



**2022**

State of Disposal  
and Recycling  
Report

February 2024



**State of California**

Gavin Newsom

Governor

**California Environmental Protection Agency**

Yana Garcia

Secretary

**Department of Resources Recycling and Recovery (CalRecycle)**

Rachel Machi Wagoner

Director

**Public Affairs Office**

1001 I Street (MS 22-B)

P.O. Box 4025

Sacramento, CA 95812-4025

[www.calrecycle.ca.gov/Publications/](http://www.calrecycle.ca.gov/Publications/)

1-800-RECYCLE (California only) or (916) 341-6300

Publication # DRRR-2024-1731

To conserve resources and reduce waste, CalRecycle reports are produced in electronic format only. If printing copies of this document, please consider use of recycled paper containing 100 percent postconsumer fiber and, where possible, please print on both sides.

Copyright © 2024 by the California Department of Resources Recycling and Recovery (CalRecycle). All rights reserved. This publication, or parts thereof, may not be reproduced in any form without permission. This report was prepared by staff of CalRecycle to provide information or technical assistance.

The statements and conclusions of this report are those of CalRecycle staff and not necessarily those of the department or the State of California. The state makes no warranty, expressed or implied, and assumes no liability for the information contained in the succeeding text. Any mention of commercial products or processes shall not be construed as an endorsement of such products or processes.

CalRecycle does not discriminate on the basis of disability in access to its programs. CalRecycle publications are available in accessible formats upon request by calling the Public Affairs Office at (916) 341-6300. Persons with hearing impairments can reach CalRecycle through the California Relay Service at 1-800-735-2929.

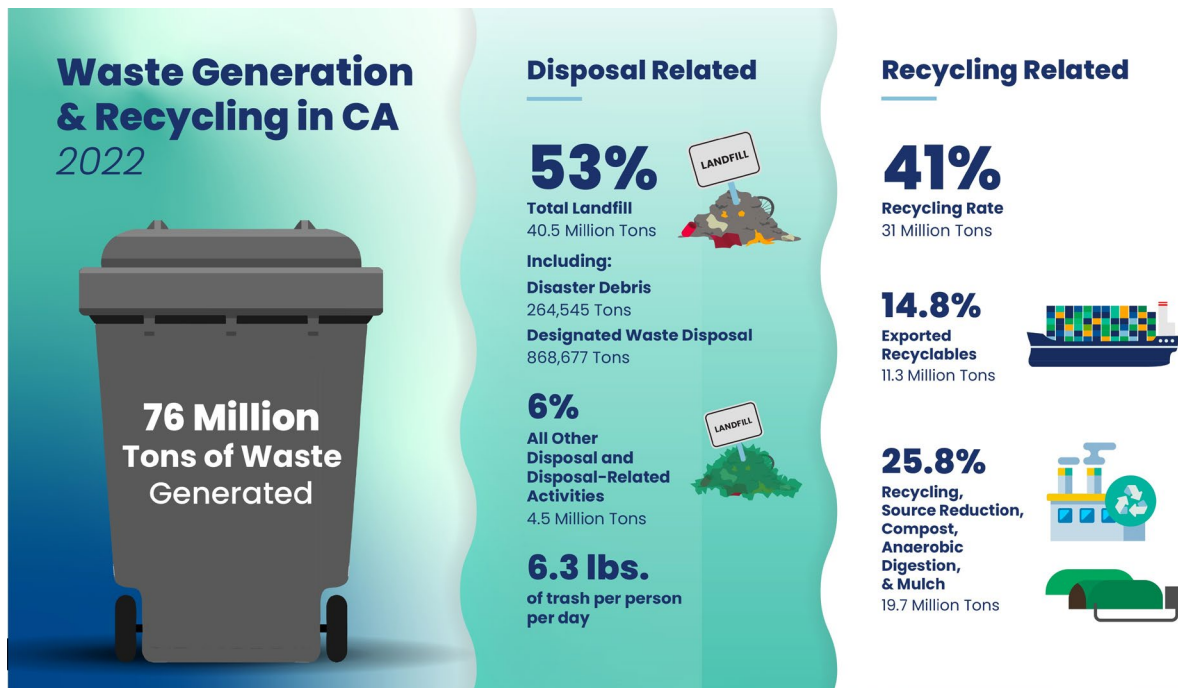
# Table of Contents

---

<b>Table of Contents</b> .....	<b>2</b>
<b>Executive Summary</b> .....	<b>3</b>
<b>Waste Generation</b> .....	<b>5</b>
<b>Disposal and Disposal-Related Activities</b> .....	<b>6</b>
Disposal-Related Activities .....	8
Biomass .....	11
Disaster Debris .....	12
<b>Recycling</b> .....	<b>14</b>
Statewide Recycling Rate .....	14
End Use .....	15
<b>Recyclable Materials Exports</b> .....	<b>17</b>
Methods & Data Limitations .....	17
Total Seaborne Recyclable Materials Exports .....	19
Country of Import .....	23
Material Type .....	25
<b>Conclusion</b> .....	<b>35</b>
<b>Appendix 1: Table Data for Figures in the Report</b> .....	<b>36</b>
<b>Appendix 2: Additional Information on Total Exports and Recyclable Materials Exports from California Seaports</b> .....	<b>57</b>
California Total Seaborne Exports .....	57
Seaborne Recyclable Materials Exports from California in 2022, by Vessel Value..	63
Seaborne Recyclable Materials Exports from California by Individual Recyclable Material Category .....	66
<b>Appendix 3: Table Data for Infographics</b> .....	<b>76</b>
<b>Abbreviations and Acronyms</b> .....	<b>79</b>
<b>Glossary of Terms</b> .....	<b>80</b>
<b>Bibliography</b> .....	<b>81</b>

# Executive Summary

The Calendar Year 2022 report presents data and information on California’s waste management activities, including the export of recyclable materials and the statewide recycling rate.



CalRecycle estimates that California’s overall waste generation in 2022 was about 76 million tons. Of that total waste generation, 45.1 million tons went to disposal and disposal-related activities, including about 40.5 million tons sent to landfill. This equates to a statewide per capita disposal rate of 6.3 pounds per person per day. Of the total amount disposed, over 260 thousand tons were disaster debris, down from 920 thousand tons in 2021.

Non-green alternative daily cover (ADC) was the most common disposal-related activity at over 2.3 million tons. Despite this, the amount of ADC (green and non-green material) decreased for the second year in a row. In 2022, less than 2.6 million tons of ADC were used, down from 2.7 million tons in 2021 and 2.8 million tons in 2020. Much of this reduction is attributed to a decreased use of green material ADC.

Almost 31 million tons of waste were source reduced, recycled, and composted in California in 2022, resulting in a statewide recycling rate of 41 percent, up from 40 percent in 2021.

Seaborne export of recyclable materials accounted for about 11.3 million tons in 2022, a decrease of approximately 1 million tons from 2021. Despite the decline, seaborne exports of recyclable materials were the largest destination for statewide recycling. CalRecycle estimated the amount of scrap plastics (1-7) exported via truck and rail to



Mexico and Canada between 2012 and 2022. In 2022, Mexico was the largest importer of scrap plastics from California, receiving more than 48 thousand tons via truck and rail.

Appendix 1 provides data tables associated with every figure in 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 that are not included in the main report.

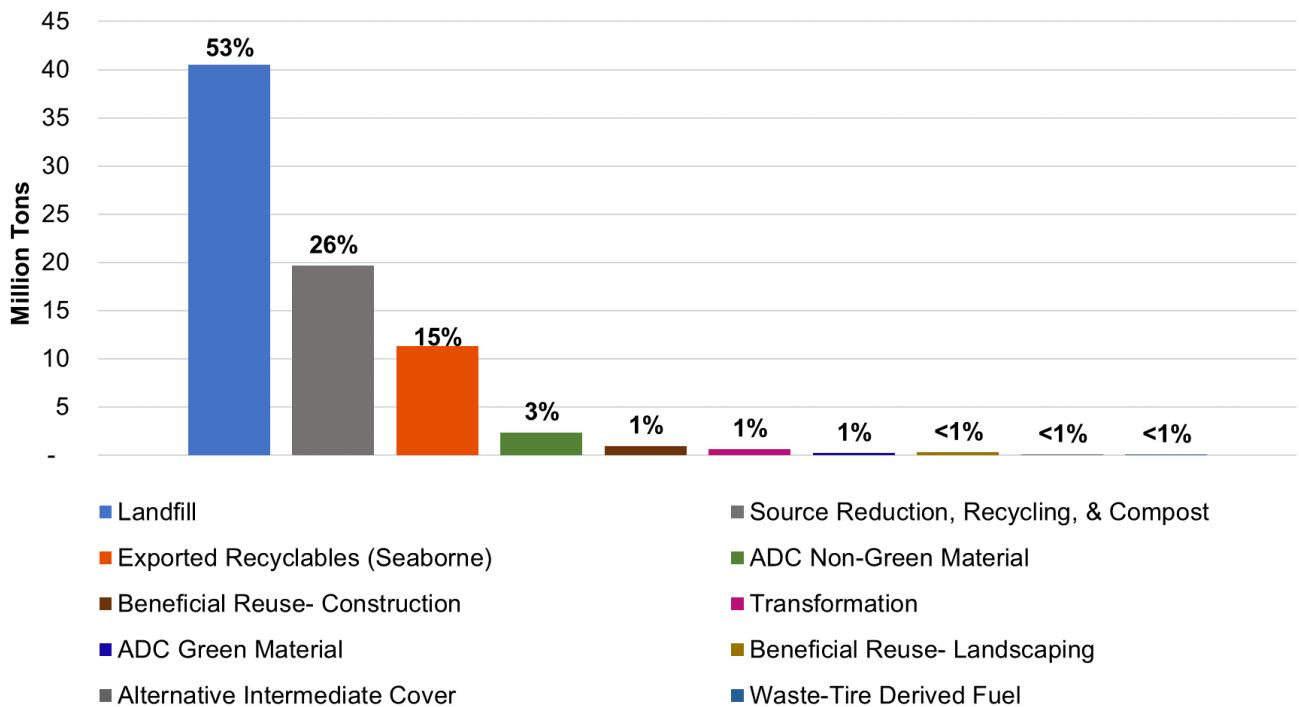
# Waste Generation

California’s 38.9 million residents and 1.7 million businesses generated an estimated 76 million tons of material in 2022\*.

Of the total materials generated, 53 percent were sent to landfill; 15 percent were exported as recyclables; and, nearly 26 percent were source reduced, recycled, composted, anaerobically digested, or mulched (see Figure 1). The remainder of the material, less than 6 percent, went to alternative daily cover (ADC), beneficial reuse, transformation, alternative intermediate cover (AIC), and waste-tire derived fuel.

**Californians generated 76 million tons of trash and recycling in 2022.**

**Figure 1. Estimated Management of 76 Million Tons of Materials Generated in California in 2022**



*CalRecycle derived quantities of landfilled waste, transformation, ADC, AIC, EMSW, and other beneficial reuse from the Recycling and Disposal Reporting System (RDRS). Accessed September 2023. No engineered municipal solid waste (EMSW) was reported in 2022. CalRecycle estimated waste tire-derived fuel based on data reported to CalRecycle for calendar year 2022<sup>(1)</sup> CalRecycle collected exported recyclables data from WISERTrade.<sup>(2)</sup> Accessed September 2023.*

\* CalRecycle determined total generation from the 1990-2010 per person baseline and the 2022 population in California.

# Disposal and Disposal-Related Activities

---



*In 2022, Californians threw away 6.3 pounds per person per day or the equivalent of the weight of a classic VW bug (2,315 pounds).*

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, transformation, EMSW, waste-tire derived fuel, and other beneficial reuse at landfills (such as construction activities, landscaping, and erosion control). The calculated overall disposal is subsequently used to determine the statewide recycling rate.

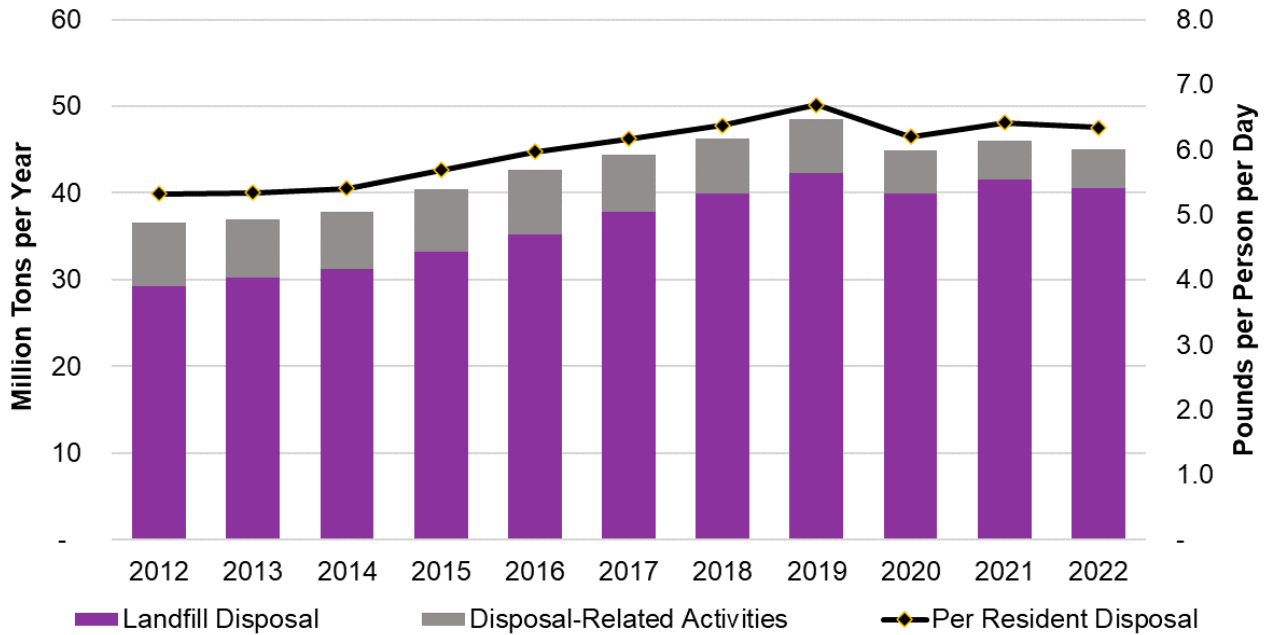
Based on data reported to CalRecycle, overall disposal in 2022 was about 45.1 million tons, including disposal and disposal-related activities.

In 2022, 40.5 million tons of waste were landfilled in California or in out-of-state landfills, including disaster debris and designated waste<sup>†</sup>. An additional 4.5 million tons of materials went to disposal-related activities. California had a per capita overall disposal rate of 6.3 pounds per resident per day (see Figure 2), including both disposal and disposal-related activities, corresponding to approximately 2,315 pounds of disposal per resident in 2022.

---

<sup>†</sup>“Designated waste” is defined in CA Water Code § 13173 (2017) and means either of the following:  
(a) Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Section 25143 of the Health and Safety Code.  
(b) Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

**Figure 2. California’s Statewide Per Resident and Total Disposal from 2012 to 2022**



The left y-axis represents million 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 RDRS with population from the California Department of Finance (5). Accessed September 2023.

In 2022, the commercial sector was the source of the most material disposed, followed by the residential and then self-haul sectors (see Table 1). About 48 percent of disposed material originated from the commercial sector. Compared to 2021, disposal remained the same in all sectors.

**Table 1. Source Sector Breakdown (%) by Year for Material Disposed in California from 2019 to 2022**

Year	Self-Haul	Residential	Commercial
2019*	20%	30%	50%
2020	20%	33%	47%
2021	20%	32%	48%
2022	20%	32%	48%

Data on disposal by source sector is from the RDRS, which started being collected Quarter 3 (Q3) of 2019. \*Data for 2019 is only for Q3 and Q4 of 2019. Accessed September 2023.

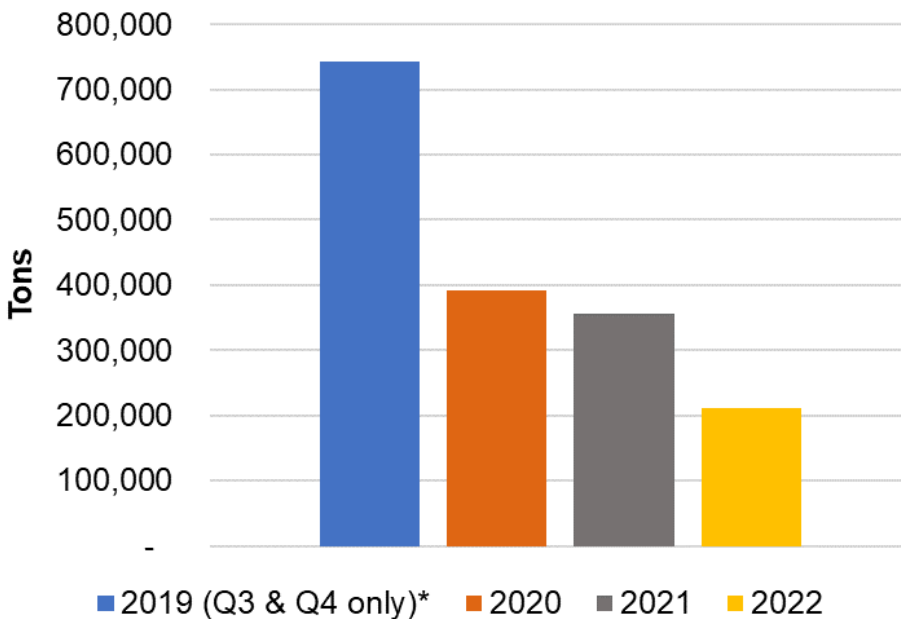


## Disposal-Related Activities

Disposal-related activities are included in total disposal to estimate the recycling rate. The seven types of disposal-related activities in the state contributed to almost 10 percent of total disposal. ADC was the most prevalent, with 2.6 million tons used in 2022. Of the total ADC, about 211 thousand tons were green material ADC and the other 2.3 million tons were non-green material.

As per AB 1594 (Williams, Chapter 719, Statutes of 2014), beginning January 1, 2020, the use of green material ADC no longer counts as diversion and is considered disposal. Beginning in the third quarter of 2019, CalRecycle started collecting data through the RDRS on the use of green material ADC at landfills. Figure 3 compares the tons of green material ADC between 2019 (Q3 & Q4 only), 2020, 2021, and 2022 to illustrate the decreased use of green material ADC starting in 2020. The amount of green material used for ADC for half of 2019 was almost double the amount used for the entirety of 2020. In 2022, California landfills used even fewer tons of green material ADC than 2021, decreasing by about 145 thousand tons.

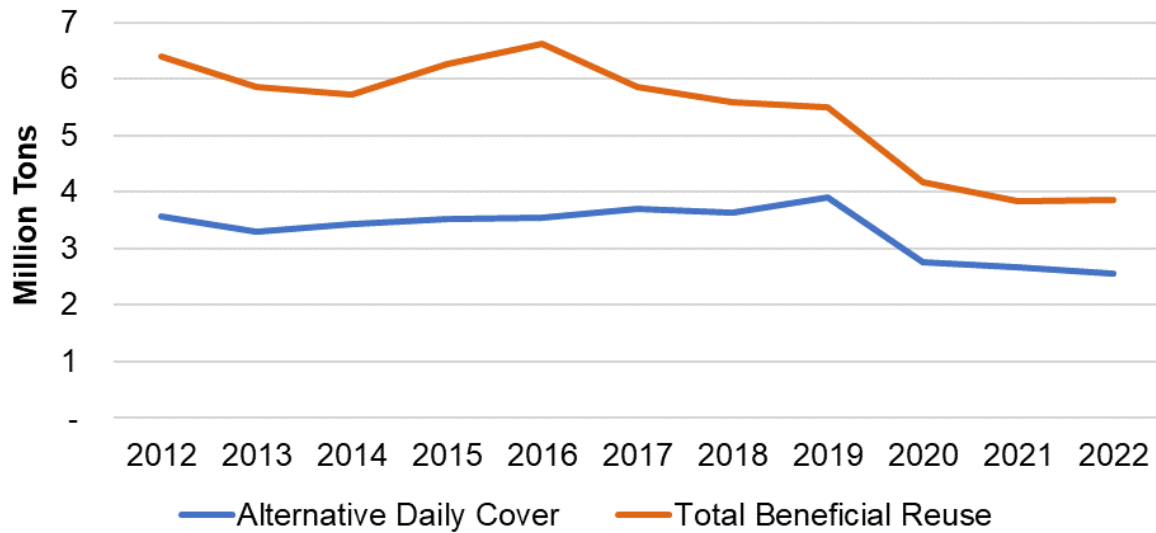
**Figure 3. Green Material Alternative Daily Cover (ADC) Utilization from 2019\* to 2022**



*Data on green material ADC from the RDRS. Accessed September 2023. \*Data for 2019 only includes Quarter 3 (Q3) and Quarter 4 because that information started being reported to the RDRS in Quarter 3 (Q3) of 2019.*

Largely due to the decrease in green material ADC, the amount of total material used for ADC (green and non-green) has also decreased starting in 2020 (see Figure 4). The total amount of material sent to beneficial reuse remained about the same in 2022 compared to 2021. Green material ADC is a subset of total ADC, a subset of total beneficial reuse.

