2012 California Exports of Recyclable Materials

CalRecycle

California Department of Resources Recycling and Recovery

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STATE OF CALIFORNIA

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Executive Summary

This report contains information about the types of recyclables exported from California's ports, the amount shipped, and their value. The paper focuses on sea-borne exports of recyclables because the data available is more reliable and detailed than for other types of exports. As additional sources of information are found, future updates of this paper may include data on recyclables exported by truck and rail as well.

For convenience this report combines recyclables into several groups. These include High-Grade Paper, Mixed Paper, Plastics 1, 2, and 4, Other Plastics, Glass, Tire and Rubber Scrap, Used Oil and Grease, Batteries, Copper Wire, Ferrous, and Non-Ferrous Metals. Information for Aluminum Cans was also provided separately though the tonnage and value was also included in the data for Non-Ferrous Metals.

Overall, recyclables exported by sea made up over one quarter of the total weight (28%) shipped from California ports in 2012. These recyclables accounted for approximately 8% of the total value of all exports shipped from California. China continues to be the largest market for recycled materials, receiving over half of the total weight shipped out from California by sea.

Other key findings include:

- Sea-borne exports of all commodities shipped from California equaled 71 million tons with a value of $103 billion.
- Recycled materials made up nearly 20 million of those tons with a value of over $8 billion.
- Over half the recycled material exported from California was mixed paper, cardboard and paperboard.
- Ferrous and Non-Ferrous metals combined made up about 75 % of the dollar value of all shipped recycled materials.
- China, Taiwan, and Korea made up 87% of the sea-borne recyclable exports market.
- The amount of recyclables exported in 2012 was nearly 11% less than in 2011.
- Sea-borne recyclables exported to China dropped about 13.5% in 2012 compared to 2011.
- Data received so far shows 2013 is lagging behind 2012 in recyclable export totals.
- 42% of the country's recycle exports by weight passed through California's ports in 2012.
- By value, California accounted for 37% of the nation's recycle exports total.

Introduction

AB 341 (Chapter 476, Statutes of 2011) established a statewide goal for California of 75 percent recycling, composting or source reduction of solid waste by 2020. Recycling will be a key part of efforts to reach this goal, and the examination of recyclable exports will help us gain a better understanding of where our recyclables go and of their relative importance.

In 2012, California exported a total value of about $161 billion in all commodities and all shipping methods according to the U.S. Census Bureau[1]. While exports to Canada and Mexico made up over 27% of that total value, this report focuses on sea-borne exports (a.k.a. vessel weight or value) of recyclables from California's ports to their respective destinations and does not include exports to Mexico or Canada by truck or rail.

According to a CalRecycle report on job creation, exports of recycled materials greatly affect recycling jobs that could have been created in California had the material been turned into new products here. Furthermore, in-state capacity to handle currently exported materials appears insufficient should export markets collapse[2]. With this in mind, it is good to know as much as possible about the export of recyclables to help plan for the future.

This paper looks to help answer the questions:

- How many tons of recycled materials were exported by sea in 2012 through California ports?
- What types of recyclable materials made up these exports?
- Where did the exported materials go in 2012, and what are their historic export trends?

[1] http://www.census.gov/foreign-trade/statistics/state/data/ca.html
[2] http://www.calrecycle.ca.gov/Actions/Documents/85/20132013/838/Jobs%20through%20Recycling.pdf

Methods

This report focuses on sea-borne exports of recyclables from California's ports to their respective destinations. Rail, truck, and air tonnage, including exports to Canada and Mexico, are not included in the report because vessel shipment data is more reliable and more detailed. The report's data comes mainly from WISERTrade information unless otherwise noted. WISERTrade is a company that aggregates customs information from hundreds of countries into one database.

Harmonized System (HS) codes are an international system of names and numbers assigned to traded commodities. HS codes were used within the WISERTrade database to identify recycled waste commodities. For convenience, these commodities were combined into several custom groups in this report to represent categories of common recyclables by type or particular interest, such as Copper Wire and Aluminum Cans. Throughout this report weight is shown in tons, and a conversion factor of .00110231 tons per kilogram was used to calculate the totals.

While it is not possible to determine definitively how much of the waste and scrap material exported from California actually originated in California, rough estimates for some selected material categories usually ranged from about 60% to about 80% by weight.

Results

2012 California Ports Recyclables Exports by Sea (Figures 1, 1a, 2 and 2a)

- Total sea-borne weight of recyclables exported from California is approximately 20 million tons.
- Recyclables made up 28% by weight of all California's sea-borne exports.
- Total value of sea-borne recyclables exports from California is near $8 billion.
- Recyclables made up 8% by weight of all California's sea-borne exports.
- The single largest category by weight was Mixed Paper which accounted for 51% of recyclable exports
- Non-Ferrous Metals, though only 8% of exports by weight, made up 38% of the recyclables value.
- Ferrous Metals made up 37% of the value, and combined with Non-Ferrous metals accounted for 75% of the value of exported recyclables by sea.
- The most valuable commodity was Copper Wire at over $6,600 per ton.

Figure 1: 2012 Sea-Borne Recyclables Share of CA Exports by Tons

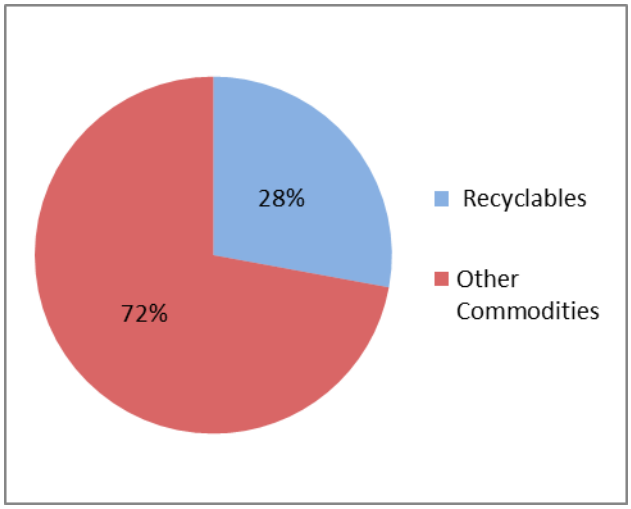


Figure 1a: 2012 Sea-Borne Recyclables Share of CA Exports by Dollars

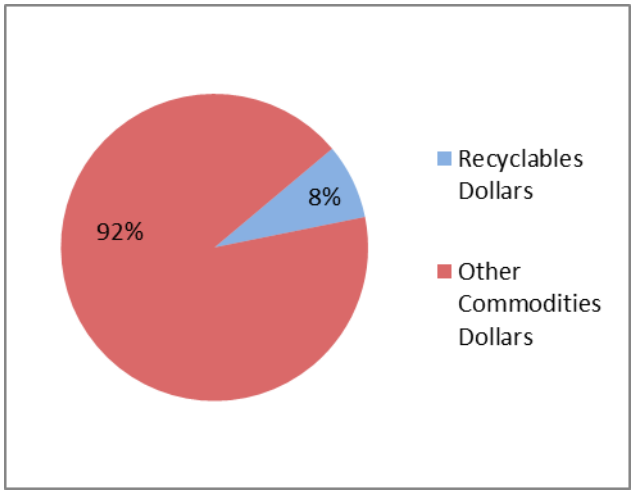


Figure 2: 2012 CA Sea-Borne Exported Recyclables in Tons (total tons = 19.8 million)

