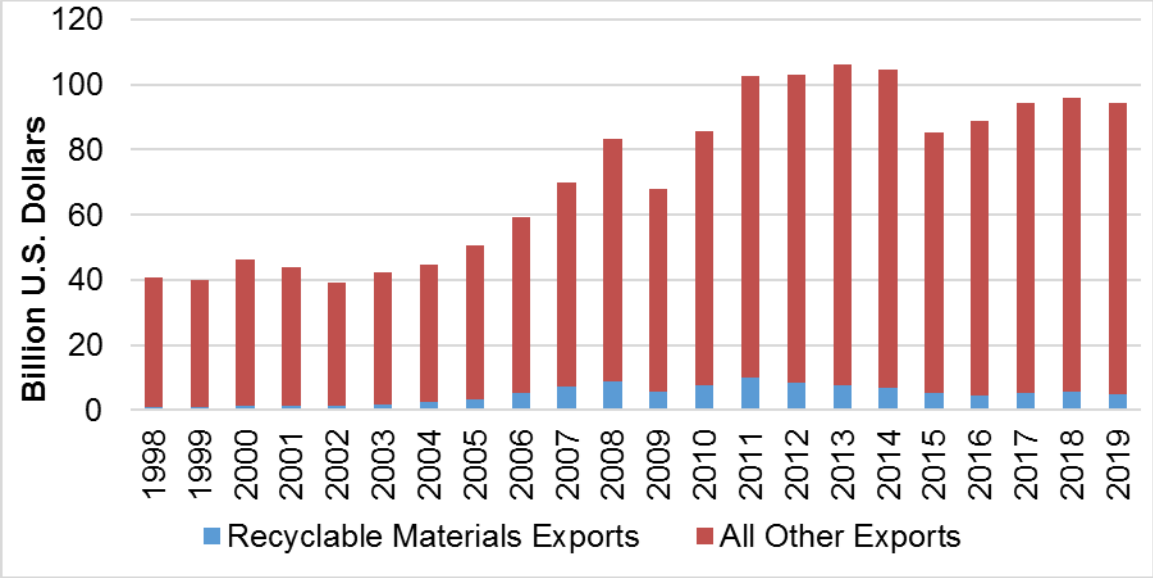


Figure 22 Data Table. Total Seaborne Exports from California from 1998 to 2019, by Vessel Value (USD)

This figure shows total California exports split by recyclable materials and all other exports from 1998 to 2019, by vessel value (USD).

Year	Recyclable Materials Exports Vessel Value (USD)	All Other Exports Vessel Value (USD)
1998	$775,658,290	$39,821,934,564
1999	$875,236,881	$39,216,984,750
2000	$1,299,866,371	$44,913,919,500
2001	$1,288,651,784	$42,438,765,714
2002	$1,303,679,253	$37,769,985,010
2003	$1,757,906,800	$40,720,710,629
2004	$2,407,187,755	$42,386,450,467
2005	$3,344,559,648	$47,200,806,881
2006	$5,223,647,937	$53,976,563,513
2007	$7,235,559,060	$62,665,140,333
2008	$8,806,032,285	$74,519,026,702
2009	$5,830,066,873	$62,279,753,431
2010	$7,656,043,029	$77,889,749,335
2011	$10,028,140,634	$92,457,038,362
2012	$8,237,767,017	$94,697,754,139
2013	$7,605,086,054	$98,735,641,688
2014	$6,970,882,999	$97,856,396,567
2015	$5,386,926,247	$79,810,156,226
2016	$4,571,461,619	$84,373,944,003
2017	$5,119,174,368	$89,406,414,559
2018	$5,590,595,481	$90,242,980,506
2019	$4,823,080,635	$89,732,479,979

Seaborne Recyclable Materials Exports from California in 2019, by Vessel Value

Table 16. Seaborne Recyclable Materials Exports from California in 2019 by Top Countries of Import, by Vessel Value (USD)