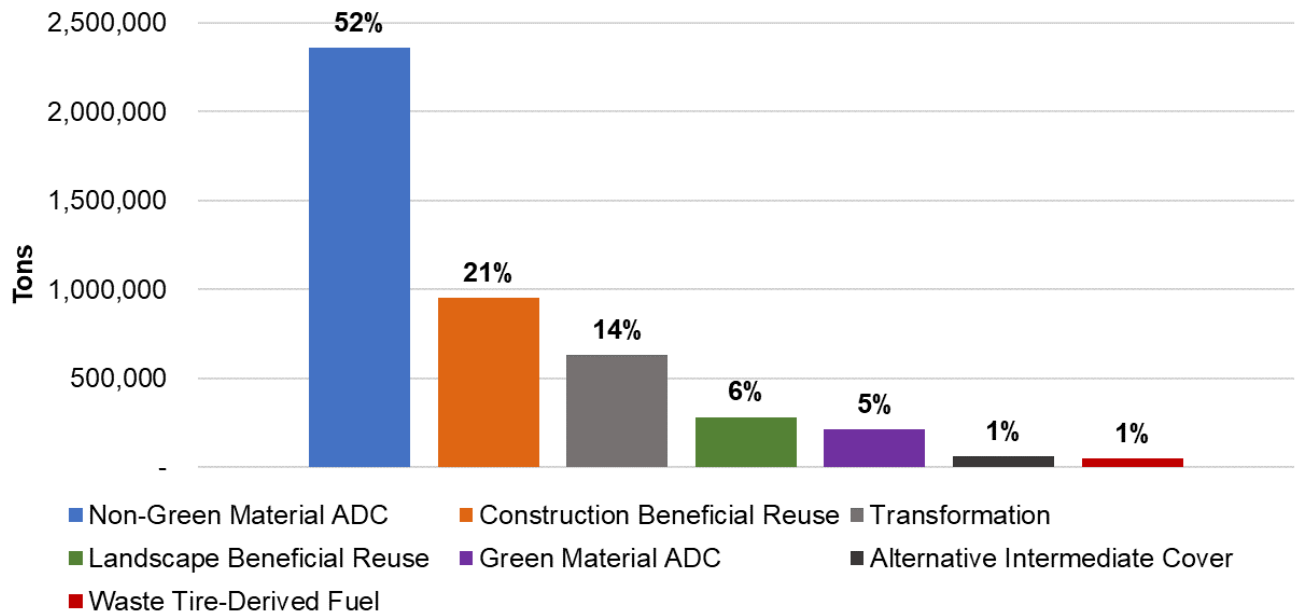
**Figure 4. Total Beneficial Reuse and Total ADC from 2012 to 2022**



*Data on Beneficial Reuse is from the RDRS. Total ADC includes green and non-green material and is a subset of total beneficial reuse. Accessed September 2023.*

At landfills, operators used 1.3 million tons of material for beneficial reuse other than ADC, comprising almost 300 thousand tons for landscaping and erosion control, around 1 million tons for construction, and about 60 thousand tons for AIC. In 2022, operators processed over 600 thousand tons of material at transformation facilities. For 2022, around 32 thousand tons were attributed to waste tire-derived fuel (see Figure 5).

**Figure 5. Disposal-Related Tonnage in California in 2022**

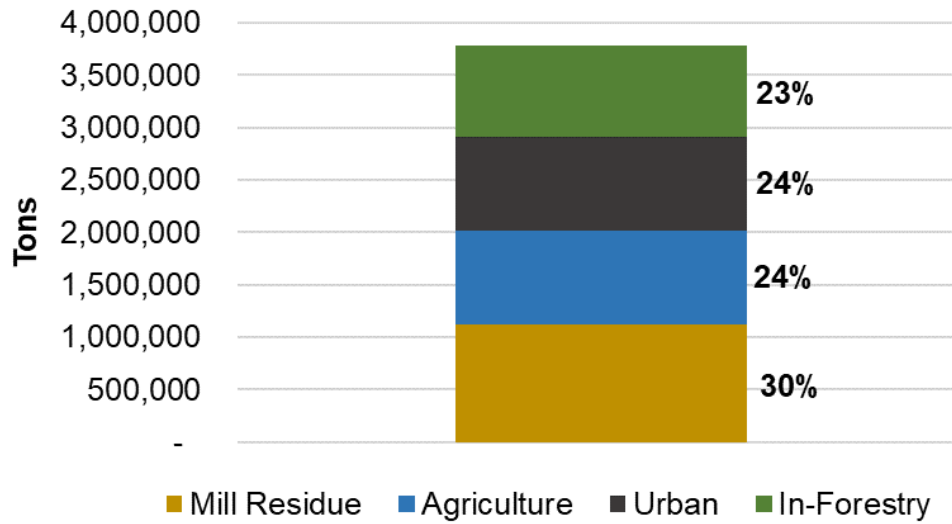


*Data is from the RDRS (accessed September 2023) and waste tire-derived fuel reports submitted to CalRecycle <sup>(1)</sup>. Waste tire-derived fuel estimates based on 2022. No EMSW was reported in 2022.*

## Biomass

In 2022, 24 operating biomass conversion facilities accepted almost 4 million tons of woody biomass. Figure 6 shows roughly one-third of the wood waste originated from mill residue (about 1.1 million tons), under a quarter originated from agricultural sources, under a quarter originated from urban sources, and under a quarter originated from in-forestry sources.

**Figure 6. Source Sector for Woody Biomass Sent to Biomass Conversion Facilities in 2022**



*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***



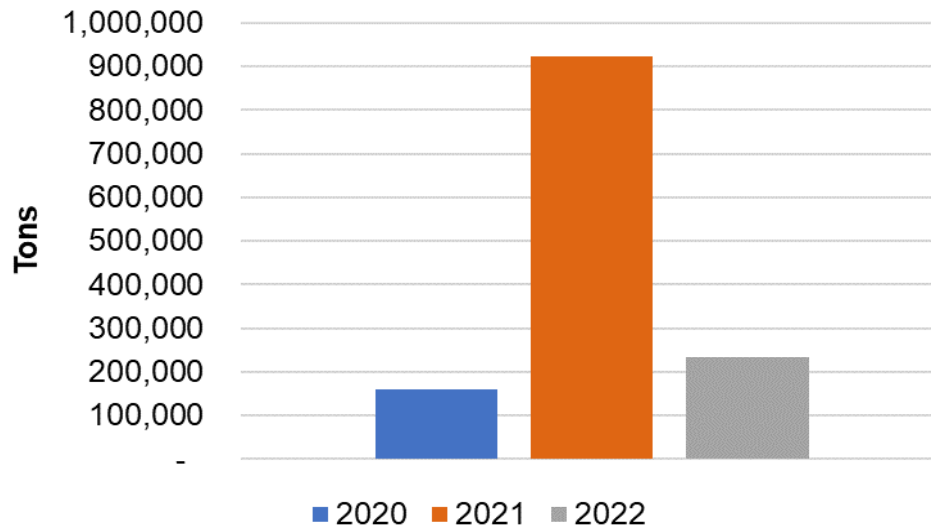
*CalRecycle cleaned up over 200,000 tons of disaster debris from wildfire disasters in 2022.*

CalRecycle, in partnership with the Governor’s Office of Emergency Services, frequently supports local governments with debris removal and remediation from disasters. Additionally, CalRecycle collects quarterly information on disaster debris sent to landfills through RDRS.

The total amount of disaster debris, including structural debris and hazard trees, disposed of in California totaled to over 200 thousand tons in 2022, down from almost 1 million tons in 2021 (see Figure 7).



**Figure 7. Disaster Debris Disposal in California Landfills from 2020 to 2022**



*Data is from the RDRS. Accessed September 2023.*

# Recycling

## Statewide Recycling Rate

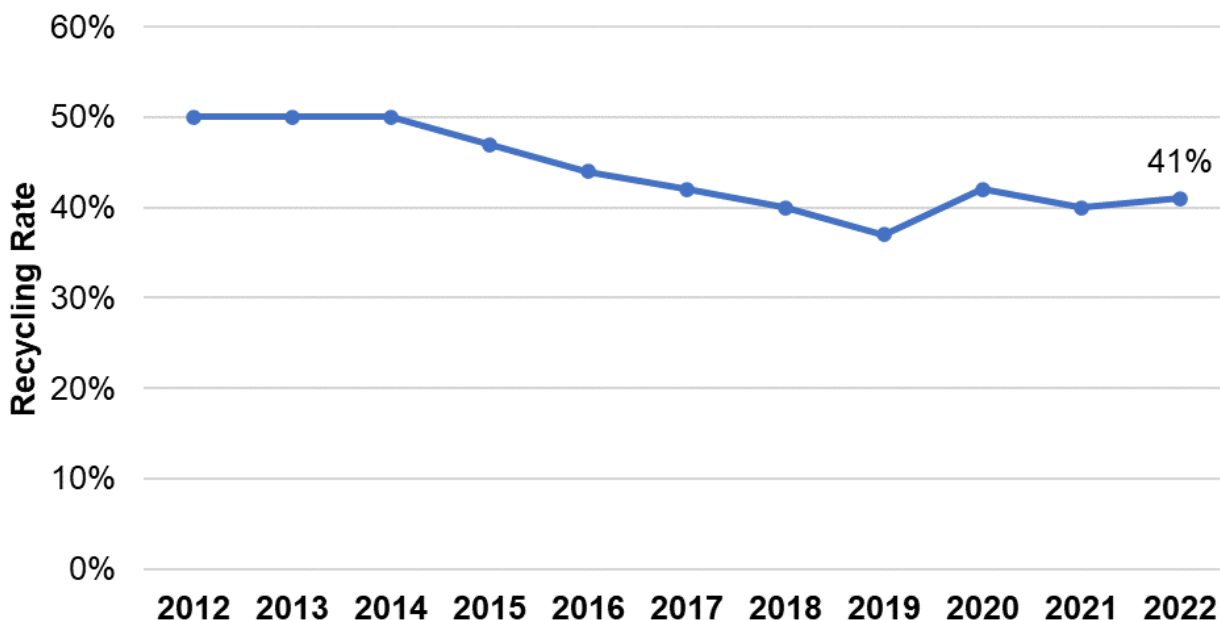


To calculate the statewide recycling rate to track progress towards the 75 percent recycling rate goal defined by AB 341 (Chesbro, Chapter 476, Statutes of 2011), CalRecycle subtracts the amount of material disposed in landfills and seven disposal-related activities from the estimated total generation.

According to CalRecycle calculations and comparison with reported disposal, the department estimates that 31 million tons of material were recycled (through source reduction, recycling, and composting) in 2022. California's statewide recycling rate was 41 percent (see Figure 8).

*In 2022, California's recycling rate was 41%.*

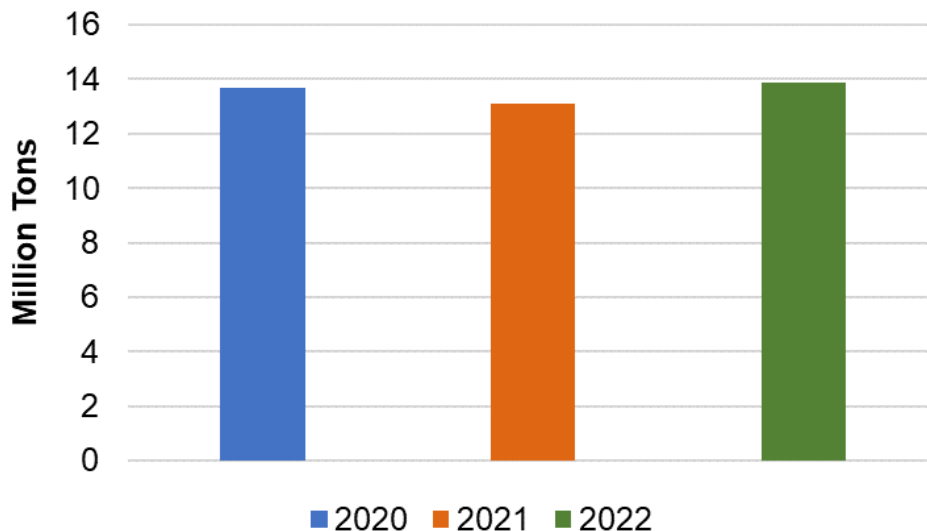
**Figure 8. California's Statewide Recycling Rate Since 2012**



## End Use

In 2022, almost 14 million tons of recovered material were sent to end use from California. End use, a subset of materials estimated to be recycled, means that material was sent to a user who consumes it by composting or mulching it or who utilizes the recovered material for manufacturing and packaging, construction, fuel, land application, inert debris fill, or other use. See Figure 9 for end use outflows from 2020 to 2022.

**Figure 9. End Use Outflows in California from 2020 to 2022**



*Data is from the RDRS. Accessed September 2023.*

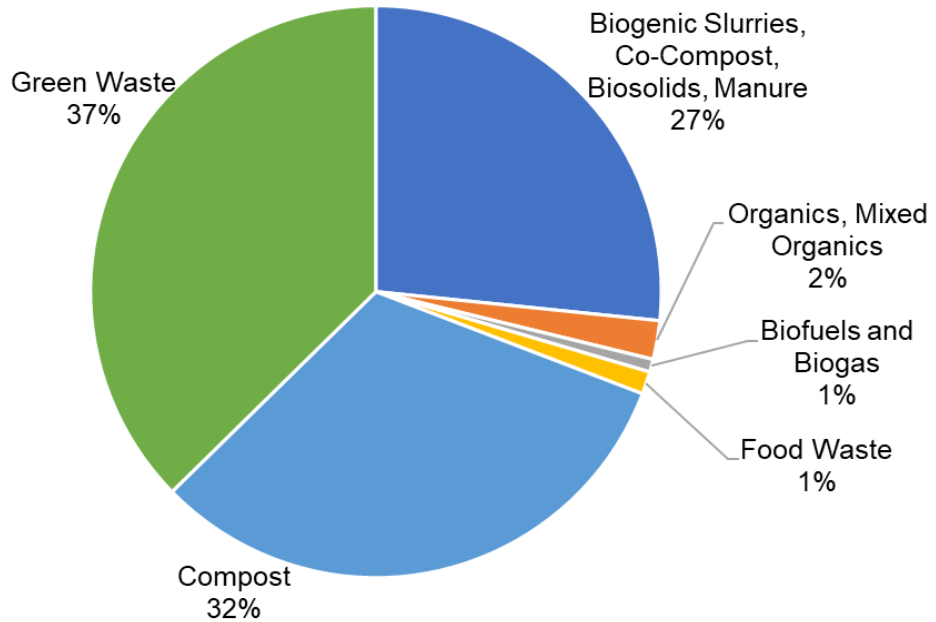
In 2022, RDRS reporting indicated 7.4 million tons of recovered organic material being sent to end users, recycling/composting, or brokering/transporting (see Table 2). Organic material in this analysis does not include biofuels and biogas; however, they comprise only a small percentage of total organic outflows (see Figure 10). This represents an increase of nearly 800,000 tons from 2021.

**Table 2. Trends in Non-Duplicated Organic Outflows in California from 2020 to 2022**

Year	Tons Sent
2020	6,786,732
2021	6,609,388
2022	7,404,674

*Data is from the RDRS. Accessed November 2023.*

**Figure 10. Non-Duplicated Outflows of Recovered Organic Material in California in 2022, by Material Category**



*Categories of recovered organic material being sent to end users, recycling/composting, or brokering/transporting. Percentages represent proportion of total non-duplicated organic outflows in 2022. Data is from the RDRS. Accessed November 2023.*

# Recyclable Materials Exports

---

After providing details on methods and data limitations, this section presents data on the number of recyclable materials exported via seaborne container vessels from California ports in 2022. Data on plastic scrap exports via truck and rail to Canada and Mexico is also presented. Data is displayed 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<sup>(2)</sup>. 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 data on material exports by truck and rail, including to Canada and Mexico, and information regarding materials exported by air.

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 estimates, specific recyclable commodities were combined into custom groups to represent common recyclable categories by type or purpose (see Table 3). All weights shown are in short tons, equivalent to 2,000 pounds. WISERTrade also reports vessel value in U.S. dollars (USD) for seaborne exports<sup>(‡)</sup>. The data presented are for the calendar year 2022 and were accessed in March 2023.

One of the leading 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, except for data presented on plastic exports to Canada and Mexico via truck and rail.

---

<sup>‡</sup>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 exporting carrier 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 including steel and iron
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 mechanically separated 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 scrap of paper and paperboard
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



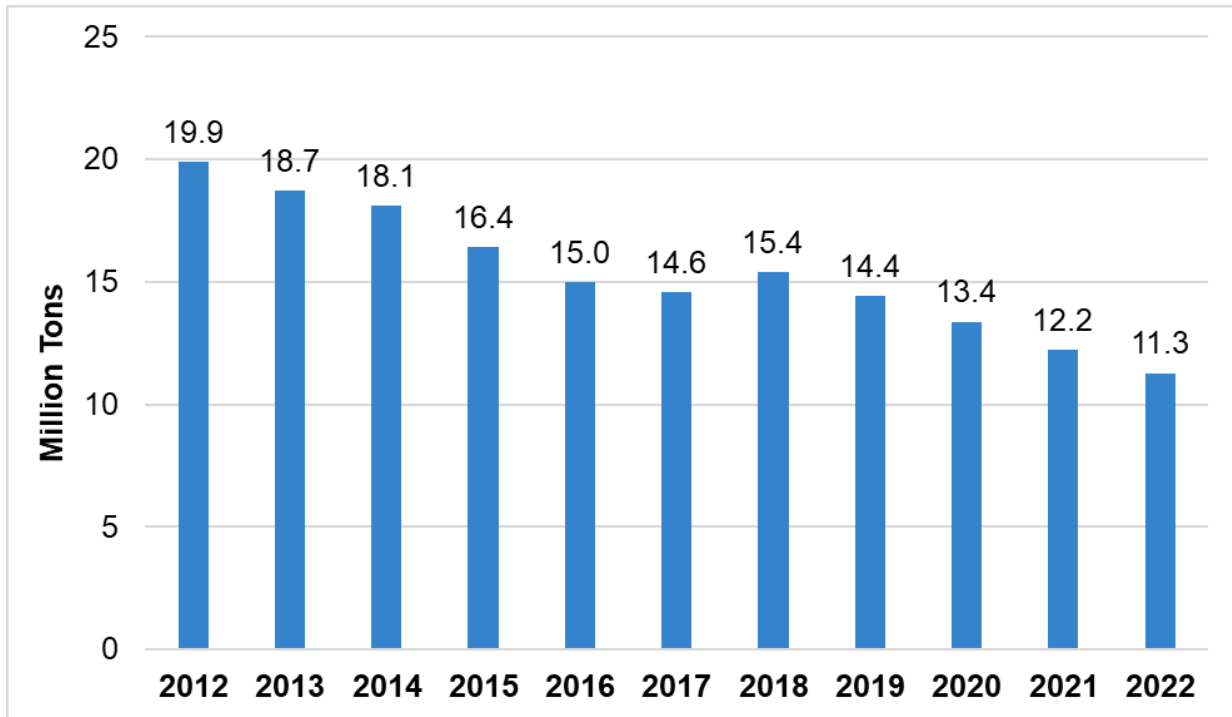
*Overview of seaborne recyclable materials exports from California in 2022, including total tonnage exported and vessel value.*

Based on the 2022 WISERTrade data, 11.3 million tons of recyclable materials were exported from California ports to international markets. Compared to 2021, the tonnage decreased about 8 percent in 2022 by almost 950,000 tons (see Figure 11). This is the fourth consecutive year of declining recyclable material exports from California. Exports of recyclable materials have decreased by 8.6 million tons since 2012.