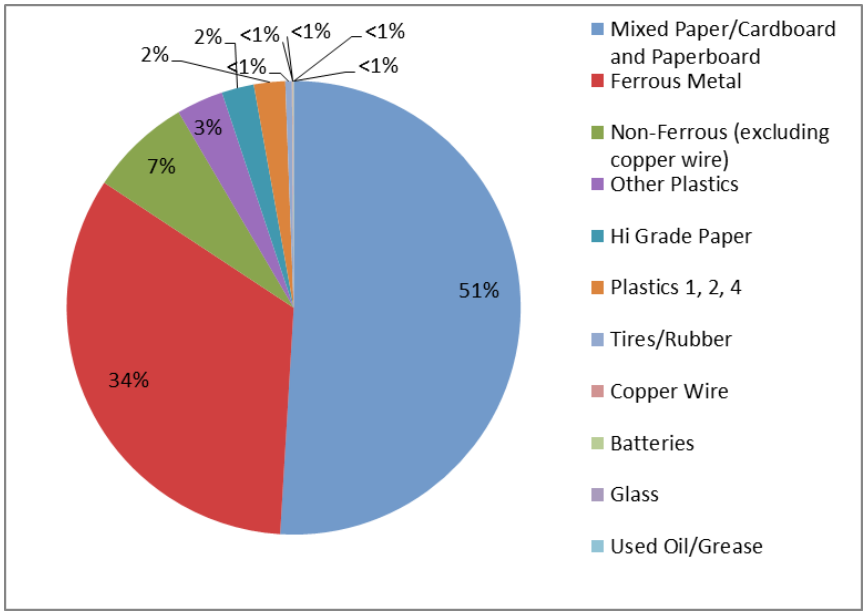
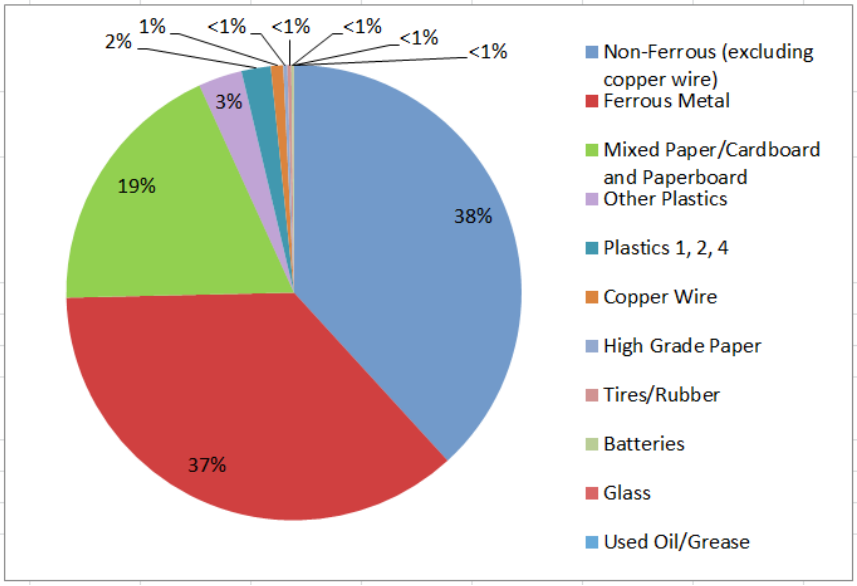


Figure 2a: 2012 CA Sea-Borne Exported Recyclables in Dollar Value (total value = $8 billion)



Sea-Borne Exports of Recyclables by Destination Country (Figures 3 and 3a)

- Top countries recyclables were exported to:
  - China – 58%
  - Taiwan – 15%
  - Korea – 14%
- The top three countries made up 87% of the sea-borne recyclable exports market.
- Compared to 2011, exports of recyclables were down nearly 11%.
- China continues to be the largest importer of seaborne recyclables from California, but imported 1.8 million tons less in 2012 compared to 2011. This is around a 13.5% overall drop, mostly from Ferrous Metals (down 930,000 tons) and Mixed Paper (down 716,000 tons).

Figure 3: Recyclable Exports by Sea from California by Country in 2012 (tons)

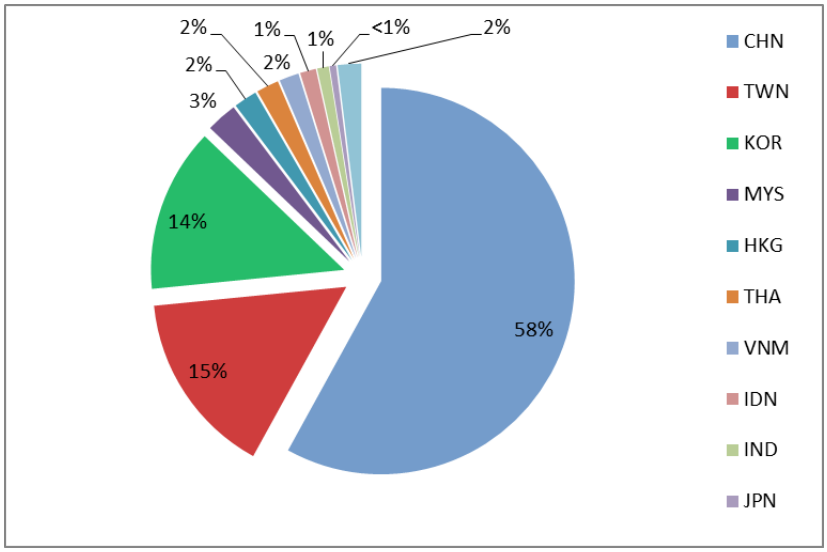
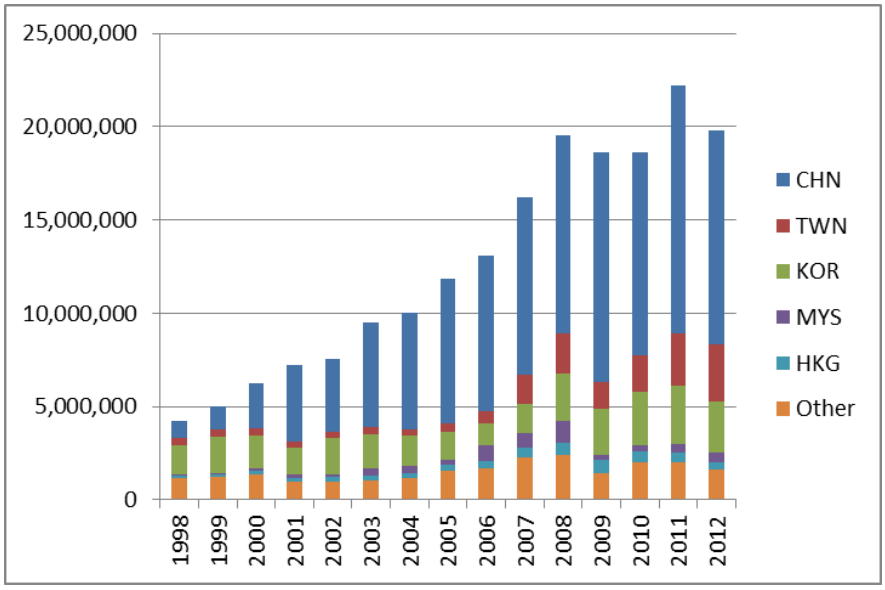