Top 10 Countries	2019 Vessel Value (USD)	Vessel Value Change 2018 to 2019 (USD)	Percent of Total Recyclable Materials Exports	Percent Change in Vessel Value from 2018 to 2019
China (CHN)	$1,094,210,913	-$826,138,563	23%	-43%
Korea (KOR)	$792,003,918	-$12,215,722	16%	-2%
Taiwan (TWN	$728,441,340	-$56,557,219	15%	-7%
Malaysia (MYS)	$432,053,312	$133,799,772	9%	45%
Vietnam (VNM)	$322,833,451	-$21,023,648	7%	-6%
Japan (JPN)	$274,124,728	-$689,253,570	6%	-72%
India (IND)	$197,515,753	-$39,735,126	4%	-17%
Hong Kong (HGK)	$183,107,965	$18,398,042	4%	11%
Bangladesh)	$157,652,014	$33,988,400	3%	28%
Thailand (THA)	$120,660,815	$8,690,825	3%	8%

Figure 23. Seaborne Recyclable Materials Exports from California by Country of Import from 2010 to 2019, by Vessel Value (USD)

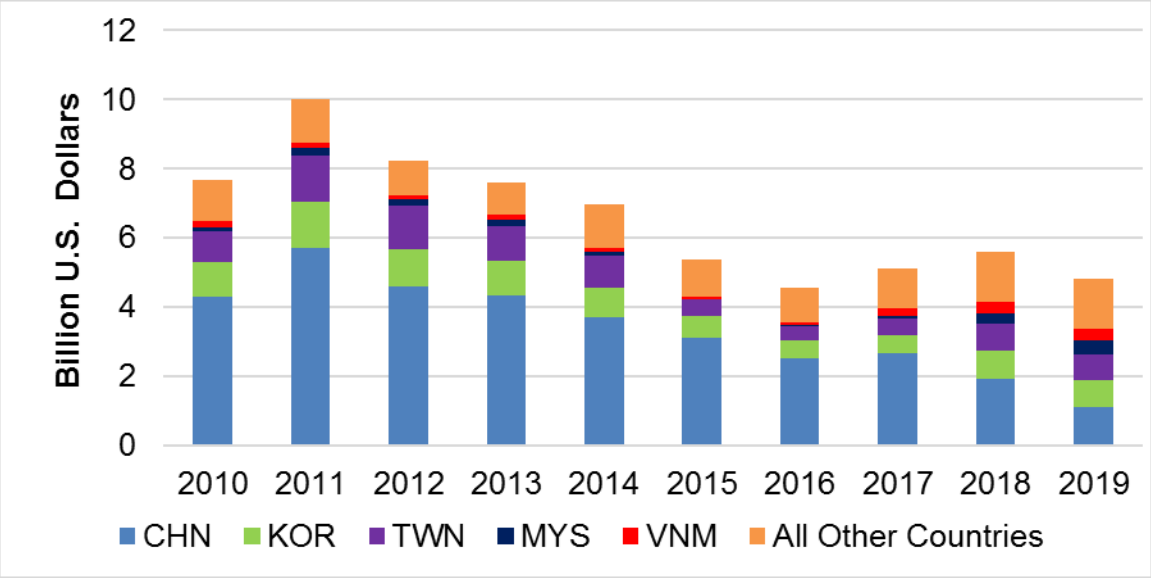


Figure 23 Table Data. Seaborne Recyclable Materials Exports from California by Country of Import from 2010 to 2019, by Vessel Value (USD)

This figure shows the amount of seaborne recyclable materials exports from California to other countries, by vessel value (USD) Amount is broken out by country for top five countries importing recyclable materials in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	China	Korea, Republic Of	Taiwan	Malaysia	Vietnam	All Other Countries
2010	$4,292,595,861	$1,012,377,552	$890,229,363	$120,766,457	$161,593,980	$1,178,479,816
2011	$5,701,204,117	$1,357,753,102	$1,331,618,865	$206,773,858	$164,602,722	$1,266,187,970
2012	$4,594,985,500	$1,084,261,827	$1,252,329,238	$191,239,781	$102,323,625	$1,012,627,046
2013	$4,347,730,436	$975,437,267	$1,009,625,862	$192,189,515	$129,523,103	$950,579,871
2014	$3,707,647,215	$834,624,761	$947,128,980	$111,904,537	$89,834,753	$1,279,742,753
2015	$3,112,412,503	$627,294,614	$475,959,284	$25,331,567	$46,294,748	$1,099,633,531
2016	$2,510,105,479	$517,267,475	$420,911,201	$29,041,076	$73,559,347	$1,020,577,041
2017	$2,657,359,030	$523,027,809	$484,933,974	$77,813,208	$201,322,259	$1,174,718,088
2018	$1,920,349,476	$804,219,640	$784,998,559	$298,253,540	$343,857,099	$1,438,917,167
2019	$1,094,210,913	$792,003,918	$728,441,340	$432,053,312	$322,833,451	$1,453,537,701