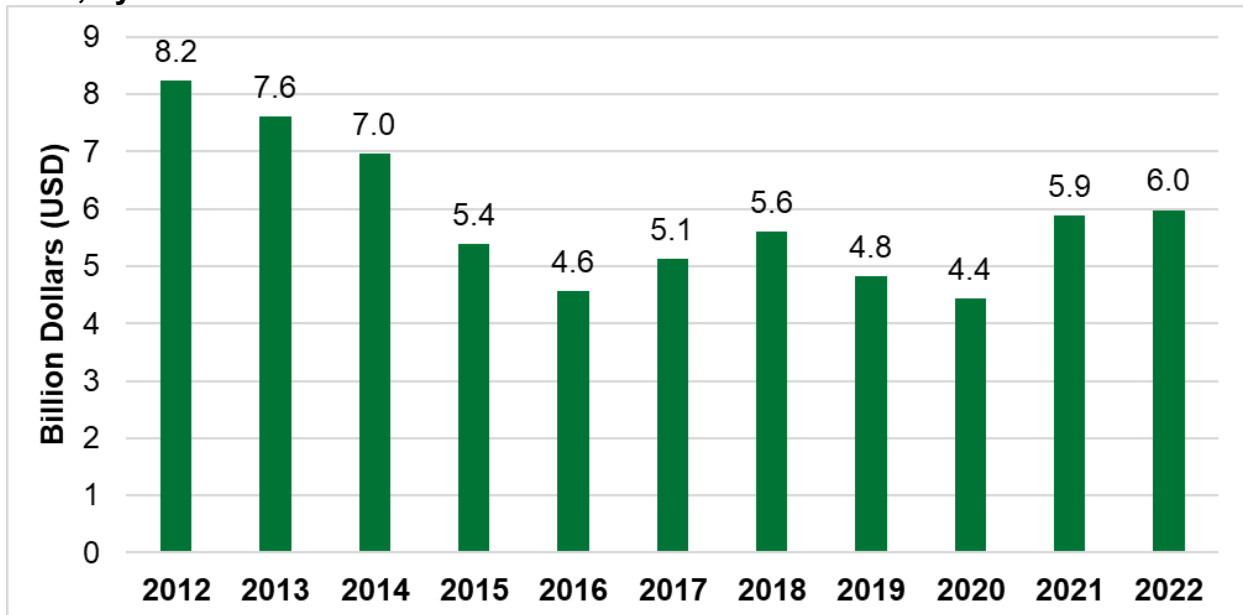
Recyclable materials exported from California ports had a vessel value of about \$6 billion USD (see Figure 12). Despite the reduction in tonnage exported, the total vessel value increased by about \$88 million USD compared to 2021.

Recyclable materials accounted for approximately 21 percent of the 54.6 million tons of all material exported from California.

**Figure 11. Seaborne Recyclable Materials Exports from California from 2012 to 2022, by Weight**



**Figure 12. Seaborne Recyclable Materials Exports from California from 2012 to 2022, by Vessel Value**



Tables 4 and 5 summarize the recyclable materials exported from California seaports in 2022.

Table 4 provides the weight (tons) of seaborne recyclable materials exported by material category in 2021 and 2022, including the percent change in weight from 2021 to 2022.

**Table 4. Seaborne Recyclable Materials Exports from California for 2021 and 2022, by Weight**

<b>Material Category</b>	<b>2021 Tons</b>	<b>2022 Tons</b>	<b>Tonnage Change (Tons)</b>	<b>Percent Change</b>
OCC and Kraft Paper	5,418,785	4,860,874	-557,911	-10%
Ferrous Metal	4,545,897	4,414,196	-131,701	-3%
Non-Ferrous Metal	964,796	933,424	-31,372	-3%
Unsorted Mixed Paper	466,355	400,626	-65,729	-14%
Other Misc. Paper	456,893	258,286	-198,607	-43%
High Grade Paper	113,612	153,708	40,096	35%
Worn Clothing	113,377	127,236	13,859	12%
Batteries	4,709	48,404	43,695	928%
Plastics 1 and 2	81,707	35,758	-45,949	-56%
Used Oil and Grease	16,402	14,324	-2,078	-13%
Mixed Plastics 3-7	16,866	6,280	-10,586	-63%
Tires/Rubber	6,831	3,926	-2,905	-43%
Glass	1,637	1,620	-17	-1%
<b>Total All Recyclable Material*</b>	12,229,492	11,281,853	-947,639	-8%
<b>Total All Exports (Recyclable and Not)</b>	55,791,018	54,596,024	-1,194,994	-2%

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

Table 5 provides the vessel value (USD) of recyclable materials exported by material category in 2021 and 2022, including the percent change in vessel value from 2021 to 2022.

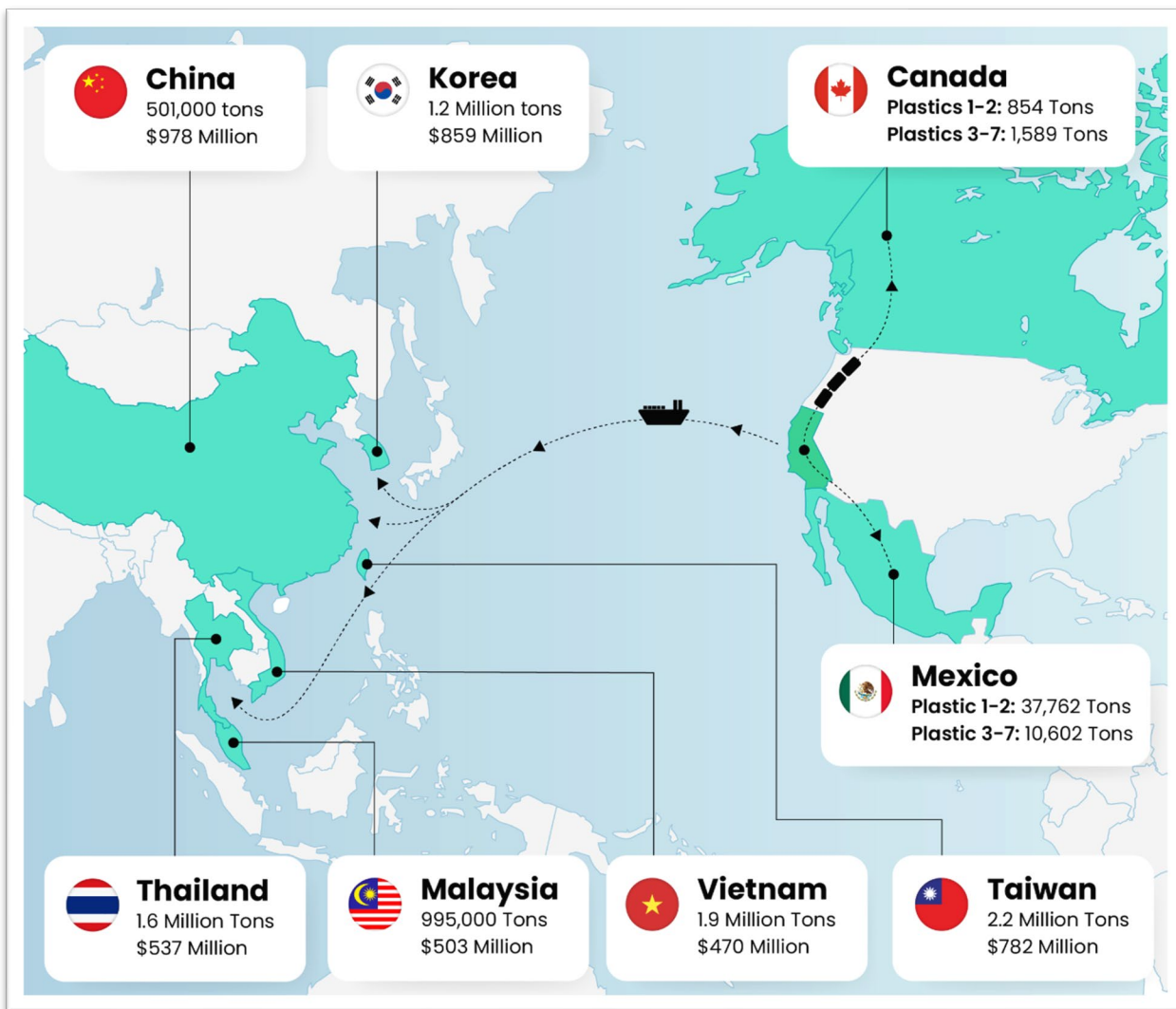
**Table 5. Seaborne Recyclable Materials Exports from California for 2021 and 2022, by Vessel Value**

<b>Material Category</b>	<b>2021 Vessel Value (USD)</b>	<b>2022 Vessel Value (USD)</b>	<b>Vessel Value Change (USD)</b>	<b>Percent Change</b>
Non-Ferrous Metal	2,539,668,613	2,654,556,957	114,888,344	5%
Ferrous Metal	1,852,308,980	1,839,678,962	-12,630,018	-0.7%
OCC and Kraft Paper	925,591,600	890,754,707	-34,836,893	-4%
Worn Clothing	126,367,015	160,076,762	33,709,747	27%
Unsorted Mixed Paper	74,325,252	67,662,348	-6,662,904	-9%
Batteries	7,756,745	61,798,493	54,041,748	697%
Other Misc. Paper	98,161,433	50,891,101	-47,270,332	-48%
High Grade Paper	33,047,475	40,534,060	7,486,585	23%
Plastics 1 and 2	35,626,819	23,716,286	-11,910,533	-33%
Glass	30,176,966	22,873,422	-7,303,544	-24%
Used Oil and Grease	3,718,823	3,525,199	-193,624	-5%
Mixed Plastics 3-7	5,946,586	2,769,808	-3,176,778	-53%
Tires/Rubber	2,730,146	1,744,776	-985,370	-36%
<b>Total All Recyclable Material*</b>	<b>5,891,244,884</b>	<b>5,979,070,774</b>	<b>87,825,890</b>	<b>1%</b>
<b>Total All Exports (Recyclable and Not)</b>	<b>81,554,336,092</b>	<b>85,856,563,431</b>	<b>4,302,227,339</b>	<b>5%</b>

*\*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



*California's seaborne recyclable materials exports to top importing countries in 2022, plus plastics sent via truck and rail to Canada and Mexico.*

The three countries importing the most recyclable materials from California in 2022 were, in order of greatest tonnage: Taiwan, Vietnam, and Thailand (see Figure 13). Taiwan's, Vietnam's, and Thailand's total recyclable imports decreased by weight in 2022 compared to 2021.

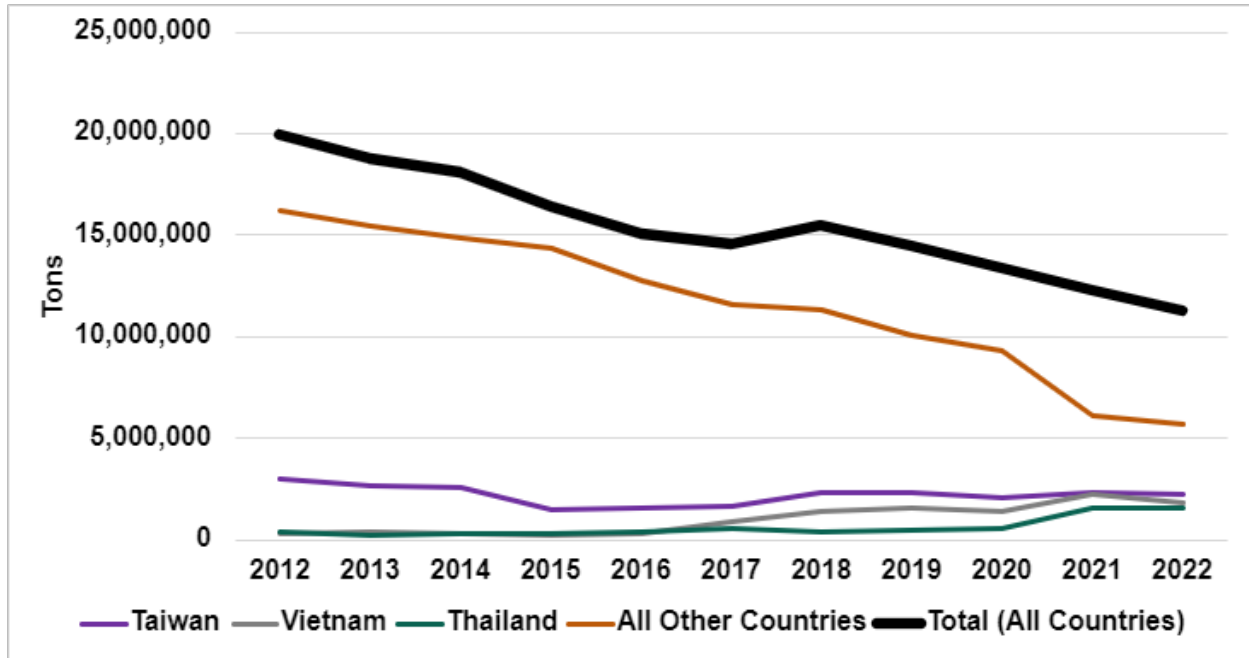
From 2000 to 2020, China was the largest importer of California's recyclable materials. In 2022, China fell to the eighth largest importer. The amount of recyclable materials imported by China has steadily decreased since 2011. In 2022, China's imports of all seaborne recyclable materials decreased 96 percent by weight and 79 percent by vessel value compared to 2012.



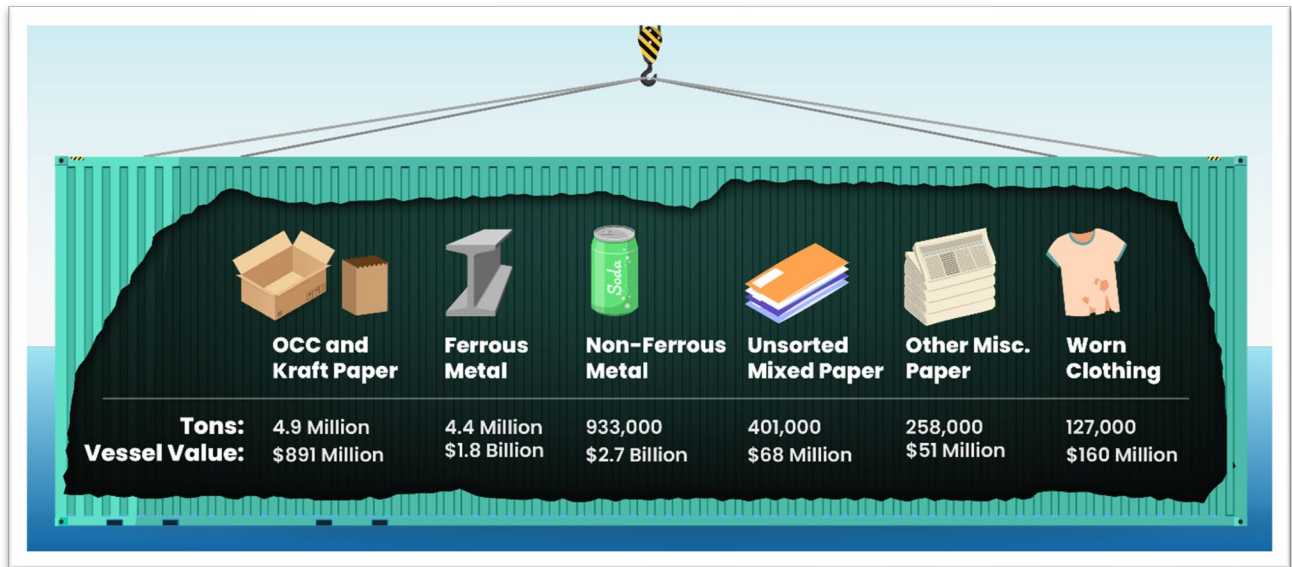
*Change in seaborne exports. Between 2021 and 2022, recyclable materials exported from California decreased overall and for each of the top importing countries plus China.*

The following line graphs show seaborne exports by country and include the top three importing countries for the given recyclable material. “All Other Countries” are materials imported by all other countries. “Total” is the sum of seaborne exports from all countries, including the top three.

Figure 13. Seaborne Recyclable Materials Exports from California by Country of Import from 2012 to 2022, by Weight



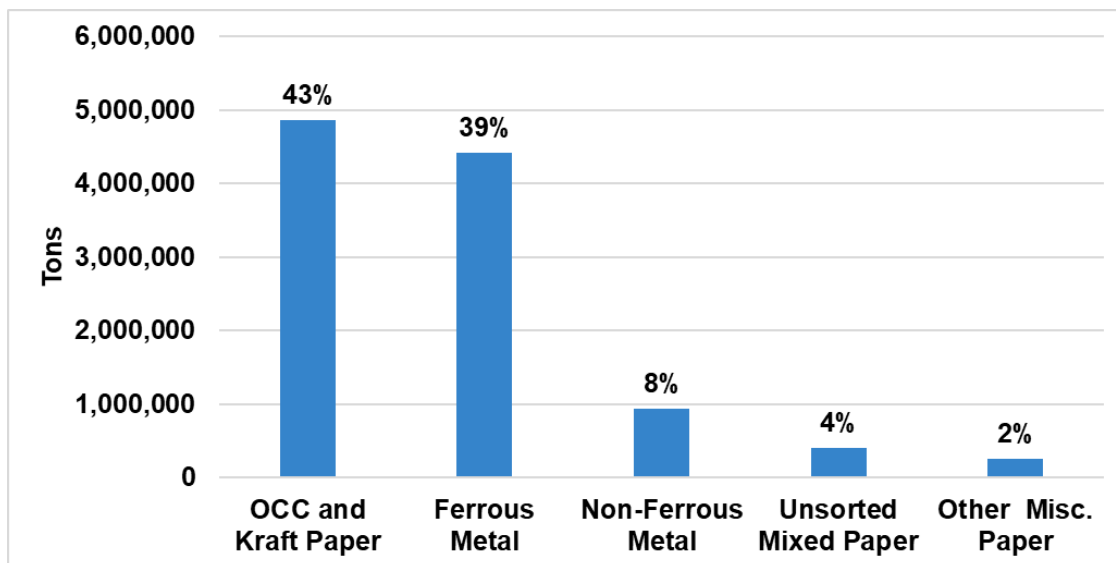
## Material Type



Top recyclable material categories exported in 2022 from California by tons and vessel value.