Figure 3a: Recyclable Exports by Sea from California by Country (tons)



California Comparisons (Figures 4 and 4a)

- The United States exported approximately 47.4 million tons of recyclable by sea worth about $22.3 billion in 2012.
- 42% of the country's recyclable exports by weight passed through California's ports in 2012, slightly surpassing that of the entire U.S. east coast.
- By value, California accounted for 37% of the nation's recycle exports total, 10 percentage points less than the east coast at 47%.

Figure 4: U.S. Recycled Exports in 2012 by Region (tons)

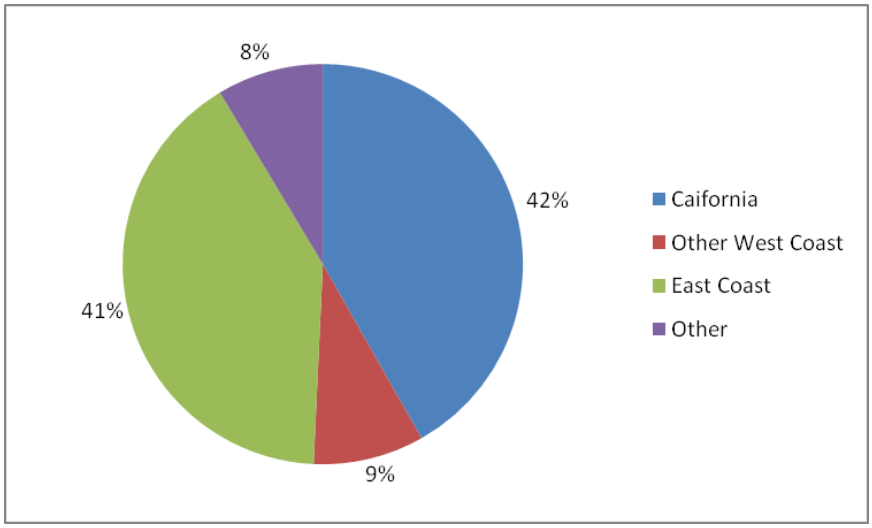
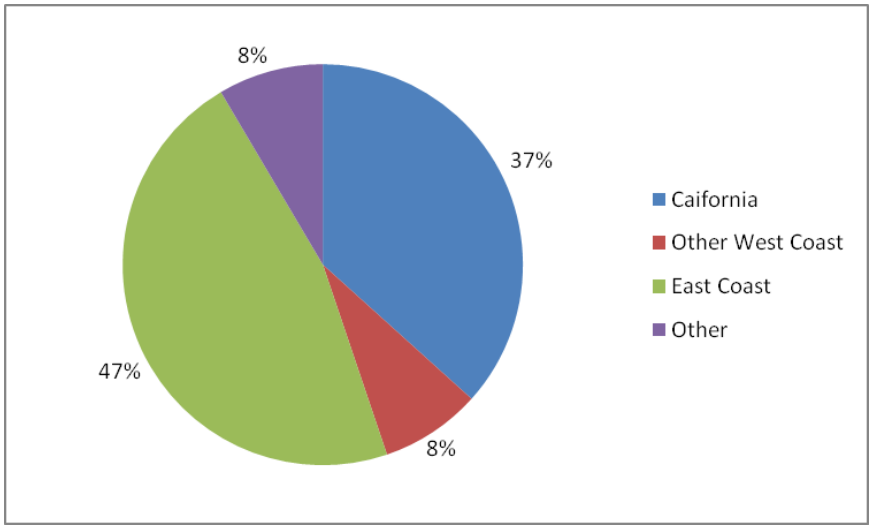


Figure 4a: U.S. Recycled Exports in 2012 by Region ($)



Individual Commodities

High-Grade Paper (Figures 5 and 5a)

- Total sea-borne weight exported from California equals 120,000 tons.
- Made up 1% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $24 million.
- Made up less than 1% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - China – 26,000 tons (22%)
    - El Salvador – 24,000 tons (20%)
    - Korea – 23,000 tons (19%)
- Compared to 2011, exports of High-Grade paper were up 1% in 2012.

Figure 5: High-Grade Paper Exports from California by Country in 2012 (tons)

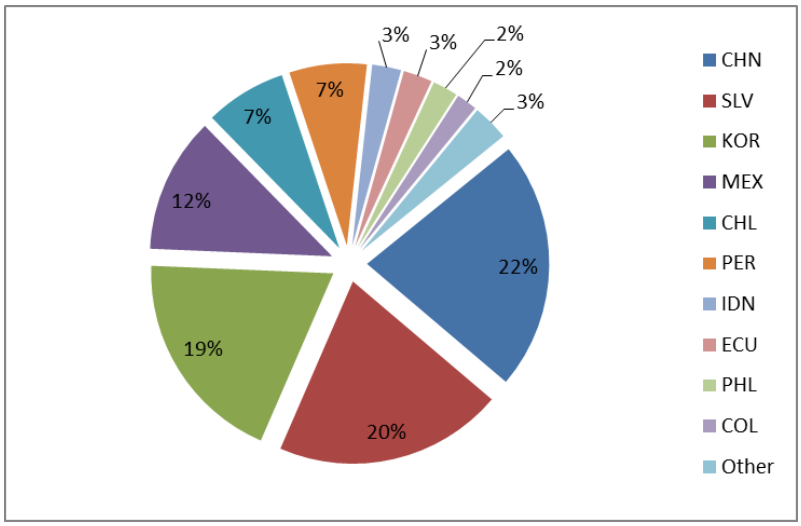
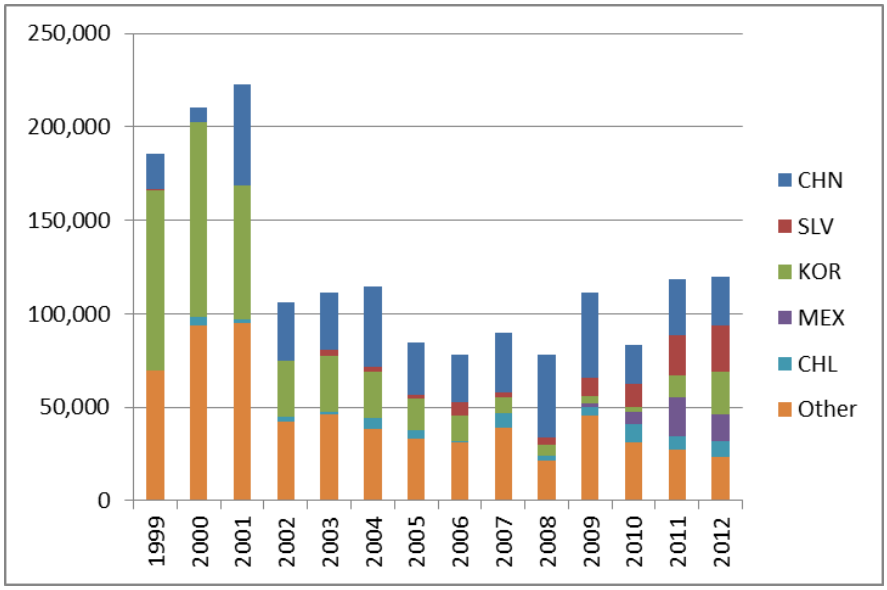