Seaborne Recyclable Materials Exports from California by Individual Recyclable Material Category

Ferrous Metals

Table 17. Ferrous Metals Exported as Recyclable Materials from California in 2019, by Weight (tons) and Vessel Value (USD)

Tons Exported	Percent Change in Tons from 2018	Vessel Value (USD)	Percent Change in Vessel Value from 2018
5,427,865	4%	$1,617,362,831	-10%

Figure 24. Seaborne Recyclable Materials Exports of Ferrous Metals from California by Country of Import from 2010 to 2019, by Weight

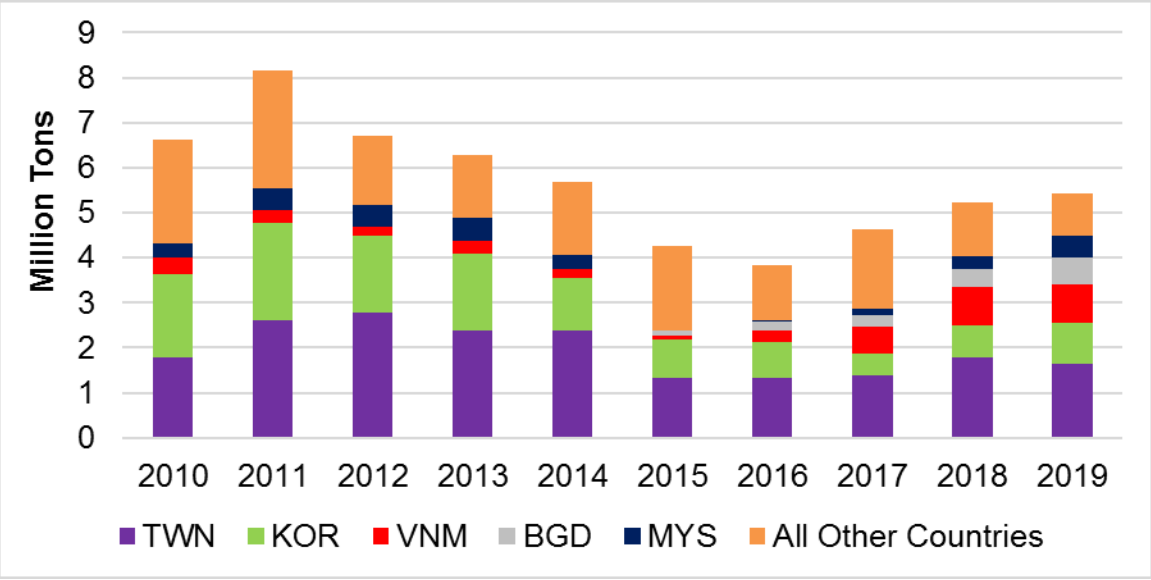


Figure 24 Data Table: Seaborne Recyclable Materials Exports of Ferrous Metals from California by Country of Import from 2010 to 2019, by Weight