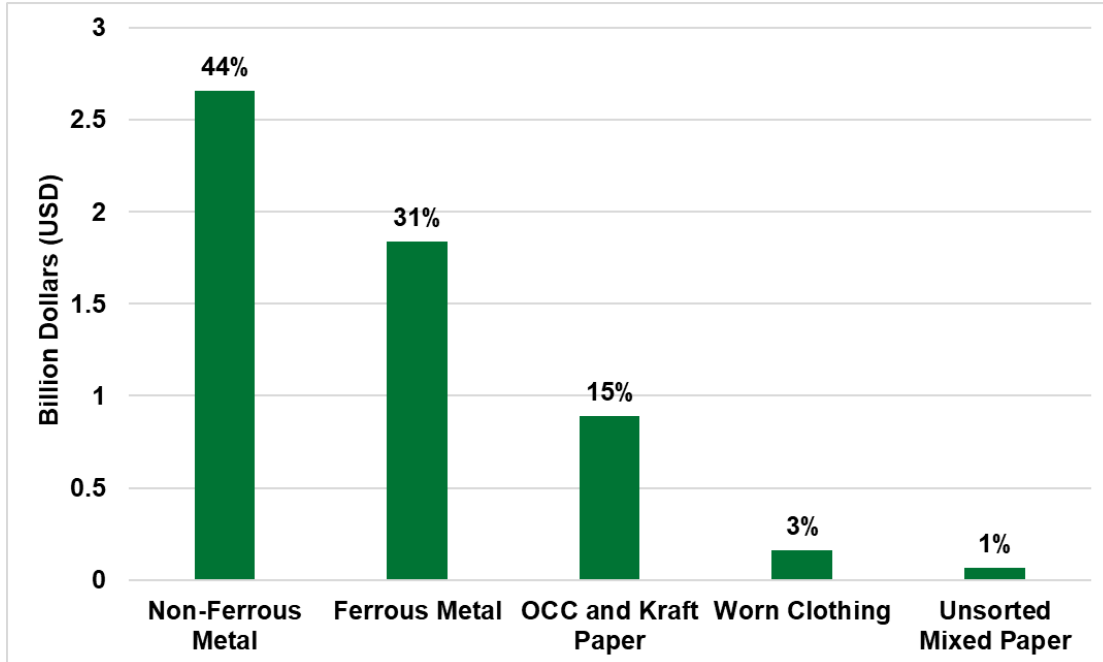
The five recyclable material categories with the most weight exported from California in 2022 were OCC and Kraft Paper, Ferrous Metal, Non-Ferrous Metal, Unsorted Mixed Paper, and Other Miscellaneous Paper (see Figure 14). The five greatest exported recyclable material types by vessel value were: Non-Ferrous Metal, Ferrous Metal, OCC and Kraft Paper, Worn Clothing, and Unsorted Mixed Paper (see Figure 15)

**Figure 14. Top Five Exported Recyclable Materials from California in 2022, by Weight**



*Information presented in terms of million tons and percent of total seaborne recyclable materials exports (11.3 million tons in 2022). The figure only includes the top five exported recyclable materials, thus does not sum to 100 percent.*

**Figure 15. Top Five Exported Recyclable Materials from California in 2022, by Vessel Value**

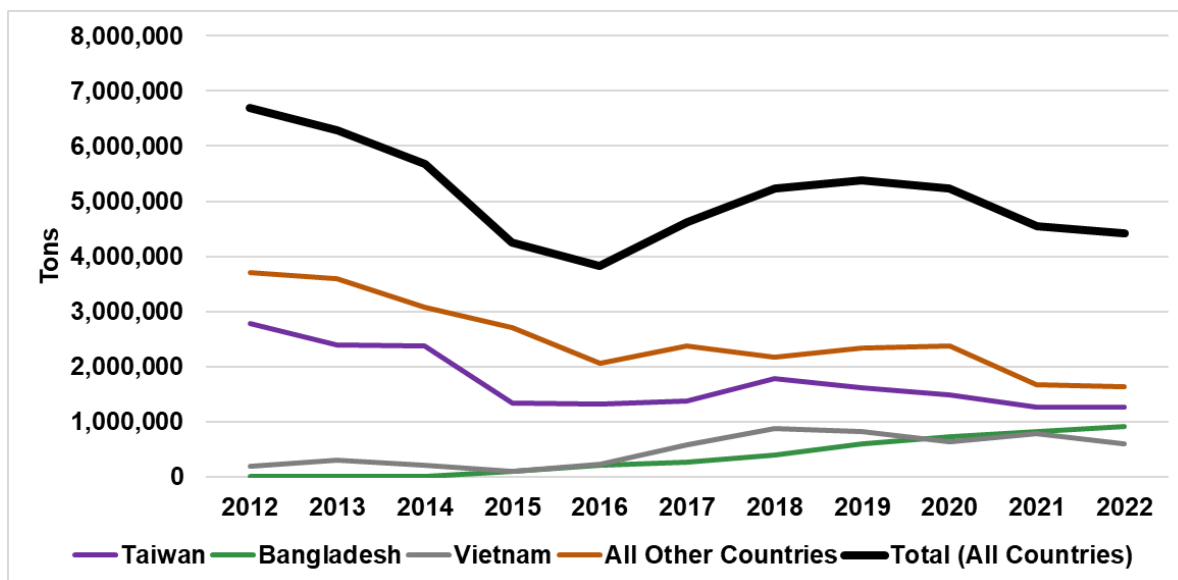


*Information presented in terms of million USD and percent of total seaborne recyclable materials exports (\$6 billion USD in 2022). The figure only includes the top five exported recyclable materials and thus does not sum to 100 percent.*

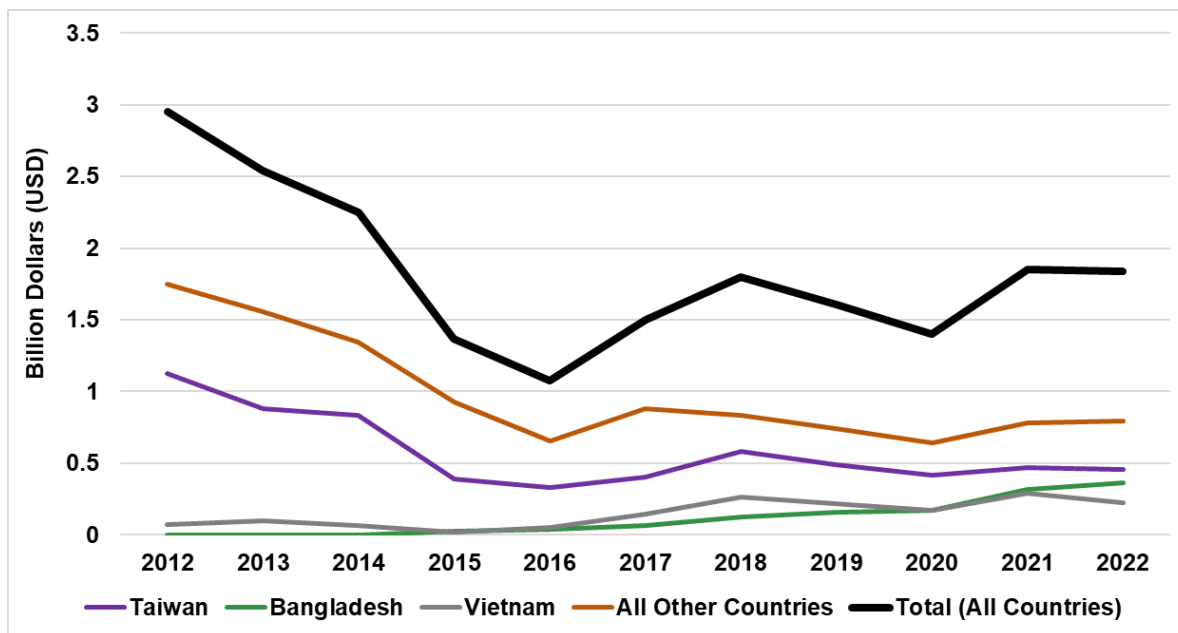
## Ferrous Metals

Recyclable materials exports of Ferrous Metals decreased from about 4.5 million tons in 2021 to about 4.4 million tons in 2022 (see Figure 16). The vessel value decreased from \$1.9 billion to \$1.8 billion USD in 2021 (see Figure 17).

**Figure 16 Seaborne Exports of Ferrous Metals from California by Country of Import from 2012 to 2022, by Weight**



**Figure 17. Seaborne Exports of Ferrous Metals from California by Country of Import from 2012 to 2022, by Vessel Value**

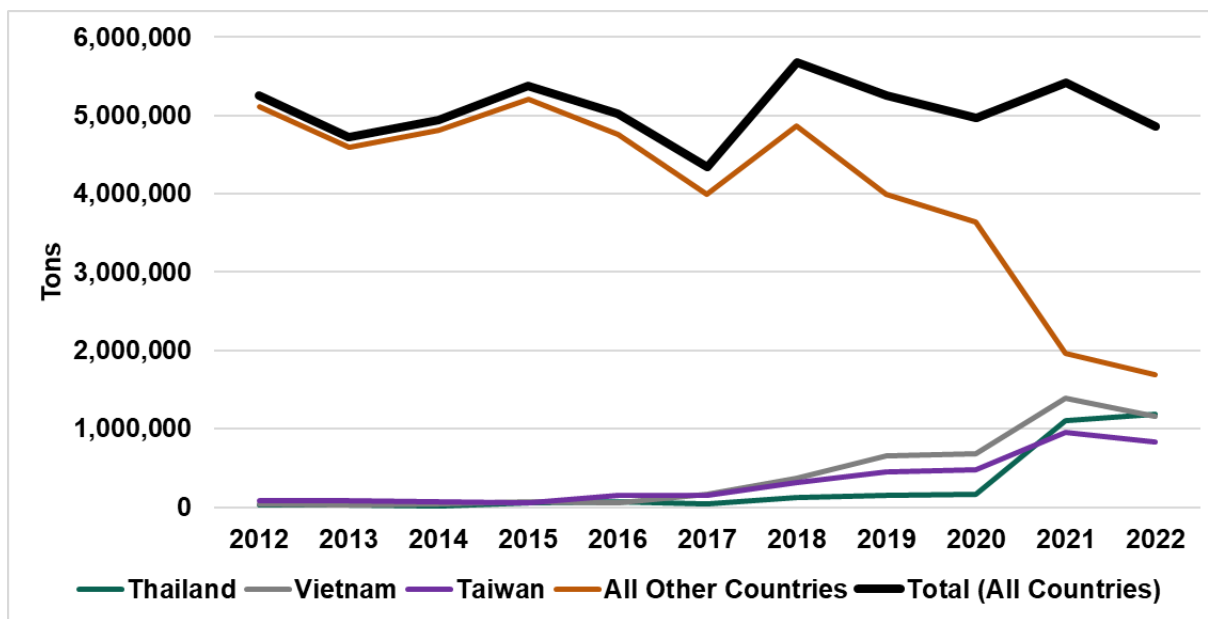


### Old Corrugated Cardboard (OCC) and Kraft Paper

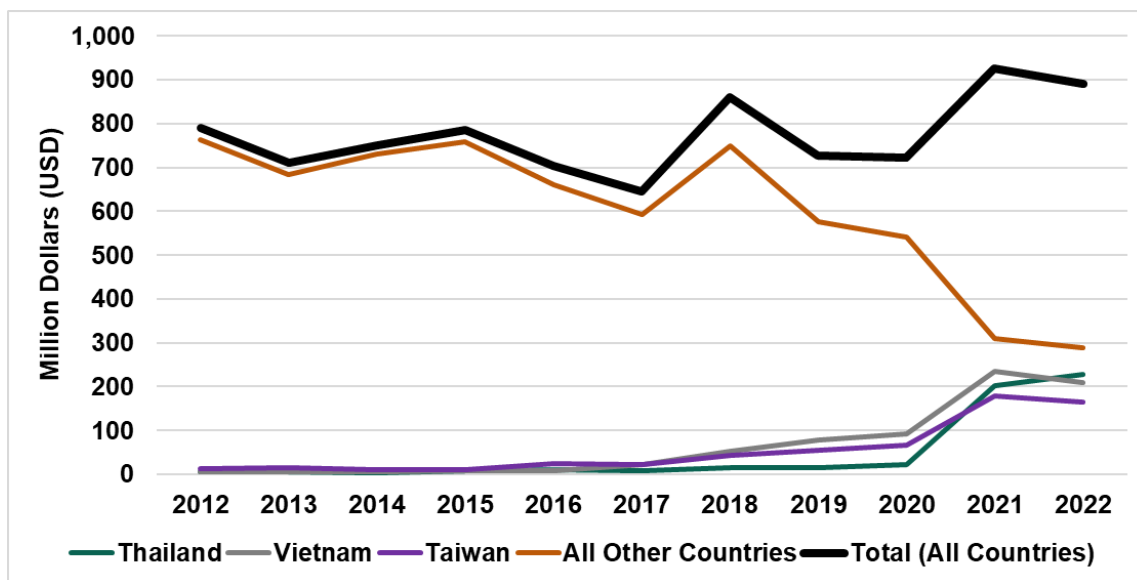
Recyclable materials exports of OCC and Kraft paper decreased from about 5.4 million tons in 2021 to about 4.9 million tons in 2022 (see Figure 18). The vessel value also decreased from \$926 million in 2021 to \$891 million USD in 2022 (see Figure 19).



**Figure 18. Seaborne Exports of OCC and Kraft Paper from California by Country of Import from 2012 to 2022, by Weight**



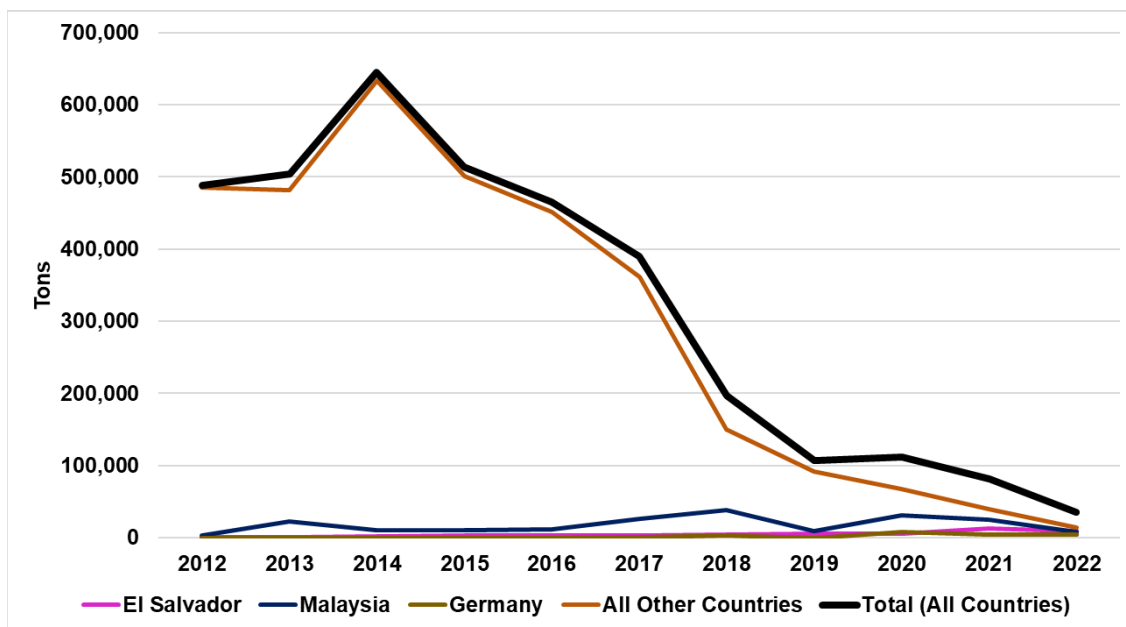
**Figure 19. Seaborne Exports of OCC and Kraft Paper from California by Country of Import from 2012 to 2022, by Vessel Value**



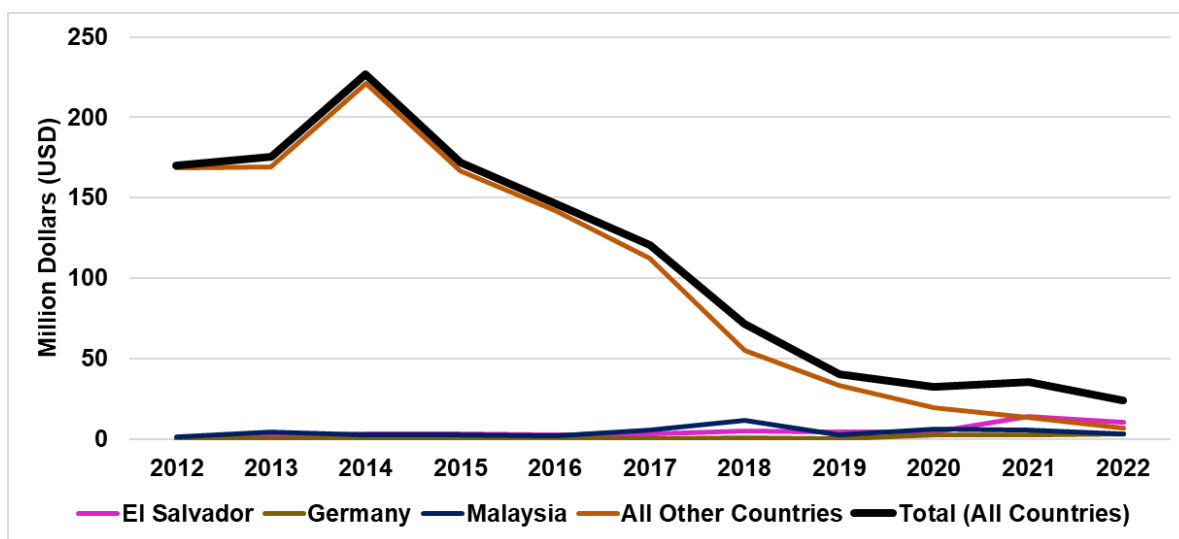
## Plastics 1 and 2

Seaborne recyclable materials exports of Plastics 1 and 2 decreased from about 82 thousand tons in 2021 to about 36 thousand tons in 2022 (see Figure 20). The vessel value also decreased from about \$36 million in 2021 to about \$24 million USD in 2022 (see Figure 21).

**Figure 20. Seaborne Exports of Plastics 1 and 2 from California by Country of Import from 2012 to 2022, by Weight**



**Figure 21. Seaborne Exports of Plastics 1 and 2 from California by Country of Import from 2012 to 2022, by Vessel Value**

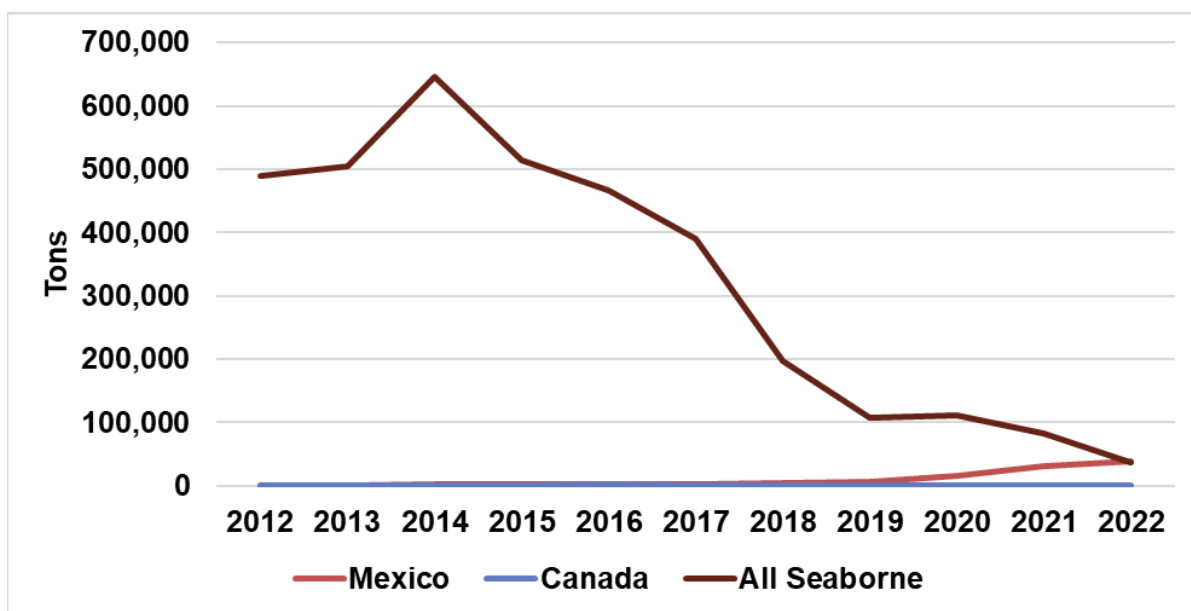


CalRecycle estimated Plastics 1 and 2 going to Mexico and Canada via truck and rail in addition to seaborne exports (see Figure 22). Historically, seaborne exports of scrap plastics 1 and 2 were much larger than those sent via truck and rail. In recent years, given significant decreases in seaborne exports and an increase in plastics sent to Mexico, the proportion of Plastics 1 and 2 sent to Mexico has increased, representing about 51 percent of all exports of scrap plastics 1 and 2 from California. This makes

Mexico the largest overall importer (seaborne, truck, and rail) of this material from California, importing 37,762 tons in 2022.