Figure 5a: High-Grade Paper Exports Trend from California by Country (tons)



Mixed Paper, Cardboard, and Paperboard (Figures 6 and 6a)

- Total sea-borne weight exported from California equals 10,190,000 tons.
- Made up 51% of recyclable sea-borne exports. This represents the largest category by weight.
- Total value of sea-borne exports from California equals $1.5 billion.
- Made up 19% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - China – 8,657,000 tons (85%)
    - Korea – 790,000 tons (8%)
    - All other countries – 742,000 tons (7%)
- Compared to 2011, exports of mixed paper were down 7% in 2012.

Figure 6: Mixed Paper Exports from California by Country in 2012 (tons)

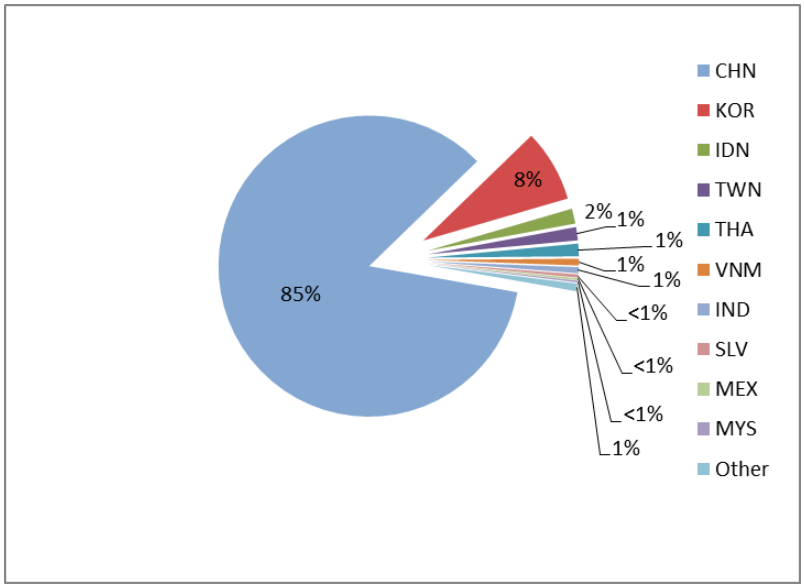
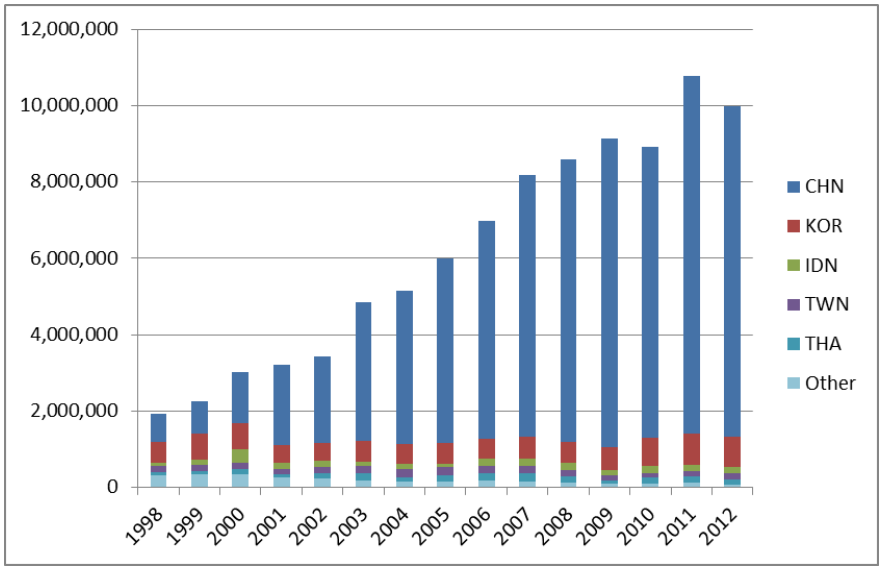


Figure 6a: Mixed Paper Exports Trend from California by Country (tons)



Plastics 1, 2, 4 (PET, HDPE, LDPE) (Figures 7 and 7a)

- Total sea-borne weight exported from California equals 488,000 tons.
- Made up 2% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $170 million.
- Made up 2% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - China – 347,000 tons (71%)
    - Hong Kong – 119,000 tons (24%)
    - Other countries – 21,000 tons (5%)
- Compared to 2011, exports of Plastics 1, 2, and 4 were down 1% in 2012.

Figure 7: Plastics 1, 2, 4 Exports from California by Country in 2012 (tons)