This figure shows the amount of Ferrous Metals exported as a recyclable material from California to other countries, by weight (tons). Amount is broken out by country for top five countries importing Ferrous Metals in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	Taiwan	Korea, Republic Of	Vietnam	Bangladesh	Malaysia	All Other Countries
2010	1,786,480	1,854,565	363,611	3,832	300,163	2,305,847
2011	2,623,917	2,140,553	289,677	3,553	469,010	2,644,229
2012	2,788,377	1,712,661	196,536	1,054	473,701	1,525,682
2013	2,396,742	1,679,458	296,435	441	527,373	1,382,012
2014	2,382,819	1,157,059	209,004	3,372	300,729	1,619,140
2015	1,337,092	833,733	102,555	95,697	11,108	1,866,565
2016	1,321,948	808,583	239,595	219,174	19,673	1,225,713
2017	1,385,514	499,394	573,666	275,978	141,446	1,743,922
2018	1,782,766	700,329	877,618	389,863	278,289	1,198,413
2019	1,640,950	923,409	835,315	608,609	479,419	940,163

Other Miscellaneous (Misc.) Mixed Paper

Table 18. Other Misc. Mixed Paper Exported as Recyclable Materials from California in 2019, by Weight (tons) and Vessel Value (USD)

Tons Exported	Percent Change in Tons from 2018	Vessel Value (USD)	Percent Change in Vessel Value from 2018
1,673,280	-20%	$294,622,205	-21%

Figure 25. Seaborne Recyclable Materials Exports of Other Misc. Mixed Paper from California by Country of Import from 2010 to 2019, by Weight

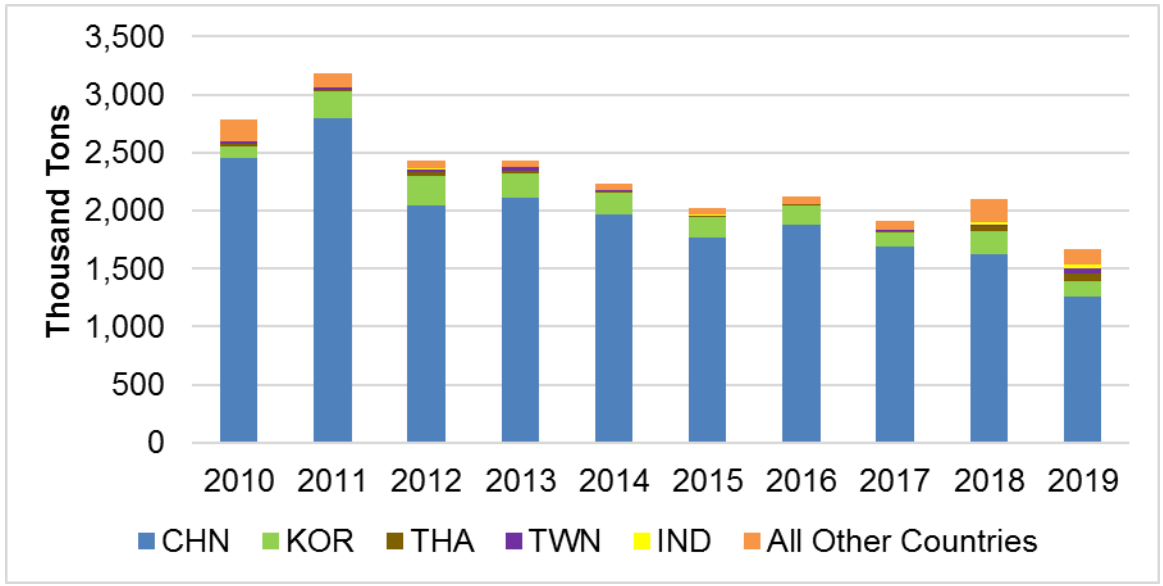


Figure 25 Data Table: Seaborne Recyclable Materials Exports of Other Misc. Mixed Paper from California by Country of Import from 2010 to 2019, by Weight

This figure shows the amount of Other Misc. Mixed Paper exported as a recyclable material from California to other countries, by weight (tons). Amount is broken out by country for top five countries importing Other Misc. Mixed Paper in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	China	Korea, Republic Of	Thailand	Taiwan	India	All Other Countries
2010	2,450,267	101,521	23,933	17,532	4,468	183,355
2011	2,792,666	234,008	13,515	17,898	7,505	119,833
2012	2,046,565	254,113	31,679	25,024	3,267	65,976
2013	2,113,777	202,649	24,574	31,436	1,321	59,938
2014	1,963,061	187,070	14,743	14,226	876	48,882
2015	1,768,422	179,961	10,245	1,856	2,367	53,569
2016	1,877,119	165,530	11,414	4,141	1,472	66,449
2017	1,690,179	126,979	9,262	4,450	6,533	68,872
2018	1,626,533	197,823	42,252	15,378	21,106	194,089
2019	1,257,830	133,271	69,454	40,971	30,481	141,272