**Mexico is the largest importer of Plastic 1-7 from California**

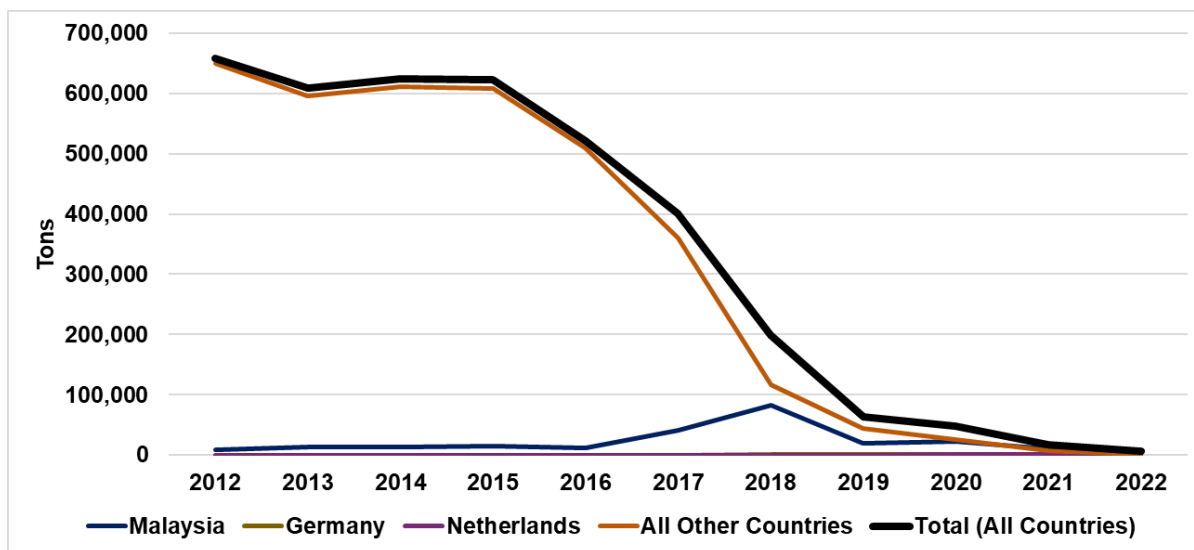
**Figure 22. Seaborne Exports and Truck & Rail Exports to Canada and Mexico of Plastic 1 and 2 from California from 2012 to 2022, by Weight**



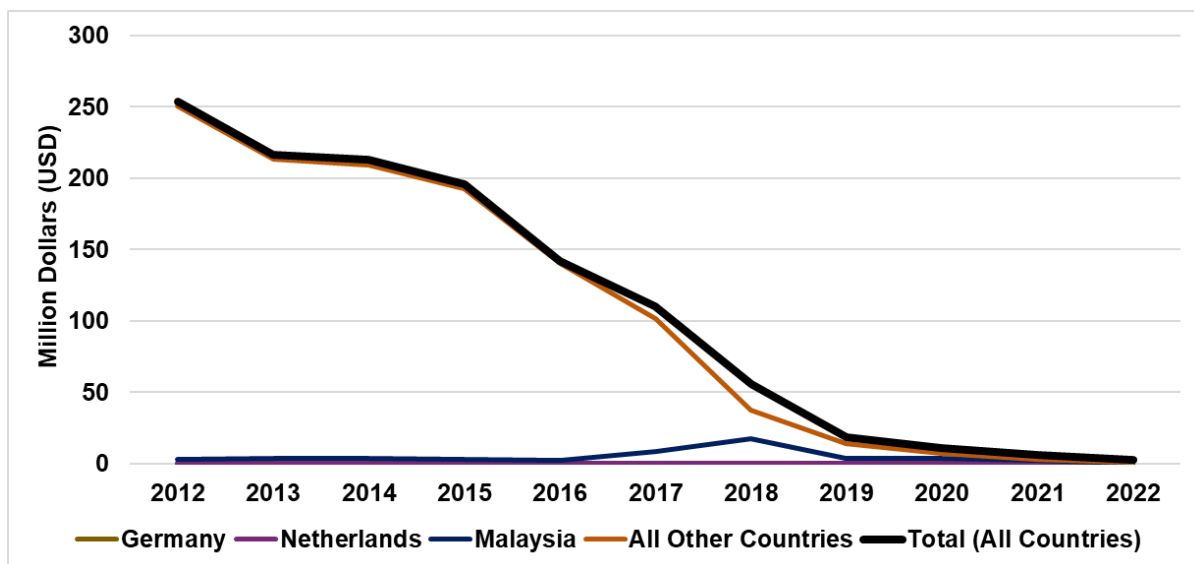
**Mixed Plastics 3 through 7**

Seaborne recyclable materials exports of Mixed Plastics 3 through 7 decreased from about 17 thousand tons in 2021 to about 6 thousand tons in 2022 (see Figure 23). The vessel value also decreased from about \$6 million in 2021 to \$3 million USD in 2022 (see Figure 24).

**Figure 23. Seaborne Exports of Mixed Plastics 3 through 7 from California by Country of Import from 2012 to 2022, by Weight**



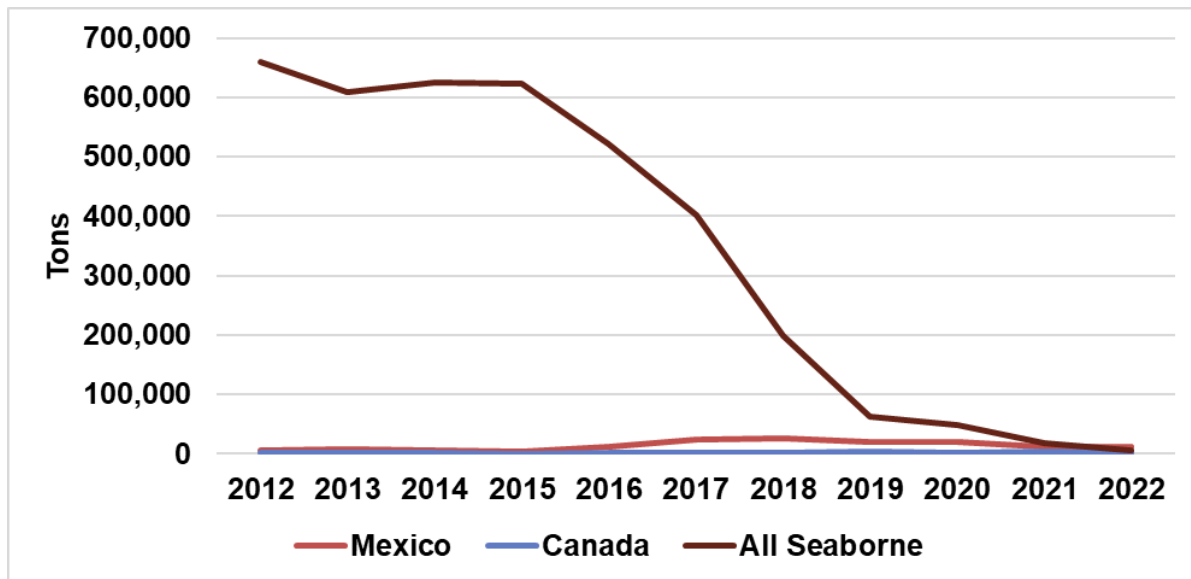
**Figure 24. Seaborne Exports of Mixed Plastics 3 through 7 from California by Country of Import from 2012 to 2022, by Vessel Value**



CalRecycle estimated scrap Plastics 3 through 7 going to Mexico and Canada via truck and rail, in addition to seaborne exports (see Figure 25). Historically, seaborne exports of scrap plastics 3 through 7 were much larger than those sent via truck and rail. In recent years, given significant decreases in seaborne exports, the proportion of Plastics 3 through 7 sent to Mexico has increased, representing about 57 percent of all exports of scrap plastics 3 through 7 from California. This also makes Mexico the largest overall

importer (seaborne, truck, and rail) of this material from California, importing 10,602 tons in 2022.

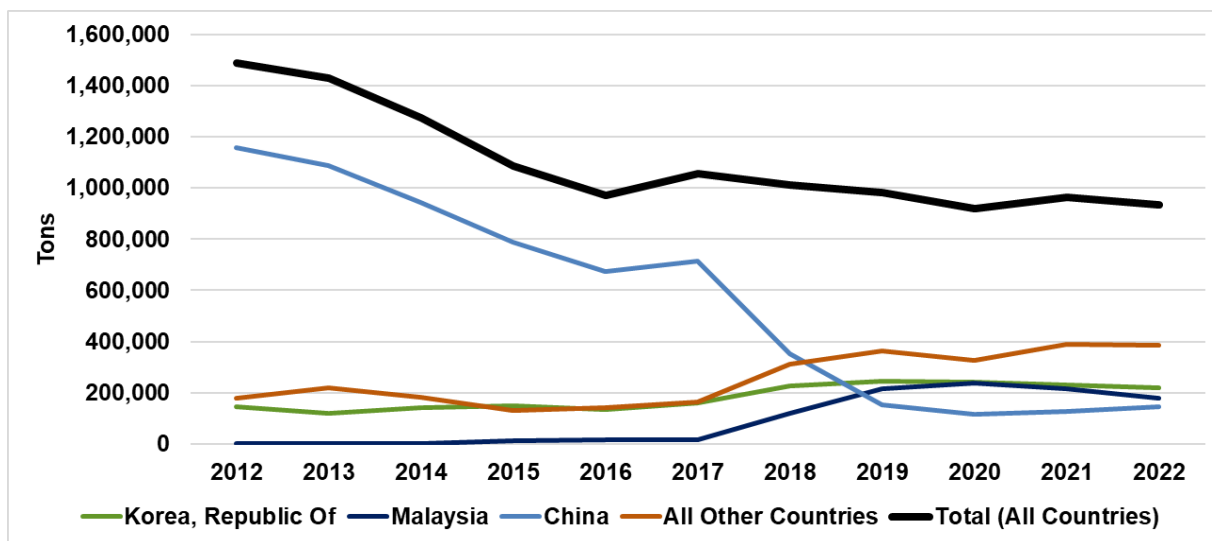
**Figure 25. Seaborne Exports and Truck & Rail Exports to Canada and Mexico of Mixed Plastics 3 through 7 from California from 2012 to 2022, by Weight**



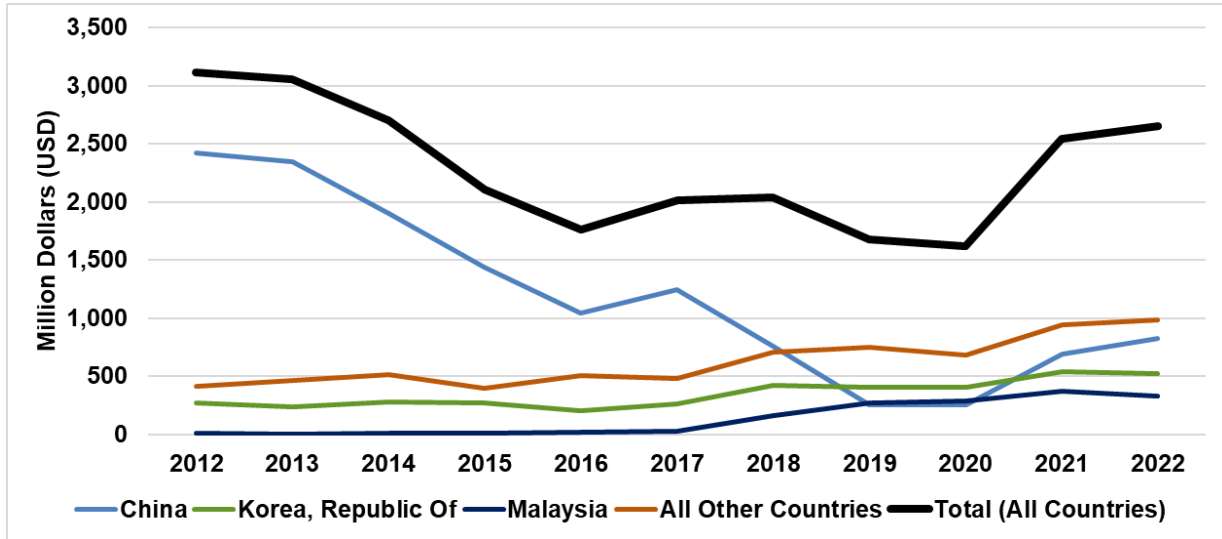
## Non-Ferrous Metals

Recyclable materials exports of Non-Ferrous Metals decreased from about 965 thousand tons in 2021 to about 933 thousand tons in 2022 (see Figure 26). The vessel value increased from about \$2.6 billion in 2021 to \$2.7 billion in 2022 (see Figure 27).

**Figure 26. Seaborne Exports of Non-Ferrous Metals from California by Country of Import from 2012 to 2022, by Weight**



**Figure 27. Seaborne Exports of Non-Ferrous Metals from California by Country of Import from 2012 to 2022, by Vessel Value**





## Conclusion

---

California has clear and ambitious environmental goals for reducing waste and managing materials. In 2022, California's recycling rate was 41 percent, up from 40 percent in 2021. As California builds a circular economy, CalRecycle will continue to use a robust mix of research and reporting to monitor the state's progress.

**California continues to strive towards its ambitious environmental goals. To learn more about how you can reduce, reuse, and recycle, visit [irecyclesmart.com](https://www.calrecycle.ca.gov/irecyclesmart)**



# Appendix 1: Table Data for Figures in the Report

**Figure 1 Data Table. Estimated Management of 76 Million Tons of Materials Generated in California in 2022**

The figure displays tonnage estimates for how the 76 million tons of materials generated in California in 2022 were managed, including a percent of total generation for each.

Management Option	Tons	Percent of Total Generation
Landfill	40,542,078	53%
Exported Recyclables (Seaborne)	11,281,853	15%
Source Reduction, Recycling & Composting	19,669,456	26%
ADC Non-Green Material	2,359,482	3%
Beneficial Reuse- Construction Transformation	954,102	1%
ADC Green Material	209,357	<1%
Beneficial Reuse- Landscaping	281,575	<1%
Alternative Intermediate Cover	61,163	<1%
Waste-Tire Derived Fuel	32,457	<1%
Engineered Municipal Solid Waste	0	0%

*CalRecycle derived quantities of landfilled waste, transformation, ADC, AIC, EMSW, and other beneficial reuse from the Recycling and Disposal Reporting System (RDRS). Accessed September 2023. No engineered municipal solid waste (EMSW) was reported in 2022. CalRecycle estimated waste tire-derived fuel based on data reported to CalRecycle for calendar year 2022 <sup>(1)</sup> CalRecycle collected exported recyclables data from WISERTrade. <sup>(2)</sup> Accessed September 2023.*

**Figure 2 Data Table. California’s Statewide Per Resident and Total Disposal from 2012 to 2022**

The bar chart in this figure displays tons of landfill disposal and disposal-related activities from 2010 to 2022. 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)
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	6,221,613	6.7
2020	39,970,881	4,879,427	6.2
2021	41,522,329	4,500,999	6.4
2022	40,542,078	4,531,405	6.3

Data is from the RDRS with population from the California Department of Finance <sup>(5)</sup>. Accessed September 2023.

**Figure 3 Data Table. Green Material ADC Utilization from 2019\*-2022**

This figure displays the total tons of green material alternative daily cover (ADC) that was utilized from 2019 (quarters 3 and 4 only) to 2022.

Year	Tons of Green Material ADC Utilized
2019*	743,749
2020	391,592
2021	356,463
2022	209,357

Data on green material ADC from the RDRS. Accessed September 2023. \*Data for 2019 only includes Quarter 3 (Q3) and Quarter 4 because that information started being reported to the RDRS in Quarter 3 (Q3) of 2019.

**Figure 4 Data Table. Total Beneficial Reuse and Total ADC from 2012 to 2022**

The figure displays the total tons of beneficial reuse and tons of alternative daily cover utilized in California from 2010 to 2022.

Year	Alternative Daily Cover Tons	Total Beneficial Reuse Tons
2012	3,572,987	6,395,662
2013	3,301,578	5,862,152
2014	3,420,540	5,710,258
2015	3,516,961	6,252,437
2016	3,547,840	6,611,553
2017	3,691,523	5,860,901
2018	3,633,057	5,579,375
2019	3,901,563	5,490,166
2020	2,761,676	4,165,567
2021	2,656,159	3,827,091
2022	2,568,838	3,865,679

**Figure 5 Data Table. Disposal-Related Tonnage in California in 2022**

The figure displays tons of material managed in disposal-related activities, which totaled 4.5 million tons in California in 2022. Figure 1 also displays the percent of all disposal-related activities for each activity type.

Disposal-Related Activity	Tons	Percent of Total
Non-Green Material ADC	2,359,482	52%
Construction Beneficial Reuse	954,102	21%
Transformation	633,270	14%
Green Material ADC	209,357	5%
Landscape Beneficial Reuse	281,575	6%
Alternative Intermediate Cover	61,163	1%
Waste Tire-Derived Fuel	32,457	1%
Engineered Municipal Solid Waste	0	0%

*Data is from the RDRS (accessed September 2023) and waste tire-derived fuel reports submitted to CalRecycle <sup>(1)</sup>. No EMSW was reported in 2022*

**Figure 6 Data Table. Source Sector for Woody Biomass Sent to Biomass Conversion Facilities in 2022**

This figure displays the tons of woody biomass accepted in California in 2022 by material source.

Material Source	Tons Accepted	Percent of Total
Mill Residue	1,126,110	30%
Agriculture	893,336	24%
Urban	895,114	24%
In-Forestry	867,521	23%
<b>Total</b>	<b>3,782,081</b>	<b>100%</b>

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

**Figure 7 Data Table. Trends in Disaster Debris Disposal in California Landfills in 2022**

The figure displays the tons of disaster debris that were disposed in landfills in California from 2020 to 2022.

Year	Tons of Disaster Debris Disposed
2020	161,270
2021	921,385
2022	264,545

**Figure 8 Data Table. California's Statewide Recycling Rate Since 2012**

This figure displays the percent recycling rate in California from 2012 to 2022.

Year	Recycling Rate
2012	50%
2013	50%
2014	50%
2015	47%
2016	44%
2017	42%
2018	40%
2019	37%
2020	42%
2021	40%
2022	41%

**Figure 9 Data Table. Trends in End Use Outflows in California from 2020-2022**

This figure displays tons of material sent as end use outflows from 2020 to 2022 in California.

<b>Year</b>	<b>Tons Sent</b>
2020	13,676,823
2021	13,122,415
2022	13,899,375

**Figure 10 Data Table. Non-Duplicated Outflows of Recovered Organic Material in California in 2022, by Material Category**

This figure displays the percentages of organic material subcategory outflows in California for 2022.

<b>Organic Material Subcategory</b>	<b>Percentage of Total</b>
Green Waste	37%
Compost	32%
Biogenic Slurries, Co-Compost, Biosolids, Manure	27%
Organics, Mixed Organics	2%
Food Waste	1%
Biofuels and Biogas	1%

*Categories of recovered organic material being sent to end users, recycling/composting, or brokering/transporting. Percentages represent proportion of total non-duplicated organic outflows in 2022. Data is from the RDRS. Accessed November 2023.*



**Figure 11 Data Table. Seaborne Recyclable Materials Exports from California from 2012 to 2022, by Weight**

This figure displays the tons of recyclable materials shipped from California ports by sea from 2012 to 2022.