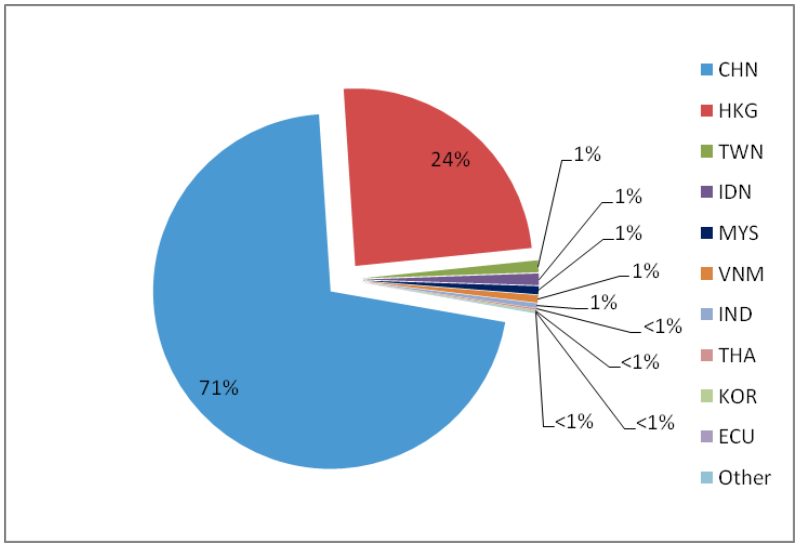
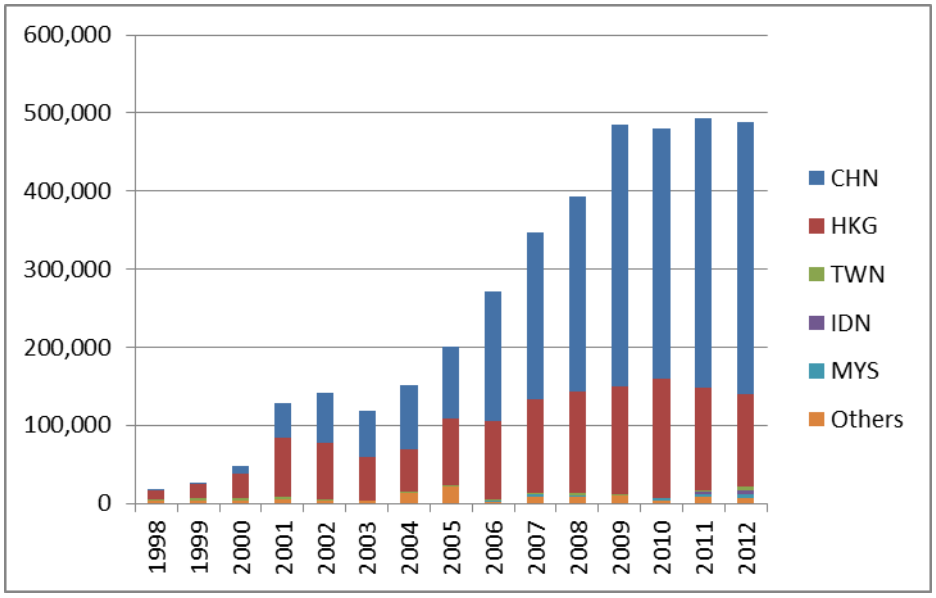


Figure 7a: Plastics 1, 2, 4 Exports Trend from California by Country (tons)



Other Plastics (PVC, Polystyrene, Other) (Figures 8 and 8a)

- Total sea-borne weight exported from California equals 658,000 tons.
- Made up 3% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $254 million.
- Made up 3% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - China – 434,000 tons (66%)
    - Hong Kong – 186,000 tons (28%)
    - Other countries – 38,000 tons (6%)
- Compared to 2011, exports of Other Plastics were down 13% in 2012.

Figure 8: Other Plastics Exports from California by Country in 2012 (tons)

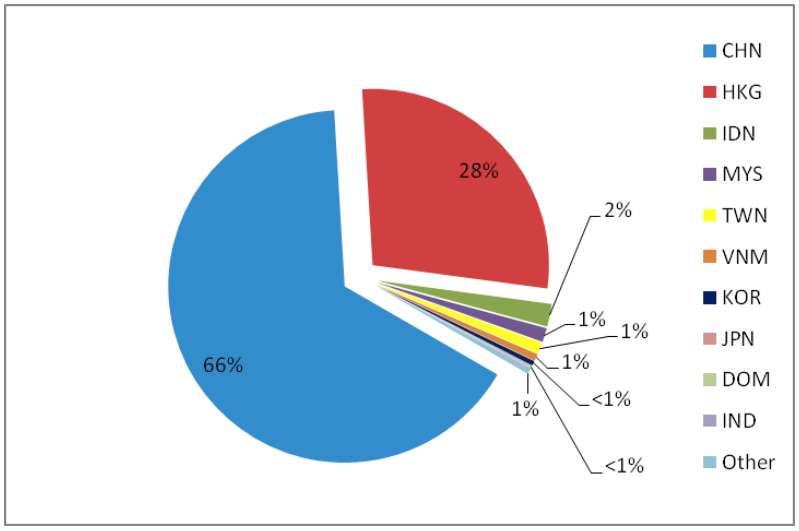
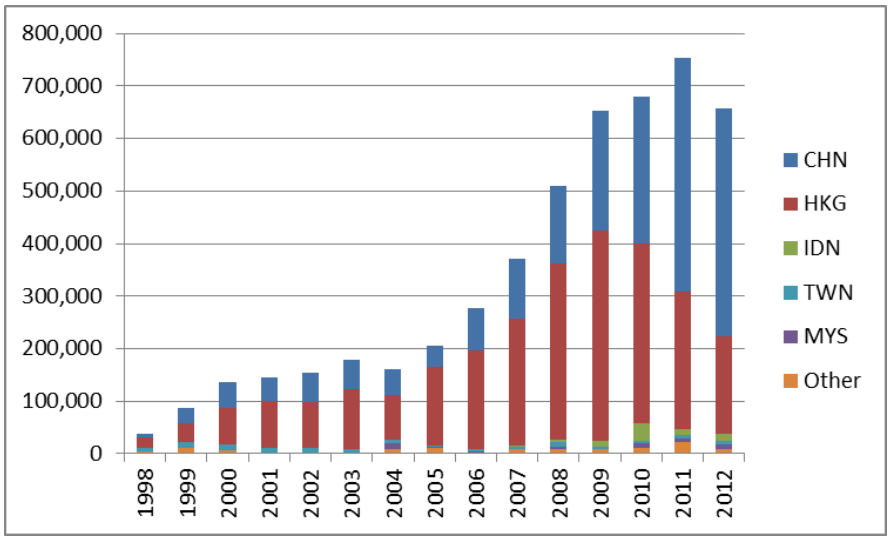


Figure 8a: Other Plastics Exports Trend from California by Country (tons)



Glass (Figures 9 and 9a)

- Total sea-borne weight exported from California equals 3,700 tons.
- Made up less than 1% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $1 million.
- Made up less than 1% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - India – 1,800 tons (50%)
    - Japan – 1,400 tons (38%)
    - Honduras – 270 tons (7%)
- Compared to 2011, exports of Glass were up 48% in 2012.

Figure 9: Glass Exports from California by Country in 2012 (tons)