Mechanical Pulp Paper (Subset of Other Misc. Mixed Paper)

Table 19. Mechanical Pulp Paper Exported as Recyclable Materials from California in 2019, by Weight (tons) and Vessel Value (USD)

Tons Exported	Percent Change in Tons from 2018	Vessel Value (USD)	Percent Change in Vessel Value from 2018
1,229,364	-5%	$230,090,805	-6%

Figure 26. Seaborne Recyclable Materials Exports of Mechanical Pulp Paper from California by Country of Import from 2010 to 2019, by Weight

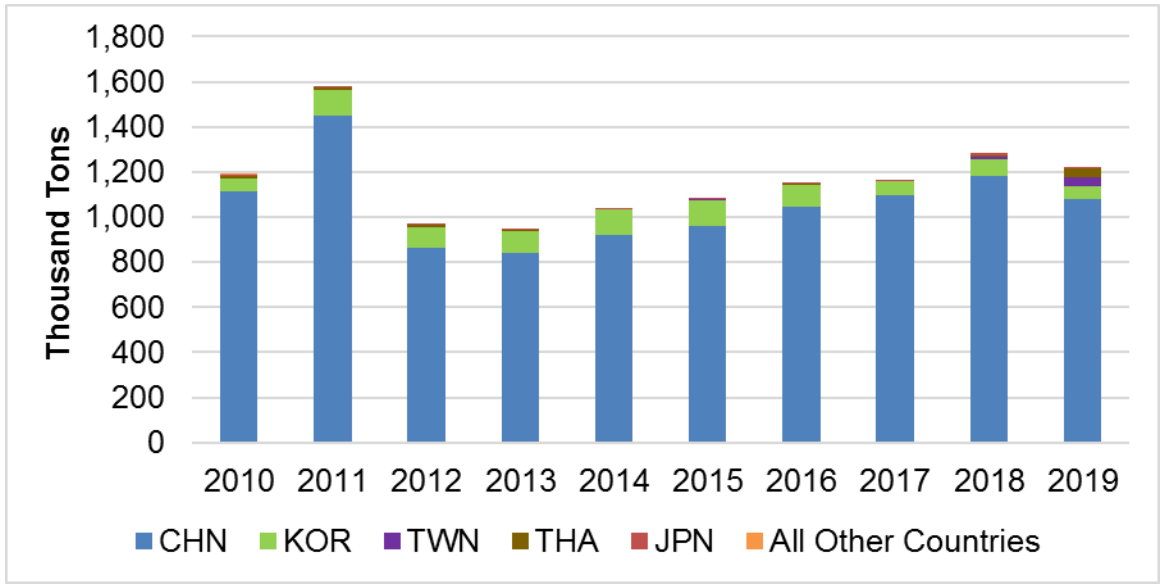


Figure 26 Data Table: Seaborne Recyclable Materials Exports of Mechanical Pulp Paper from California by Country of Import from 2010 to 2019, by Weight

This figure shows the amount of Mechanical Pulp Paper exported as a recyclable material from California to other countries, by weight (tons). Amount is broken out by country for top five countries importing Mechanical Pulp Paper in 2019. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	China	Korea, Republic Of	Taiwan	Thailand	Japan	All Other Countries
2010	1,113,125	57,202	0	13,480	1,783	31,713
2011	1,452,204	109,530	691	11,563	1,960	19,750
2012	862,843	92,828	403	9,233	1,335	8,084
2013	842,231	94,341	243	4,190	1,750	7,438
2014	917,870	114,608	1,224	1,656	1,307	6,568
2015	961,671	114,592	702	1,326	1,362	28,363
2016	1,044,690	97,491	770	6,686	2,996	24,990
2017	1,094,380	66,014	334	116	4,338	16,424
2018	1,183,916	74,694	8,777	7,221	9,318	10,030
2019	1,079,390	55,114	40,345	39,366	4,513	10,636