<b>Year</b>	<b>Recyclable Materials Exports (Tons)</b>
2012	19,895,756
2013	18,717,192
2014	18,089,316
2015	16,416,464
2016	14,999,861
2017	14,561,153
2018	15,418,063
2019	14,431,485
2020	13,379,459
2021	12,229,492
2022	11,281,853

**Figure 12 Data Table. Seaborne Recyclable Materials Exports from California from 2012 to 2022, by Vessel Value**

This figure displays the vessel value (USD) of recyclable materials shipped from California ports by sea from 2012 to 2022.

<b>Year</b>	<b>Recyclable Materials Exports Vessel Value (USD)</b>
2012	8,236,661,552
2013	7,603,285,149
2014	6,968,413,485
2015	5,382,293,812
2016	4,569,567,742
2017	5,118,156,594
2018	5,593,661,209
2019	4,815,222,400
2020	4,438,060,887
2021	5,891,244,884
2022	5,979,070,774

**Figure 13 Data Table. Seaborne Recyclable Materials Exports from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the tons imported by the top three countries and all other aggregated countries importing the most recyclable material from California by weight from 2012 to 2022.

<b>Year</b>	<b>Taiwan</b>	<b>Vietnam</b>	<b>Thailand</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	3,020,750	323,867	367,818	16,183,321	19,895,756
2013	2,639,028	404,200	186,237	15,487,727	18,717,192
2014	2,582,702	310,443	314,617	14,881,554	18,089,316
2015	1,505,923	209,990	317,608	14,382,943	16,416,464
2016	1,551,161	340,524	358,113	12,750,063	14,999,861
2017	1,619,091	869,391	518,580	11,554,091	14,561,153
2018	2,288,395	1,402,895	421,023	11,305,750	15,418,063
2019	2,299,268	1,542,045	496,949	10,093,223	14,431,485
2020	2,109,136	1,388,749	588,712	9,292,862	13,379,459
2021	2,330,890	2,240,988	1,581,610	6,076,004	12,229,492
2022	2,205,030	1,858,256	1,554,407	5,664,160	11,281,853

**Figure 14 Data Table. Top Five Exported Recyclable Materials from California in 2022, by Weight**

This figure shows the top categories of seaborne recyclable materials exported from California by weight (tons) in 2022.

<b>Material Category</b>	<b>Tons</b>	<b>Percent of Total Seaborne Recyclable Exports</b>
OCC and Kraft Paper	4,860,874	43%
Ferrous Metal	4,414,196	39%
Non-Ferrous Metal	933,424	8%
Unsorted Mixed Paper	400,626	4%
Other Misc. Paper	258,286	2%

**Figure 15 Data Table. Top Five Exported Recyclable Materials from California in 2022, by Vessel Value**

This figure shows the top categories of seaborne recyclable materials exported from California by vessel value (USD) in 2022.

<b>Material Category</b>	<b>Vessel Value (USD)</b>	<b>Percent of Total Seaborne Recyclable Exports</b>
Non-Ferrous Metal	\$2,654,556,957	44%
Ferrous Metal	\$1,839,678,962	31%
OCC and Kraft Paper	\$890,754,707	15%
Worn Clothing	\$160,076,762	3%
Unsorted Mixed Paper	\$67,662,348	1%

**Figure 16 Data Table. Seaborne Exports of Ferrous Metals from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the amounts of Ferrous Metals exported as a recyclable material from California to other countries by weight (tons). The amount is broken out by country for the top three countries importing ferrous metals in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

<b>Year</b>	<b>Taiwan</b>	<b>Bangladesh</b>	<b>Vietnam</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	2,788,380	1,054	196,537	3,712,047	6,698,018
2013	2,396,744	441	296,436	3,588,850	6,282,471
2014	2,382,821	3,372	209,004	3,076,932	5,672,129
2015	1,337,094	95,697	102,555	2,711,408	4,246,754
2016	1,321,949	219,174	239,595	2,053,971	3,834,689
2017	1,385,516	275,979	573,667	2,384,763	4,619,925
2018	1,782,177	389,863	880,847	2,176,770	5,229,657
2019	1,609,514	608,486	814,098	2,340,884	5,372,982
2020	1,481,566	722,284	645,894	2,376,940	5,226,684
2021	1,258,454	829,166	784,110	1,674,167	4,545,897
2022	1,260,258	919,424	598,311	1,636,203	4,414,196

**Figure 17 Data Table. Seaborne Exports of Ferrous Metals from California by Country of Import from 2012 to 2022, by Vessel Value**

This figure shows the amounts of ferrous metals exported as a recyclable material from California to other countries by vessel value (USD). The amount is broken out by country for the top three countries importing ferrous metals in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

<b>Year</b>	<b>Taiwan</b>	<b>Bangladesh</b>	<b>Vietnam</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	1,128,001,030	478,000	72,629,289	1,747,030,782	2,948,139,101
2013	880,875,577	215,500	99,108,751	1,558,212,450	2,538,412,278
2014	837,190,530	1,009,495	66,339,117	1,341,124,094	2,245,663,236
2015	390,364,012	22,516,316	21,447,886	930,050,824	1,364,379,038
2016	329,241,818	41,958,672	51,370,594	654,852,512	1,077,423,596
2017	401,976,832	68,456,482	147,301,921	880,533,566	1,498,268,801
2018	581,025,237	123,312,283	261,064,835	830,944,111	1,796,346,466
2019	487,484,743	157,429,543	215,851,899	742,474,247	1,603,240,432
2020	416,424,476	172,943,147	170,245,467	639,692,472	1,399,305,562
2021	467,154,963	319,112,028	287,297,693	778,744,296	1,852,308,980
2022	456,510,407	360,611,704	226,267,305	796,289,546	1,839,678,962



**Figure 18 Data Table. Seaborne Exports of OCC and Kraft Paper from California by Country of Import from 2012 to 2022, by Weight**

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). The amount is broken out by country for the top three countries importing OCC and Kraft Paper in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	Thailand	Vietnam	Taiwan	All Other Countries	Total (All Countries)
2012	33,602	35,398	80,724	5,107,142	5,256,866
2013	28,664	33,692	79,210	4,587,931	4,729,497
2014	19,423	36,308	66,248	4,817,966	4,939,945
2015	51,398	62,619	59,658	5,210,483	5,384,158
2016	68,176	54,969	147,649	4,754,816	5,025,610
2017	43,006	163,661	145,323	3,991,888	4,343,878
2018	127,925	371,991	315,741	4,861,232	5,676,889
2019	150,208	659,724	447,735	3,998,276	5,255,943
2020	169,891	684,659	481,511	3,639,905	4,975,966
2021	1,108,319	1,388,608	954,991	1,966,867	5,418,785
2022	1,181,632	1,159,832	826,309	1,693,101	4,860,874

**Figure 19 Data Table. Seaborne Exports of OCC and Kraft Paper from California by Country of Import from 2012 to 2022, by Vessel Value**

This figure shows the amounts of old corrugated cardboard (OCC) and kraft paper exported as a recyclable material from California to other countries by vessel value (USD). The amount is broken out by country for the top three countries importing OCC and Kraft Paper in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

<b>Year</b>	<b>Thailand</b>	<b>Vietnam</b>	<b>Taiwan</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	6,462,140	6,855,509	13,706,560	762,562,540	789,586,749
2013	5,683,914	6,518,544	14,223,492	683,637,624	710,063,574
2014	3,636,844	6,314,441	11,368,598	729,886,864	751,206,747
2015	8,217,228	9,038,042	10,166,056	758,212,542	785,633,868
2016	10,205,250	7,769,676	23,672,223	661,745,789	703,392,938
2017	7,922,723	22,531,228	22,662,634	591,803,322	644,919,907
2018	15,866,864	53,596,327	43,425,728	748,686,130	861,575,049
2019	16,052,401	78,684,346	56,097,782	576,988,274	727,822,803
2020	21,584,270	91,315,447	67,203,438	541,609,775	721,712,930
2021	201,428,950	235,816,440	179,486,011	308,860,199	925,591,600
2022	227,576,476	209,357,322	164,370,350	289,450,559	890,754,707

**Figure 20 Data Table. Seaborne Exports of Plastics 1 and 2 from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the amounts of plastics 1 and 2 exported via seaborne as a recyclable material from California to other countries by weight (tons). The amount is broken out by country for the top three countries importing plastics 1 and 2 in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

<b>Year</b>	<b>El Salvador</b>	<b>Malaysia</b>	<b>Germany</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	127	3,591	0	485,040	488,758
2013	404	22,154	23	481,364	503,945
2014	1,837	9,944	0	633,525	645,306
2015	3,297	9,839	0	501,061	514,197
2016	2,716	11,252	0	451,595	465,563
2017	3,188	25,766	251	361,104	390,309
2018	4,916	38,614	2,818	150,573	196,921
2019	5,728	9,565	63	92,174	107,530
2020	5,822	30,875	7,816	67,244	111,757
2021	12,370	25,512	4,341	39,484	81,707
2022	8,737	8,225	4,159	14,637	35,758

**Figure 21 Data Table. Seaborne Exports of Plastics 1 and 2 from California by Country of Import from 2012 to 2022, by Vessel Value**

This figure shows the amounts of plastics 1 and 2 exported via seaborne as recyclable material from California to other countries by vessel value (USD). The amount is broken out by country for the top three countries importing plastics 1 and 2 in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	El Salvador	Germany	Malaysia	All Other Countries	Total (All Countries)
2012	116,268	0	1,454,631	168,285,274	169,856,173
2013	1,978,163	3,390	4,439,897	169,221,234	175,642,684
2014	2,975,380	0	2,220,691	221,292,005	226,488,076
2015	2,779,956	0	2,323,295	166,470,050	171,573,301
2016	2,248,216	0	2,048,232	142,159,216	146,455,664
2017	2,889,237	62,000	5,304,243	112,363,287	120,618,767
2018	4,934,187	783,000	11,325,433	54,813,722	71,856,342
2019	4,218,626	15,000	2,394,371	33,534,804	40,162,801
2020	4,154,565	2,558,163	6,339,670	19,482,203	32,534,601
2021	14,138,262	2,590,903	5,649,491	13,248,163	35,626,819
2022	10,322,965	3,218,278	3,183,510	6,991,533	23,716,286

**Figure 22 Data Table. Seaborne Exports and Truck & Rail Exports to Canada and Mexico of Plastic 1 and 2 from California from 2012 to 2022, by Weight**

This figure shows the amount of plastics 1 and 2 exported as recyclable material from California to Canada and Mexico via truck and rail, and all seaborne exports from 2012 to 2022, by weight (tons).

<b>Year</b>	<b>All Seaborne</b>	<b>Mexico (truck/rail)</b>	<b>Canada (truck/rail)</b>
2012	488,755	932	148
2013	503,945	579	152
2014	645,306	1,675	865
2015	514,197	1,323	605
2016	465,563	1,401	1,399
2017	390,309	1,844	840
2018	196,921	3,627	175
2019	107,530	6,089	446
2020	111,757	15,069	528
2021	81,707	31,536	714
2022	35,758	37,762	854

**Figure 23 Data Table. Seaborne Exports of Mixed Plastics 3 through 7 from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the amounts of mixed plastics 3 through 7 exported via seaborne as a recyclable material from California to other countries by weight (tons). The amount is broken out by country for the top three countries importing mixed plastics 3 through 7 in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

<b>Year</b>	<b>Malaysia</b>	<b>Germany</b>	<b>Netherlands</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	8,446	0	0	650,353	658,799
2013	12,516	0	0	596,265	608,781
2014	13,773	13	0	611,463	625,249
2015	15,181	0	0	608,059	623,240
2016	11,283	0	0	510,328	521,611
2017	40,501	0	0	360,270	400,771
2018	82,254	110	0	116,693	199,057
2019	18,543	312	0	43,944	62,799
2020	23,094	332	142	24,941	48,509
2021	9,424	990	37	6,415	16,866
2022	2,054	2,000	707	1,519	6,280

**Figure 24 Data Table. Seaborne Exports of Mixed Plastics 3 through 7 from California by Country of Import from 2012 to 2022, by Vessel Value**

This figure shows the amounts of mixed plastics 3 through 7 exported via seaborne as a recyclable material from California to other countries by vessel value (USD). The amount is broken out by country for the top three countries importing mixed plastics 3 through 7 in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

<b>Year</b>	<b>Germany</b>	<b>Netherlands</b>	<b>Malaysia</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	0	0	2,825,700	250,807,077	253,632,777
2013	0	0	3,533,421	213,032,541	216,565,962
2014	528,083	0	3,659,202	209,050,067	213,237,352
2015	0	0	3,218,392	192,391,047	195,609,439
2016	0	0	2,064,834	140,091,297	142,156,131
2017	0	0	8,854,452	101,287,788	110,142,240
2018	30,000	0	17,759,163	37,636,702	55,425,865
2019	159,000	0	3,828,638	14,351,058	18,338,696
2020	148,685	67,414	3,579,788	7,273,755	11,069,642
2021	769,400	27,019	2,018,367	3,131,800	5,946,586
2022	774,600	680,559	526,093	788,556	2,769,808

**Figure 25 Data Table. Seaborne Exports and Truck & Rail Exports to Canada and Mexico of Mixed Plastics 3 through 7 from California from 2012 to 2022, by Weight**

This figure shows the amount of mixed plastics 3 through 7 exported as recyclable material from California to Canada and Mexico via truck and rail, and all seaborne exports from 2012 to 2022, by weight (tons).

<b>Year</b>	<b>All Seaborne</b>	<b>Mexico (truck/rail)</b>	<b>Canada (truck/rail)</b>
2012	658,799	5,420	1,552
2013	608,781	6,652	1,494
2014	625,249	6,063	763
2015	623,240	3,804	160
2016	521,611	12,289	822
2017	400,771	24,519	1,738
2018	199,057	25,914	2,118
2019	62,799	20,393	3,791
2020	48,509	19,575	1,772
2021	16,866	11,799	2,831
2022	6,280	10,602	1,589



**Figure 26 Data Table. Seaborne Exports of Non-Ferrous Metals from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the amounts of non-ferrous metals exported as a recyclable material from California to other countries by weight (tons). The amount is broken out by country for the top three countries importing nonferrous metals in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	Korea, Republic Of	Malaysia	China	All Other Countries	Total (All Countries)
2012	146,405	3,931	1,157,294	178,465	1,486,095
2013	121,970	1,287	1,086,727	218,591	1,428,575
2014	144,139	3,854	941,943	184,168	1,274,104
2015	151,472	13,357	788,359	131,448	1,084,636
2016	135,338	16,178	674,938	143,104	969,558
2017	162,514	18,038	713,378	162,820	1,056,750
2018	227,603	118,741	352,200	311,385	1,009,929
2019	246,007	216,979	154,598	362,960	980,544
2020	240,410	238,358	115,712	325,768	920,248
2021	231,047	214,767	128,838	390,144	964,796
2022	221,270	179,922	146,879	385,353	933,424

**Figure 27 Data Table. Seaborne Exports of Nonferrous Metals from California by Country of Import from 2012 to 2022, by Vessel Value**

This figure shows the amounts of non-ferrous metals exported as a recyclable material from California to other countries, by vessel value (USD). The amount is broken out by country for the top three countries importing nonferrous metals in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

Year	China	Korea, Republic Of	Malaysia	All Other Countries	Total (All Countries)
2012	2,421,475,210	268,898,703	6,736,595	415,591,495	3,112,702,003
2013	2,345,546,397	238,877,367	1,782,528	466,463,245	3,052,669,537
2014	1,903,918,316	275,913,121	5,190,724	515,380,181	2,700,402,342
2015	1,435,709,687	269,410,847	12,789,212	391,582,014	2,109,491,760
2016	1,040,177,841	205,318,227	16,641,002	501,815,469	1,763,952,539
2017	1,247,207,090	256,957,851	21,921,188	483,258,633	2,009,344,762
2018	756,683,273	419,715,521	157,270,662	703,908,364	2,037,577,820
2019	254,877,657	402,427,773	271,394,876	749,782,766	1,678,483,072
2020	253,083,534	406,884,155	282,568,937	679,202,930	1,621,739,556
2021	686,348,480	540,976,279	372,081,364	940,262,490	2,539,668,613
2022	822,372,793	517,177,947	327,628,924	987,377,293	2,654,556,957

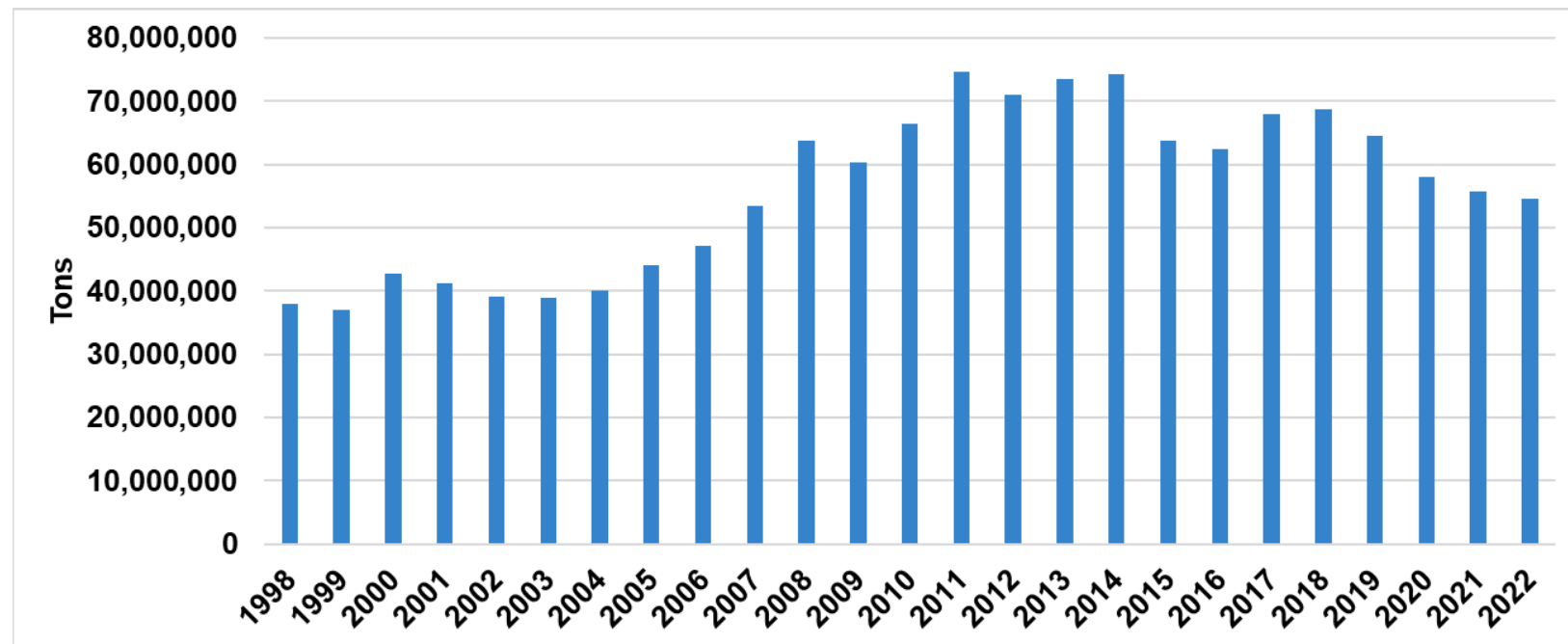
# Appendix 2: Additional Information on Total Exports and Recyclable Materials Exports from California Seaports

## California Total Seaborne Exports

Table 6. Total Seaborne Exports from California in 2022, by Weight

Recyclable Materials Exports (Tons)	Other Exports (Tons)	Total Exports (Tons)
11.3 million	43.3 million	54.6 million

Figure 28. Total Seaborne Exports from California from 1998 to 2022, by Weight



**Figure 28 Data Table. Total Seaborne Exports from California from 1998 to 2022, by Weight**

This figure shows total seaborne exports from California from 1998 to 2022, by weight. This data table also includes seaborne exports data from California split by recyclable materials and other exports from 1998 to 2022, by weight.