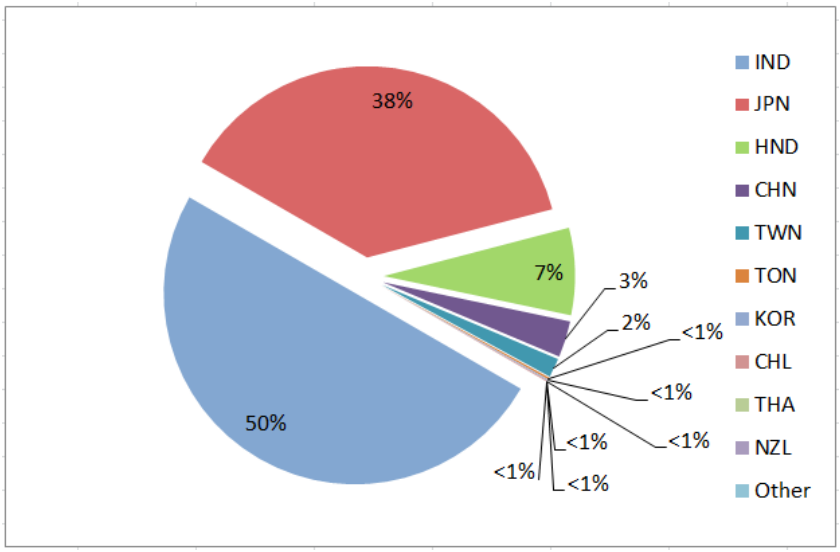
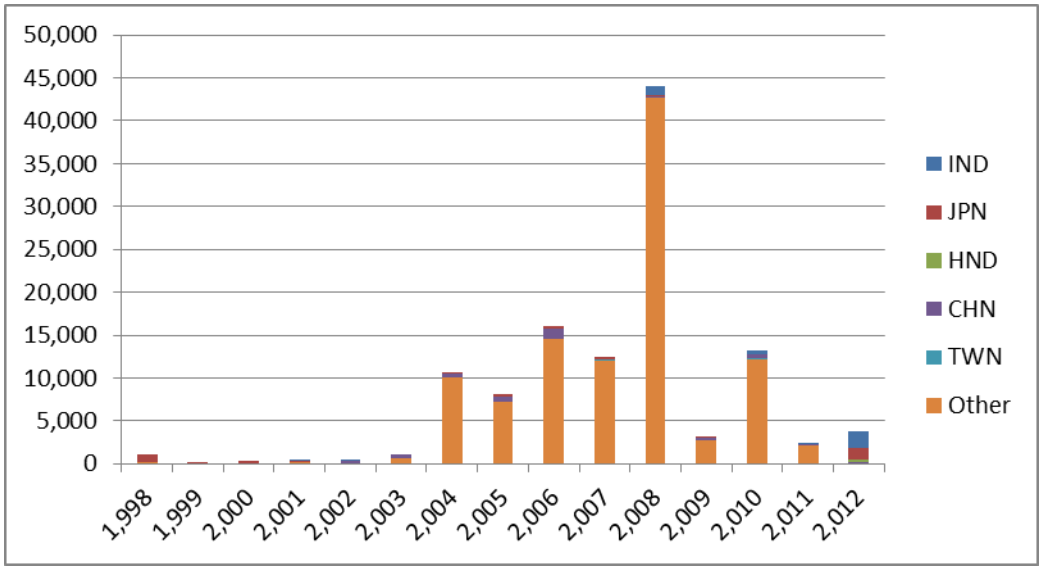


Figure 9a: Glass Exports Trend from California by Country (tons)



Tires and Rubber Scrap (Figures 10 and 10a)

- Total sea-borne weight exported from California equals 86,000 tons.
- Made up less than 1% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $23 million.
- Made up less than 1% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - Vietnam – 38,000 tons (44%)
    - Korea – 21,000 tons (24%)
    - Hong Kong – 10,000 tons (12%)
- Compared to 2011, exports of Tires and Rubber scrap were up 16% in 2012.

Figure 10: Tires/Rubber Scrap Exports from California by Country in 2012 (tons)

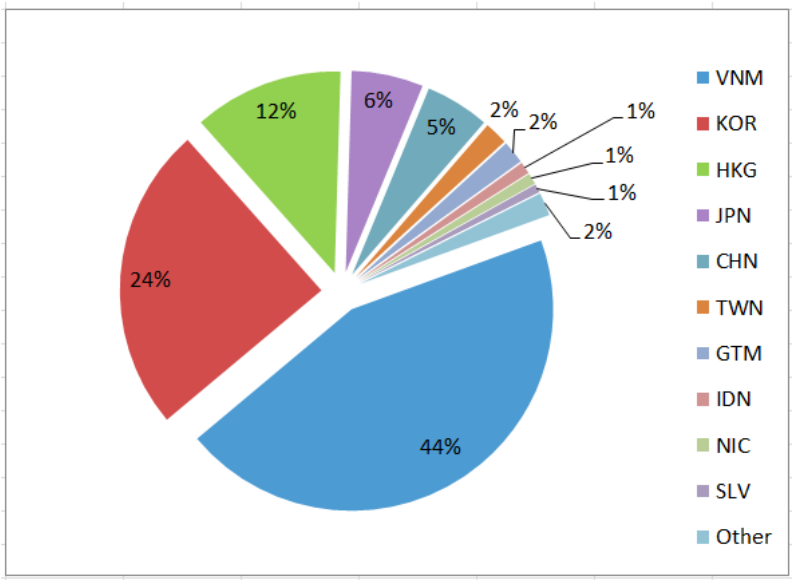
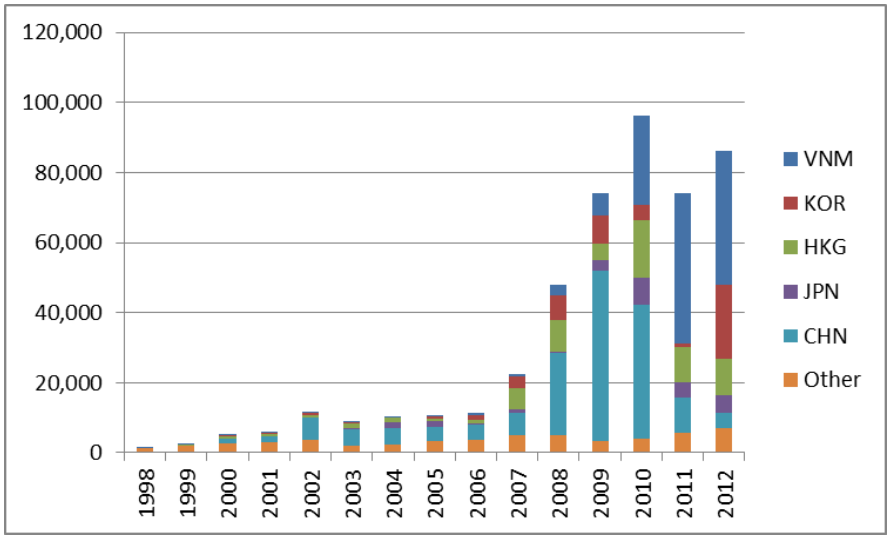


Figure 10a: Tires/Rubber Scrap Exports Trend from California by Country (tons)



Used Oil and Grease (Figures 11 and 11a)

- Total sea-borne weight exported from California equals 1,000 tons.
- Made up less than 1% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $766 thousand.
- Made up less than 1% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - Singapore – 280 tons (27%)
    - China – 240 tons (22%)
    - Japan – 133 tons (13%)
- Compared to 2011, exports of Used Oil and Grease were up 466% in 2012. Please note that Singapore, China, and Japan did not have any reported tonnage for 2011. It is unknown if this is accurate or a reporting error.