Chemical Pulp Paper (Subset of Other Misc. Mixed Paper)

Table 20. Chemical Pulp Paper Exported as Recyclable Materials from California in 2019, by Weight (tons) and Vessel Value (USD)

Tons Exported	Percent Change in Tons from 2018	Vessel Value (USD)	Percent Change in Vessel Value from 2018
95,451	-28%	$21,342,273	-27%

Figure 27. Seaborne Recyclable Materials Exports of Chemical Pulp Paper from California by Country of Import from 2010 to 2019, by Weight

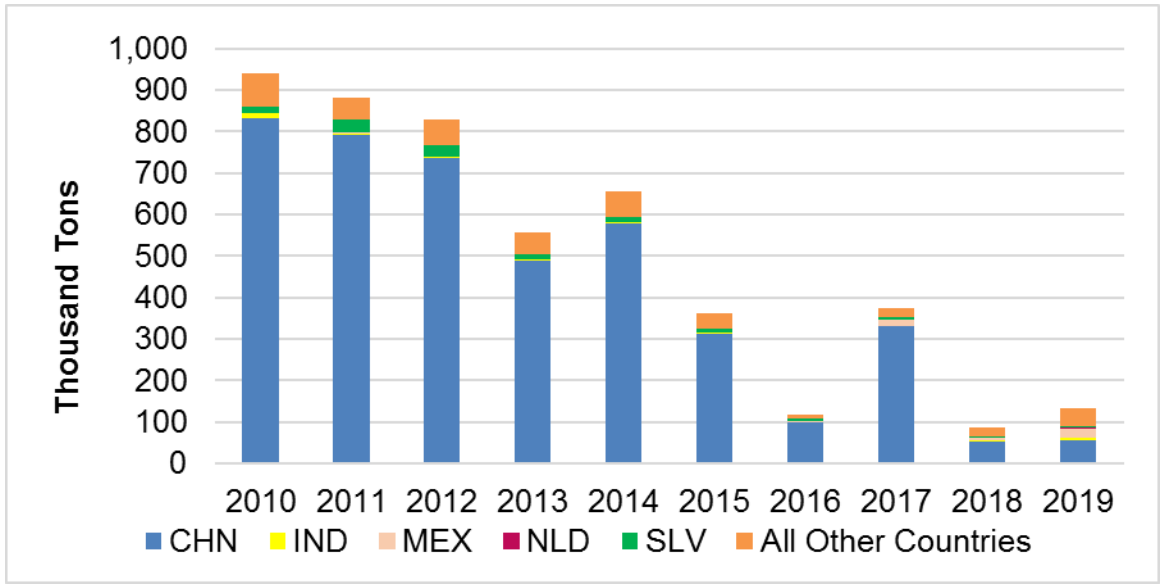


Figure 27 Data Table: Seaborne Recyclable Materials Exports of Chemical Pulp Paper from California by Country of Import from 2010 to 2019, by Weight

This figure shows the amount of Chemical Pulp Paper exported as a recyclable material from California to other countries, by weight (tons). Amount is broken out by country for top five countries importing Chemical Pulp Paper in 2019. Material exported to all other countries is aggregated into "All Other Countries" category.

Year	China	India	Mexico	Netherlands	El Salvador	All Other Countries
2010	792,007	3,832	581	0	32,015	52,666
2011	735,381	4,241	0	707	27,262	61,292
2012	489,357	3,063	512	322	10,386	51,974
2013	579,709	1,239	572	0	11,738	61,905
2014	313,434	850	444	0	10,435	35,463
2015	98,890	1,502	2,073	0	5,350	9,473
2016	330,253	671	15,645	21	4,873	22,865
2017	54,026	2,169	5,433	0	4,652	20,181
2018	54,444	7,751	22,113	2,299	4,838	41,344
2019	21,039	18,611	10,722	9,771	6,736	28,573