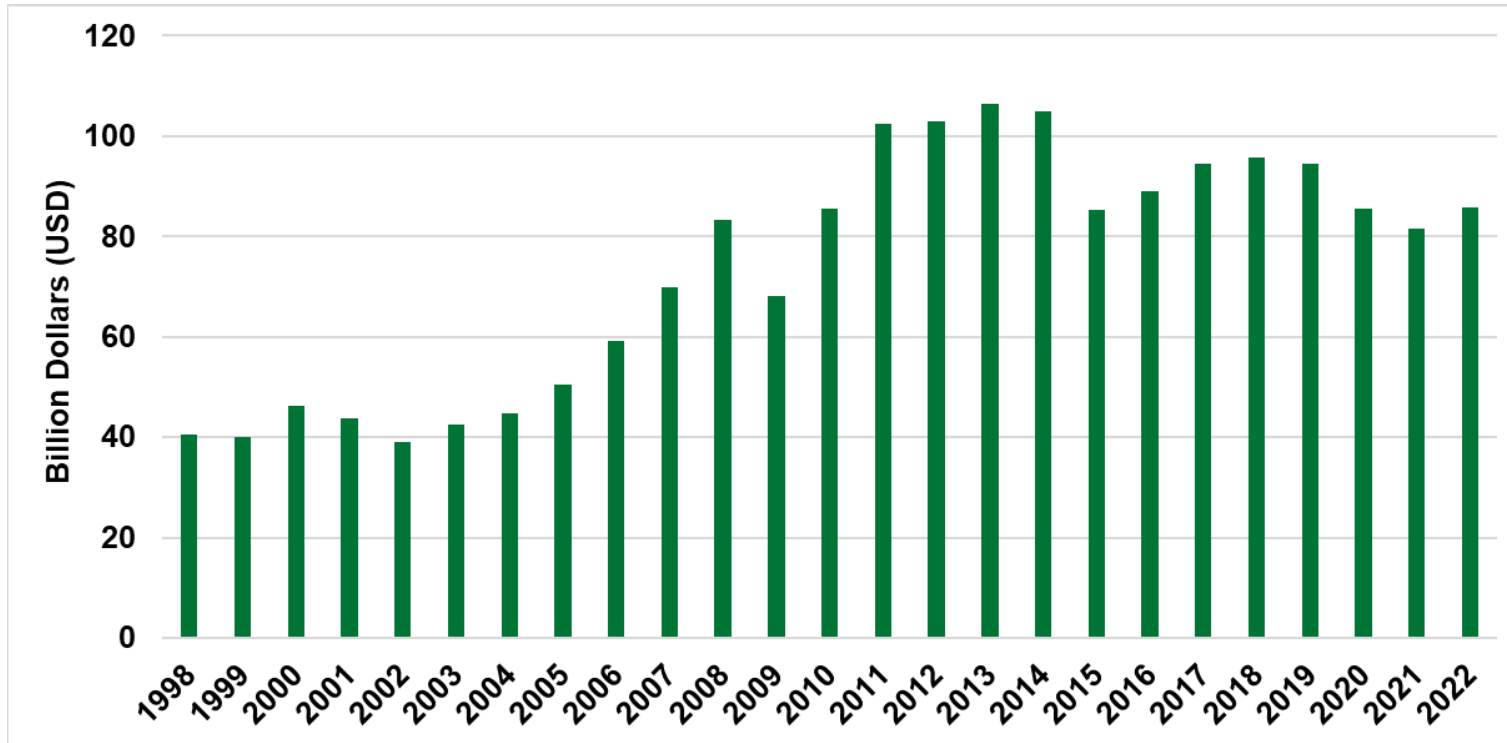
<b>Year</b>	<b>Recyclable Material Exports (Tons)</b>	<b>All Other Exports (Tons)</b>	<b>Total Exports (Tons)</b>
1998	4,272,994	33,768,365	38,041,359
1999	5,083,108	31,990,150	37,073,258
2000	6,320,731	36,334,233	42,654,964
2001	7,271,304	33,849,628	41,120,932
2002	7,630,840	31,418,742	39,049,582
2003	9,549,578	29,444,761	38,994,339
2004	10,087,098	29,903,460	39,990,558
2005	11,938,685	32,122,320	44,061,005
2006	13,153,708	34,026,039	47,179,747
2007	16,243,610	37,222,845	53,466,455
2008	19,598,613	44,169,922	63,768,535
2009	18,687,562	41,681,572	60,369,134
2010	18,684,429	47,797,744	66,482,173
2011	22,421,235	52,290,850	74,712,085
2012	19,895,756	51,164,373	71,060,129
2013	18,717,192	54,795,377	73,512,569
2014	18,089,316	56,153,083	74,242,399
2015	16,416,464	47,361,565	63,778,029
2016	14,999,861	47,518,590	62,518,451
2017	14,561,153	53,394,107	67,955,260
2018	15,418,063	53,344,213	68,762,276

<b>Year</b>	<b>Recyclable Material Exports (Tons)</b>	<b>All Other Exports (Tons)</b>	<b>Total Exports (Tons)</b>
2019	14,431,485	50,192,670	64,624,155
2020	13,379,459	44,710,384	58,089,843
2021	12,229,492	43,561,526	55,791,018
2022	11,281,853	43,314,171	54,596,024

**Table 7. Total Seaborne Exports from California in 2022, by Vessel Value**

Recyclable Materials Exports (USD)	Other Exports (USD)	Total Exports (USD)
\$6 billion	\$79.9 billion	\$85.7 billion

**Figure 29. Total Seaborne Exports from California from 1998 to 2022, by Vessel Value**



**Figure 29 Data Table. Total Seaborne Exports from California from 1998 to 2022, by Vessel Value**

This figure shows total seaborne exports from California from 1998 to 2022, by vessel value (USD). This data table also includes seaborne exports data from California split by recyclable materials and other exports from 1998 to 2022, by vessel value (USD).

<b>Year</b>	<b>Recyclable Material Exports (USD)</b>	<b>All Other Exports (USD)</b>	<b>Total Exports (USD)</b>
1998	775,658,290	39,821,934,564	40,597,592,854
1999	875,236,881	39,216,984,750	40,092,221,631
2000	1,299,866,371	44,913,919,500	46,213,785,871
2001	1,288,651,784	42,438,765,714	43,727,417,498
2002	1,303,679,253	37,769,985,010	39,073,664,263
2003	1,757,906,800	40,720,710,629	42,478,617,429
2004	2,407,187,755	42,386,450,467	44,793,638,222
2005	3,344,559,648	47,200,806,881	50,545,366,529
2006	5,223,647,937	53,976,563,513	59,200,211,450
2007	7,235,559,060	62,665,140,333	69,900,699,393
2008	8,806,032,285	74,519,026,702	83,325,058,987
2009	5,830,066,873	62,279,753,431	68,109,820,304
2010	7,656,043,029	77,889,749,335	85,545,792,364
2011	10,028,140,634	92,457,038,362	102,485,178,996
2012	8,236,661,552	94,698,859,604	102,935,521,156
2013	7,603,285,149	98,737,442,593	106,340,727,742
2014	6,968,413,485	97,858,866,081	104,827,279,566
2015	5,382,293,812	79,814,788,661	85,197,082,473
2016	4,569,567,742	84,375,837,880	88,945,405,622
2017	5,118,156,594	89,411,038,481	94,529,195,075
2018	5,593,661,209	90,264,423,172	95,858,084,381

<b>Year</b>	<b>Recyclable Material Exports (USD)</b>	<b>All Other Exports (USD)</b>	<b>Total Exports (USD)</b>
2019	4,815,222,400	89,596,083,414	94,411,305,814
2020	4,438,060,887	81,138,046,500	85,576,107,387
2021	5,891,244,884	75,663,091,208	81,554,336,092
2022	5,979,070,774	79,877,492,657	85,856,563,431

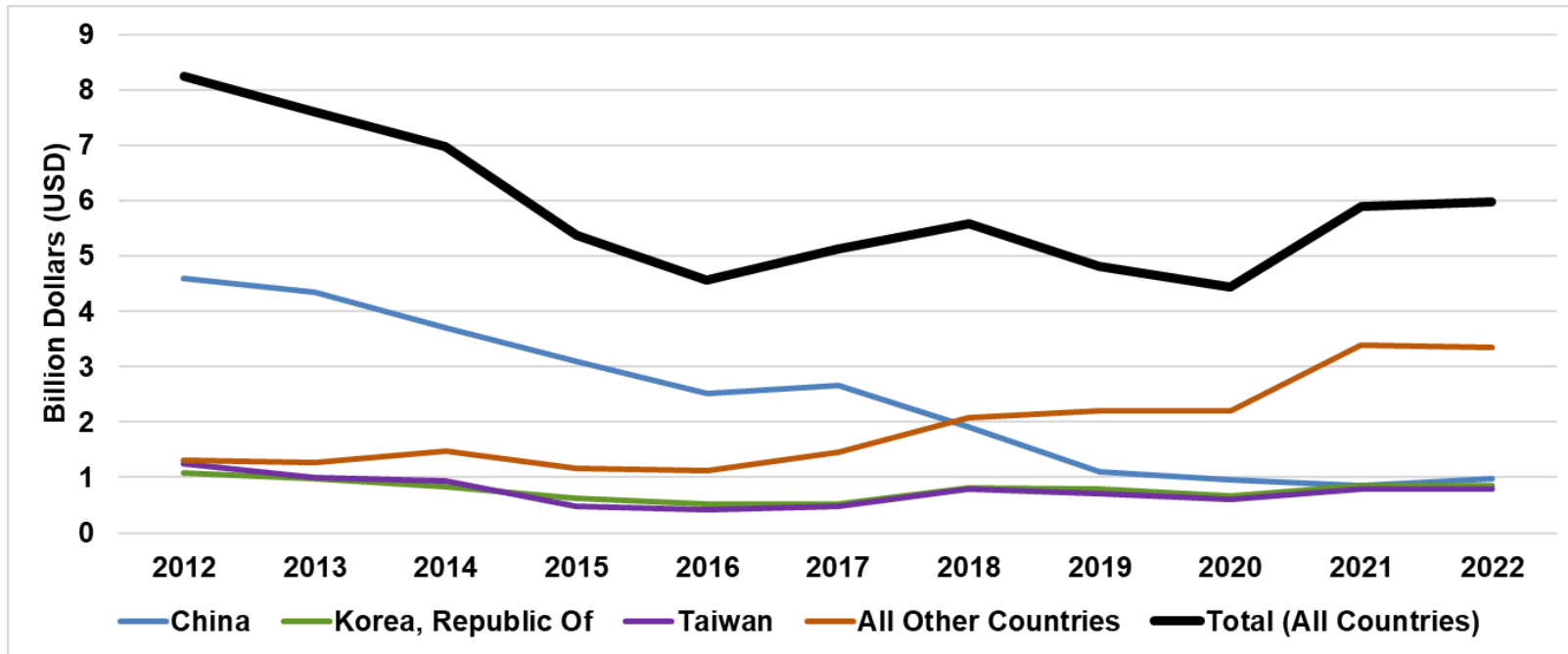


## Seaborne Recyclable Materials Exports from California in 2022, by Vessel Value

Table 8. Seaborne Recyclable Materials Exports from California in 2022 by Top Countries of Import, by Vessel Value

Top 10 Countries	2022 Vessel Value (USD)	Vessel Value Change 2021 to 2022 (USD)	Percent Change in Vessel Value from 2021 to 2022	Percent of Total Recyclable Materials Exports
China	\$978,391,678	\$122,976,538	14%	16%
Korea, Republic Of	\$858,973,468	\$13,568,330	2%	14%
Taiwan	\$782,332,908	-\$11,169,503	-1%	13%
Thailand	\$537,182,385	\$97,027,731	22%	9%
Malaysia	\$503,215,504	-\$95,898,991	-16%	8%
Vietnam	\$470,364,508	-\$82,723,328	-15%	8%
Bangladesh	\$361,090,322	\$41,632,092	13%	6%
Japan	\$311,525,754	\$10,147,723	3%	5%
India	\$289,023,041	\$63,800,905	28%	5%
Hong Kong	\$155,099,750	-\$51,995,732	-25%	3%

**Figure 30. Seaborne Recyclable Materials Exports from California by Country of Import from 2012 to 2022, by Vessel Value**



**Figure 30 Data Table. Seaborne Recyclable Materials Exports from California by Country of Import from 2012 to 2022, by Vessel Value**

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 the top three countries importing recyclable materials in 2022. Material exported to all other countries is aggregated into “All Other Countries” category.

<b>Year</b>	<b>China</b>	<b>Korea, Republic Of</b>	<b>Taiwan</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	4,594,846,216	1,084,261,827	1,252,248,347	1,305,305,162	8,236,661,552
2013	4,347,285,474	975,277,966	1,009,446,722	1,271,274,987	7,603,285,149
2014	3,706,551,033	834,624,761	947,053,020	1,480,184,671	6,968,413,485
2015	3,108,665,148	627,268,991	475,939,834	1,170,419,839	5,382,293,812
2016	2,509,509,255	517,201,200	420,882,739	1,121,974,548	4,569,567,742
2017	2,657,006,741	523,027,809	484,762,512	1,453,359,532	5,118,156,594
2018	1,919,585,533	804,161,750	784,691,001	2,085,222,925	5,593,661,209
2019	1,099,588,587	795,412,129	718,987,111	2,201,234,573	4,815,222,400
2020	952,902,560	667,860,453	606,727,047	2,210,570,827	4,438,060,887
2021	855,415,140	845,405,138	793,502,411	3,396,922,195	5,891,244,884
2022	978,391,678	858,973,468	782,332,908	3,359,372,720	5,979,070,774

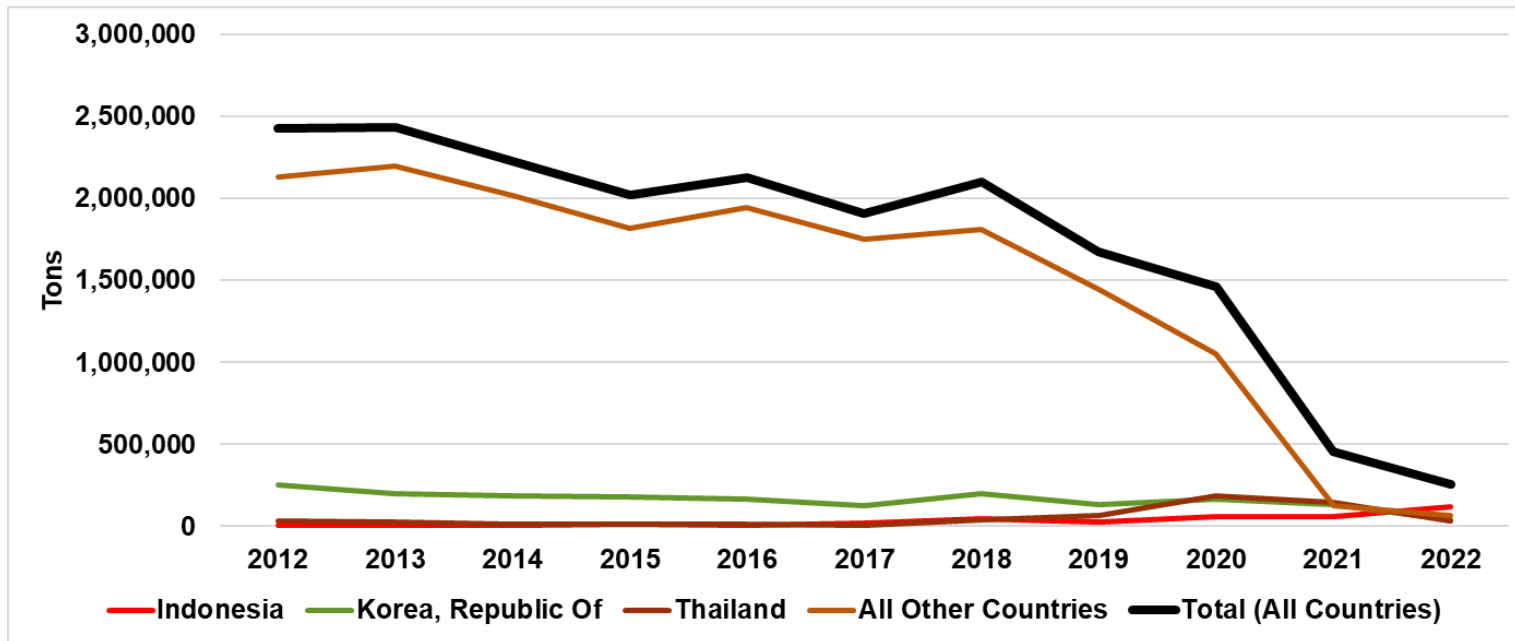
# Seaborne Recyclable Materials Exports from California by Individual Recyclable Material Category

## Other Miscellaneous (Misc.) Mixed Paper

Table 9. Other Misc. Mixed Paper Exported as Recyclable Materials from California in 2022, by Weight and Vessel Value

Tons Exported	Percent Change in Tons from 2021	Vessel Value (USD)	Percent Change in Vessel Value from 2021
258,286	-43%	\$50,891,101	-48%

Figure 31. Seaborne Recyclable Materials Exports of Other Misc. Mixed Paper from California by Country of Import from 2012 to 2022, by Weight



**Figure 31 Data Table: Seaborne Recyclable Materials Exports of Other Misc. Mixed Paper from California by Country of Import from 2012 to 2022, 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). The amount is broken out by country for the top three countries importing Other Misc. Mixed Paper in 2022. Material exported to all other countries is aggregated into the “All Other Countries” category.

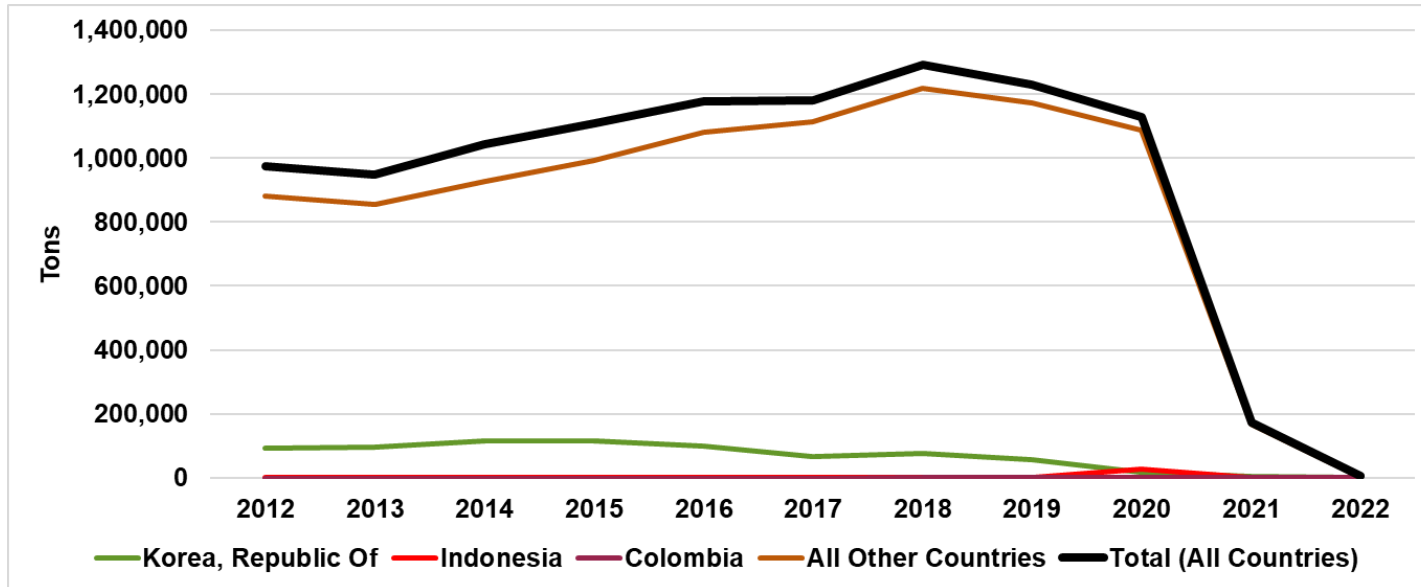
Year	Indonesia	Korea, Republic Of	Thailand	All Other Countries	Total (All Countries)
2012	8,267	254,114	31,679	2,132,569	2,426,629
2013	8,967	202,649	24,574	2,197,505	2,433,695
2014	8,588	187,071	14,743	2,018,459	2,228,861
2015	9,877	179,961	10,245	1,816,339	2,016,422
2016	5,022	165,530	11,414	1,944,163	2,126,129
2017	20,965	126,979	9,262	1,749,072	1,906,278
2018	49,568	197,823	42,252	1,807,433	2,097,076
2019	26,940	133,565	69,454	1,440,883	1,670,842
2020	61,706	165,690	187,977	1,048,029	1,463,402
2021	57,067	132,541	144,103	123,182	456,893
2022	118,962	41,342	30,642	67,340	258,286

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

Table 10. Mechanical Pulp Paper Exported as Recyclable Materials from California in 2022, by Weight and Vessel Value

Tons Exported	Percent Change in Tons from 2021	Vessel Value (USD)	Percent Change in Vessel Value from 2021
4,891	-97%	\$1,046,391	-98%

Figure 32. Seaborne Recyclable Materials Exports of Mechanical Pulp Paper from California by Country of Import from 2012 to 2022, by Weight



**Figure 32 Data Table: Seaborne Recyclable Materials Exports of Mechanical Pulp Paper from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the amount of Mechanical Pulp Paper exported as a recyclable material from California to other countries by weight (tons). The amount is broken out by country for the top three countries importing Mechanical Pulp Paper in 2022. Material exported to all other countries is aggregated into the “All Other Countries” category.