Figure 11: Used Oil/Grease Exports from California by Country in 2012 (tons)

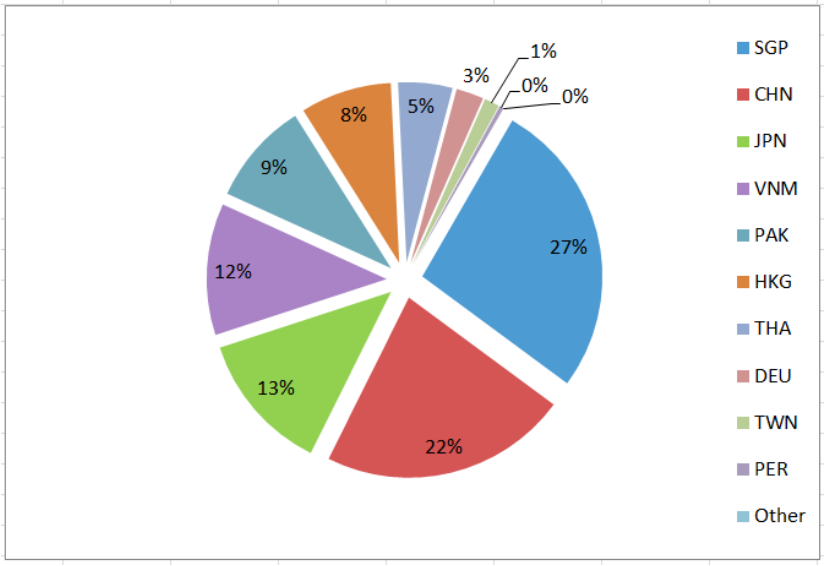
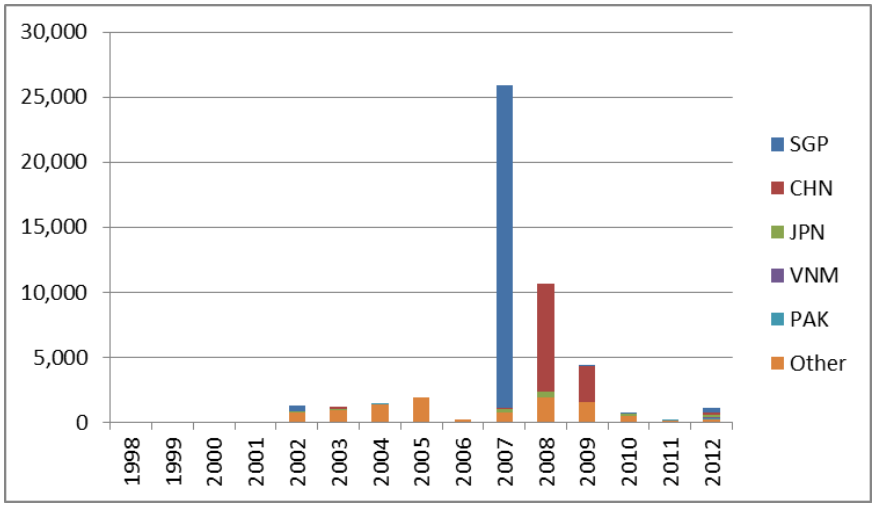


Figure 11a: Used Oil/Grease Exports Trend from California by Country (tons)



Batteries (Figures 12 and 12a)

- Total sea-borne weight exported from California equals 12,000 tons.
- Made up less than 1% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $13 million.
- Made up less than 1% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - Korea – 11,000 tons (86%)
    - China – 660 tons (5%)
    - India – 540 tons (4%)
- Compared to 2011, exports of Batteries were down 24% in 2012.

Figure 12: Batteries Exports from California by Country in 2012 (tons)

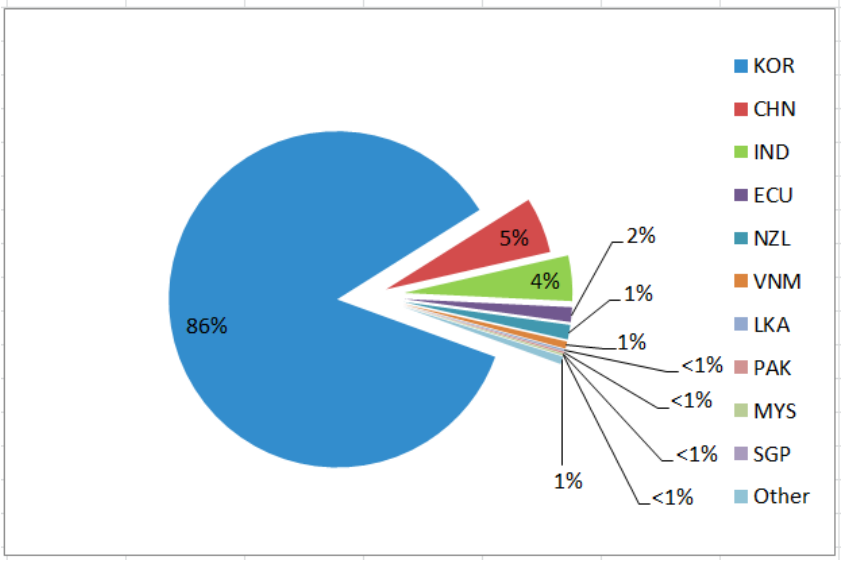
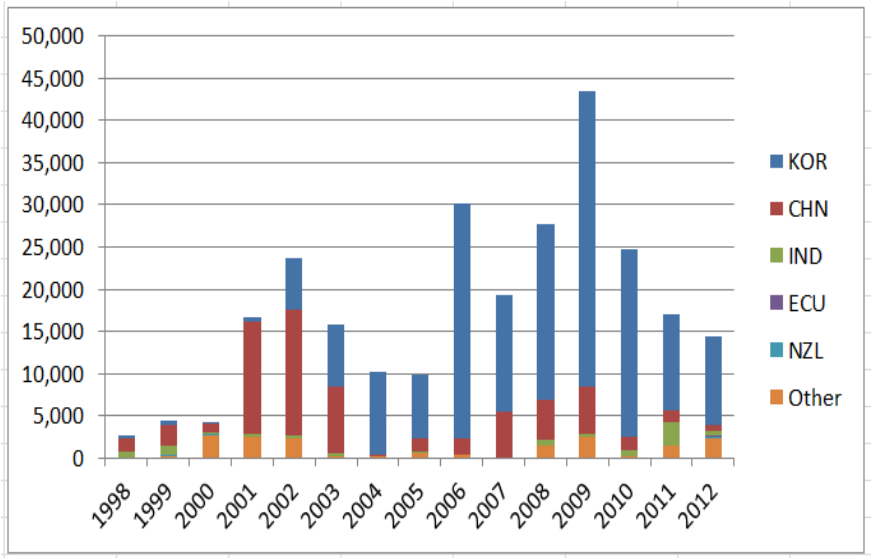


Figure 12a: Batteries Exports Trend from California by Country (tons)



Copper Wire (Figures 13 and 13a)

- Total sea-borne weight exported from California equals 11,000 tons.
- Made up less than 1% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $72 million.
- Made up less than 1% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - China – 6,400 tons (59%)
    - Japan – 2,000 tons (18%)
    - Korea – 1,900 tons (18%)
- Compared to 2011, exports of Copper Wire were down 38% in 2012.