Appendix 3: Applicable Country Code Abbreviations

Table 21. Codes for Countries Included in the Report

Country Code	Country
ARE	United Arab Emirates
BGD	Bangladesh
CHL	Chile
CHN	China
COL	Colombia
ECU	Ecuador
GRC	Greece
GTM	Guatemala
HKG	Hong Kong
IDN	Indonesia
IND	India
JPN	Japan
KOR	Korea, Republic Of
MEX	Mexico
MYS	Malaysia
NLD	Netherlands
PAK	Pakistan
PHL	Philippines
SGP	Singapore
SLV	El Salvador
THA	Thailand
TUR	Turkey
TWN	Taiwan
VNM	Vietnam

Abbreviations and Acronyms

AB – Assembly Bill

ADC – Alternative Daily Cover

AIC – Alternative Intermediate Cover

CalRecycle – California Department of Resource Recycling and Recovery

CARE – Carpet America Recovery Effort

DARE – Data Analysis and Risk Evaluation

DRS – Disposal Reporting System

EPR – Extended Producer Responsibility

EMSW – Engineered Municipal Solid Waste

FY – Fiscal Year

GDP – Gross Domestic Product

GHG – Greenhouse Gas

HS – Harmonized System

LCC – Local Conservation Corps

MCR – Mandatory Commercial Recycling

MORe – Mandatory Commercial Organics Recycling

MRC – Mattress Recycling Council

MSW – Municipal Solid Waste

RDRS – Recycling and Disposal Reporting System

RMDZ - Recycling Market Development Zone

RPEB – Recycling Program Enforcement Branch

SB – Senate Bill

SCLP – Short-Lived Climate Pollutants

TDA – Tire-Derived Aggregate

TDP – Tire-Derived Product

TRP – Rubberized Pavement

Glossary of Terms

Alternative daily cover (ADC) and Alternative intermediate cover (AIC): The use of materials to cover disposed waste in a landfill cell at the end of the landfill operating day (daily cover) or at some other interval (intermediate cover) to control odors, fire, vectors, litter, and scavenging.

Biomass conversion: The process of using controlled combustion of specified types of organic materials (usually wood, lawn, or crop residue) to produce electricity.

Disposal Reporting System (DRS): The retired system used to track disposal information in California.

Landfill Disposal: Disposal of waste materials at a landfill, excluding materials disposed as part of disposal-related activities.

Disposal-Related Activities: A set of activities considered as part of overall disposal: alternative daily cover, alternative intermediate cover, other beneficial reuse at landfills (such as construction activities, landscaping, and erosion control), transformation, engineered municipal solid waste, and waste-tire derived fuel.

Landfill: A permitted facility that provides a legal site for final disposal of materials, including mixed solid waste, beneficial materials used for landfill construction, ADC, and specialized material sites such as waste tires and construction and demolition waste.

Municipal solid waste (MSW): Refuse that may be mixed with or contain nonorganic material, processed industrial materials, plastics, or other recyclables with the potential for recovery. It includes residential, commercial, and institutional wastes.

Other beneficial reuse: The use of a waste byproduct or other low-value material for a productive use, other than ADC/AIC, at a landfill within regulatory guidelines.

Per-capita disposal: A numeric indicator of reported disposal divided by the population (residents) specific to a county, region, or state.

Recyclable Materials Exports: Recyclable materials exported via seaborne container vessels from California ports

Recycling and Disposal Reporting System (RDRS): The new system used to track recycling and disposal information. For more information go to: Recycling and Disposal Reporting System Information

Transformation: The use of incineration, pyrolysis, distillation, or biological conversion to combust unprocessed or minimally processed solid waste to produce electricity. Transformation does not include gasification, composting, or biomass conversion.

Vessel Value: The value of exports at the U.S. seaport, airport, or border port of export, based on the transaction price, including inland freight, insurance, and other charges incurred in placing the merchandise alongside the carrier at the U.S. port of exportation. The value, as defined, excludes the cost of loading the merchandise and any charges or transportation costs beyond the port of exportation. Also known as the “free alongside ship value.

Waste tire-derived fuel: Waste tires used as fuel in a power plant or cement kiln.

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