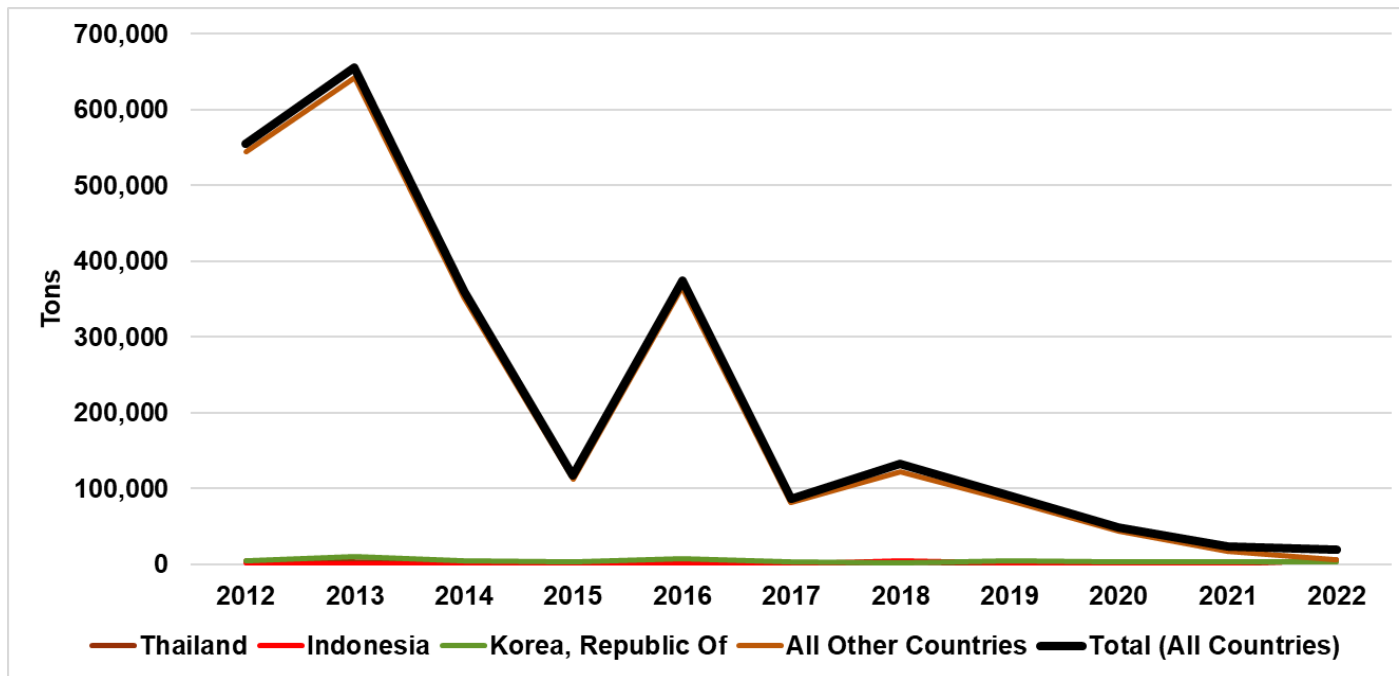
Year	Korea, Republic Of	Indonesia	Colombia	All Other Countries	Total (All Countries)
2012	92,828	499	0	881,399	974,726
2013	94,341	0	0	855,852	950,193
2014	114,608	148	0	928,478	1,043,234
2015	114,592	61	0	993,364	1,108,017
2016	97,491	78	0	1,080,056	1,177,625
2017	66,015	115	0	1,115,479	1,181,609
2018	74,694	490	66	1,218,662	1,293,912
2019	55,114	1,190	522	1,173,747	1,230,573
2020	17,657	25,207	263	1,087,119	1,130,246
2021	3,842	1,403	45	166,357	171,647
2022	2,098	1,131	732	930	4,891

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

Table 11. Chemical Pulp Paper Exported as Recyclable Materials from California in 2022, by Weight and Vessel Value

Tons Exported	Percent Change in Tons from 2021	Vessel Value (USD)	Percent Change in Vessel Value from 2021
19,692	-14%	\$5,504,607	1%

Figure 33. Seaborne Recyclable Materials Exports of Chemical Pulp Paper from California by Country of Import from 2012 to 2022, by Weight





**Figure 33 Data Table: Seaborne Recyclable Materials Exports of Chemical Pulp Paper from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the amount of Chemical Pulp Paper exported as a recyclable material from California to other countries, by weight (tons). The amount is broken out by country for the top three countries importing Chemical Pulp Paper in 2022. Material exported to all other countries is aggregated into the “All Other Countries” category.

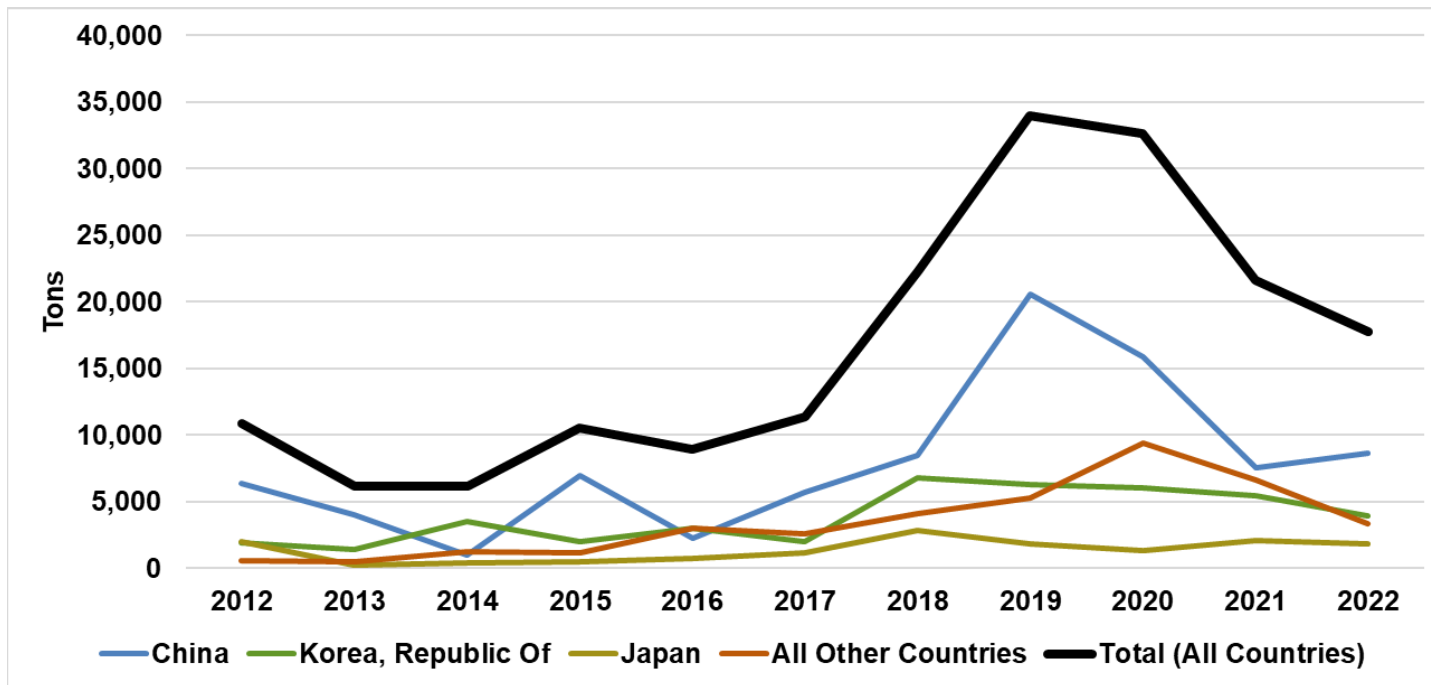
<b>Year</b>	<b>Thailand</b>	<b>Indonesia</b>	<b>Korea, Republic Of</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	4,905	1,278	5,280	544,152	555,615
2013	2,694	0	10,250	642,219	655,163
2014	1,509	798	5,227	353,091	360,625
2015	2,011	45	3,389	111,843	117,288
2016	1,144	114	8,152	364,919	374,329
2017	665	1,189	3,009	81,597	86,460
2018	3,947	4,646	2,171	122,065	132,829
2019	827	1,641	4,714	84,009	91,191
2020	0	1,445	3,360	44,445	49,250
2021	134	1,997	3,505	17,346	22,982
2022	5,969	4,349	2,817	6,557	19,692

## Copper Wire (Subset of Non-Ferrous Metal)

Table 12. Copper Wire Exported as Recyclable Materials from California in 2022, by Weight and Vessel Value

Tons Exported	Percent Change in Tons from 2021	Vessel Value (USD)	Percent Change in Vessel Value from 2021
17,725	-18%	\$140,964,957	-10%

Figure 34. Seaborne Recyclable Materials Exports of Copper Wire from California by Country of Import from 2012 to 2022, by Weight



**Figure 34 Data Table: Seaborne Recyclable Materials Exports of Copper Wire from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the amount of Copper Wire exported as a recyclable material from California to other countries, by weight (tons). The amount is broken out by country for the top three countries importing Copper Wire in 2021. Material exported to all other countries is aggregated into the “All Other Countries” category.

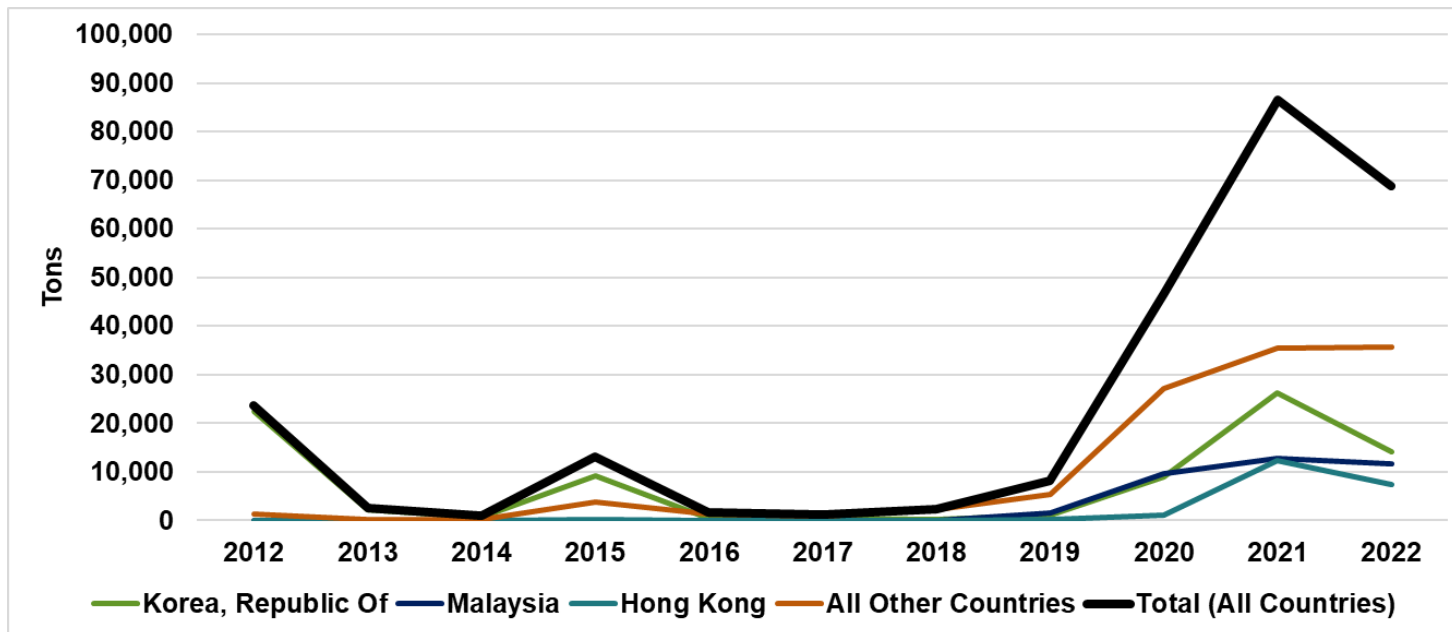
<b>Year</b>	<b>China</b>	<b>Korea, Republic Of</b>	<b>Japan</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	6,407	1,904	1,979	597	10,887
2013	3,979	1,423	267	509	6,178
2014	974	3,481	416	1,271	6,142
2015	6,918	2,006	463	1,174	10,561
2016	2,246	3,018	698	2,970	8,932
2017	5,677	1,964	1,144	2,622	11,407
2018	8,464	6,812	2,866	4,134	22,276
2019	20,601	6,284	1,788	5,311	33,984
2020	15,831	6,044	1,347	9,408	32,630
2021	7,503	5,477	2,048	6,593	21,621
2022	8,635	3,899	1,840	3,351	17,725

## Aluminum Cans (Subset of Non-Ferrous Metal)

Table 13. Aluminum Cans Exported as Recyclable Materials from California in 2022, by Weight and Vessel Value

Tons Exported	Percent Change in Tons from 2021	Vessel Value (USD)	Percent Change in Vessel Value from 2021
68,884	-20%	\$129,531,760	-13%

Figure 35. Seaborne Recyclable Materials Exports of Aluminum Cans from California by Country of Import from 2012 to 2022, by Weight



**Figure 35 Data Table: Seaborne Recyclable Materials Exports of Aluminum Cans from California by Country of Import from 2012 to 2022, by Weight**

This figure shows the amount of Aluminum Cans exported as a recyclable material from California to other countries, by weight (tons). The amount is broken out by country for the top three countries importing Aluminum Cans in 2022. Material exported to all other countries is aggregated into the “All Other Countries” category.

<b>Year</b>	<b>Korea, Republic Of</b>	<b>Malaysia</b>	<b>Hong Kong</b>	<b>All Other Countries</b>	<b>Total (All Countries)</b>
2012	22,371	0	0	1,269	23,640
2013	2,292	0	0	237	2,529
2014	626	0	0	228	854
2015	9,071	0	183	3,779	13,033
2016	370	0	7	1,272	1,649
2017	301	0	0	848	1,149
2018	194	0	0	2,144	2,338
2019	1,171	1,426	119	5,318	8,034
2020	9,018	9,603	1,136	27,055	46,812
2021	26,133	12,719	12,338	35,352	86,542
2022	14,091	11,695	7,429	35,669	68,884

## Appendix 3: Table Data for Infographics

### Infographic 1 Data Table. Waste Generation and Recycling in California in 2022.

The infographic displays the overall waste generation percentages, including disposal- and recycling-related and activities in 2022. In addition to the data table below, the infographic shows that the recycling rate was 41 percent and that the per capita disposal rate was 6.3 pounds of trash per person per day.

Activity Type	Tons	Percent of Total Generation
<b>Total Landfill</b>	<b>40,500,000</b>	<b>53%</b>
Disaster Debris	264,545	
Designated Waste Disposal	868,677	
<b>All Other Disposal and Disposal-Related Activities</b>	<b>4,500,000</b>	<b>6%</b>
Total Recycled	31,000,000	
<b>Exported Recyclables</b>	<b>11,300,000</b>	<b>14.8%</b>
<b>Recycling, Source Reduction, Compost, Anaerobic Digestion, &amp; Mulch</b>	<b>19,700,000</b>	<b>25.8%</b>

### Infographic 2 Data Table. California Seaborne Exports in 2022.

This infographic displays the tonnage, value, and tonnage reduction in 2022 for California Seaborne Exports in 2022.

Tons	Value (in USD)	Change from 2021
11,300,000	6,000,000,000	-8%

**Infographic 3 Data Table. California’s Seaborne Recyclable Materials Exports to Top Importing Countries in 2022.**

This infographic displays the top countries importing from California’s seaborne recyclable materials exported, plus plastics sent via truck and rail to Canada and Mexico.

<b>Country</b>	<b>Tons</b>	<b>Value (in dollars)</b>
Taiwan	2,200,000	782,000,000
Vietnam	1,900,000	470,000,000
Thailand	1,600,000	537,000,000
Korea	1,200,000	859,000,000
Malaysia	995,000	503,000,000
China	501,000	978,000,000
Mexico: Plastics 1-2	37,762	
Mexico: Plastics 3-7	10,602	
Canada: Plastics 1-2	854	
Canada: Plastics 3-7	1,589	

**Infographic 4 Data Table. Change in Seaborne Imports of Recyclable Materials from California between 2021 and 2022.**

This infographic displays the change in seaborne imports of recycleable material from California between 2021 and 2022.

<b>Country</b>	<b>Tons</b>	<b>Percent Change</b>
China	501,000	-16%
Thailand	1,600,000	-2%
Vietnam	1,900,000	-17%
Taiwan	2,200,000	-5%
Total	11,300,000	-8%

**Infographic 5 Data Table. Top Recyclable Materials Categories Exported in 2022 from California by Tons and Vessel Value.**

This infographic shows the top material categories exported in 2022 from California by tons and vessel value.

<b>Material Category</b>	<b>Tons</b>	<b>Vessel Value (in dollars)</b>
OCC and Kraft Paper	4,900,000	891,000,000
Ferrous Metal	4,400,000	1,800,000,000
Non-Ferrous Metal	933,000	2,700,000,000
Unsorted Mixed Paper	401,000	68,000,000
Other Miscellaneous Paper	258,000	51,000,000
Worn Clothing	127,000	160,000,000



# Abbreviations and Acronyms

---

AB – Assembly Bill

ADA – Americans with Disability Act

ADC – Alternative Daily Cover

AIC – Alternative Intermediate Cover

CalRecycle – California Department of Resource Recycling and Recovery

EMSW – Engineered Municipal Solid Waste

HS – Harmonized System

OCC – Old Corrugated Cardboard

PCBs – Polychlorinated Biphenyls

PET – Polyethylene Terephthalate

PS – Polystyrene

PV – Polymers of Vinyl

Q3 – Quarter 3

Q4 – Quarter 4

RDRS – Recycling and Disposal Reporting System

USD – U.S. dollars

WISERTrade – World Institute for Strategic Economic Research

# 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.

**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.

**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 or via truck and rail.

**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.

# Bibliography

---

- 1) CalRecycle. (2024). California Waste Tire Market Report 2022 Presentation. Public workshop on January 19, 2024.  
<https://www2.calrecycle.ca.gov/Docs/Web/126660>
- 2) World Institute for Strategic Economic Research Database. (2022). WISERTrade. Retrieved March 2023.
- 3) California Department of Finance. (2023). E-5 Population and Housing Estimates for Cities, Counties, and the State, 2020-2023. Retrieved September 2023, from <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/>