Figure 13: Copper Wire Exports from California by Country in 2012 (tons)

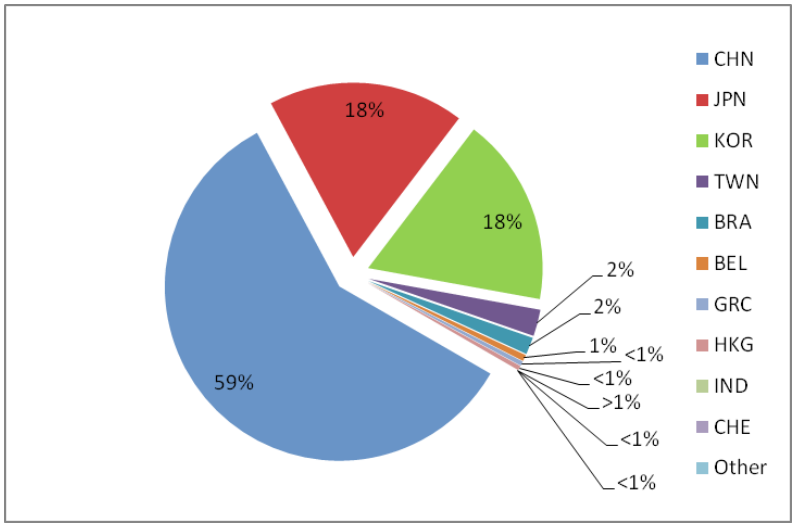
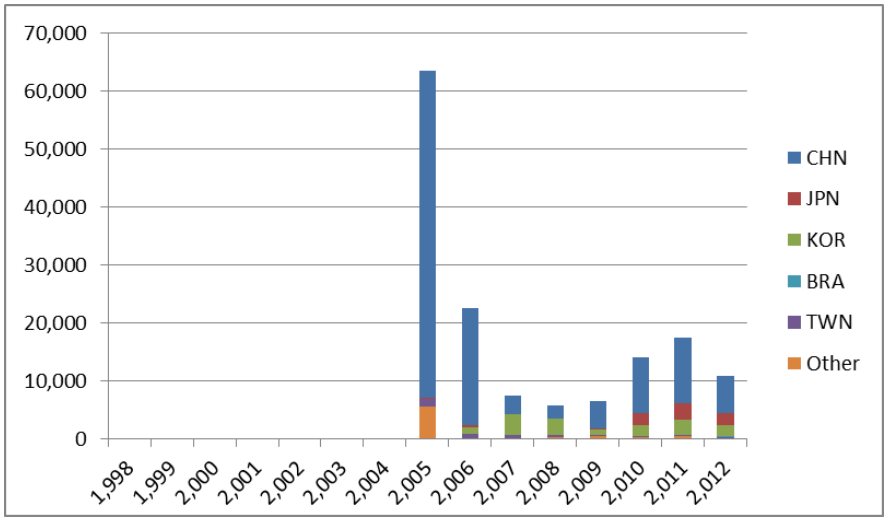


Figure 13a: Copper Exports Trend from California by Country (tons)



Ferrous Metal (Figures 14 and 14a)

- Total sea-borne weight exported from California equals 6,746,000 tons.
- Made up 34% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $3 billion.
- Made up 36% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - Taiwan – 2,823,000 tons (42%)
    - Korea – 1,720,000 tons (25%)
    - China – 851,000 tons (13%)
- Compared to 2011, exports of Ferrous Metals were down 17% in 2012.

Figure 14: Ferrous Metal Exports from California by Country in 2012 (tons)

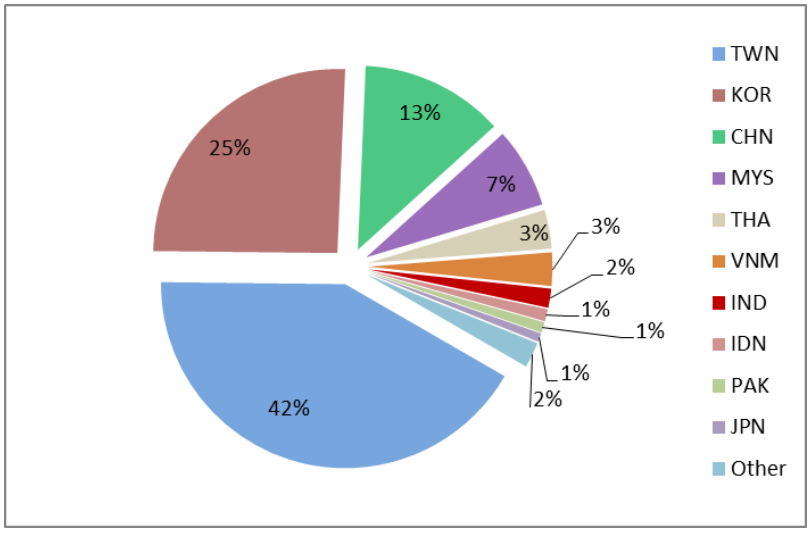
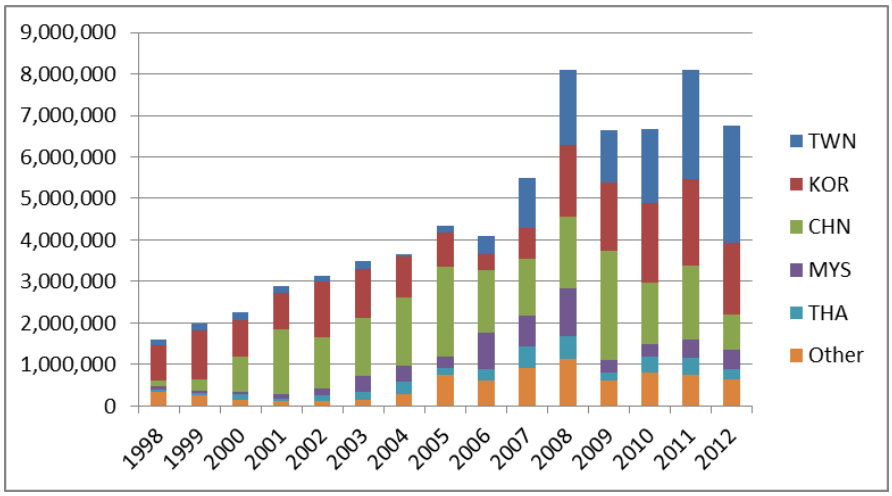


Figure 14a: Ferrous Metal Exports Trend from California by Country (tons)



Non-Ferrous Metal (Excluding Copper Wire) (Figures 15 and 15a)

- Total sea-borne weight exported from California equals 1,490,000 tons.
- Made up 8% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $3.1 billion.
- Made up 38% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - China – 1,162,000 tons (78%)
    - Korea – 148,000 tons (10%)
    - Taiwan – 73,000 tons (5%)
- Compared to 2011, exports of Non-Ferrous Metal were down 10% in 2012.
- Non-Ferrous metals was the third highest recyclable export category by weight, but was the top category in value due to its relatively high dollar to ton ratio.

Figure 15: Non-Ferrous Metal (Excluding Copper Wire) Exports from California by Country in 2012 (tons)

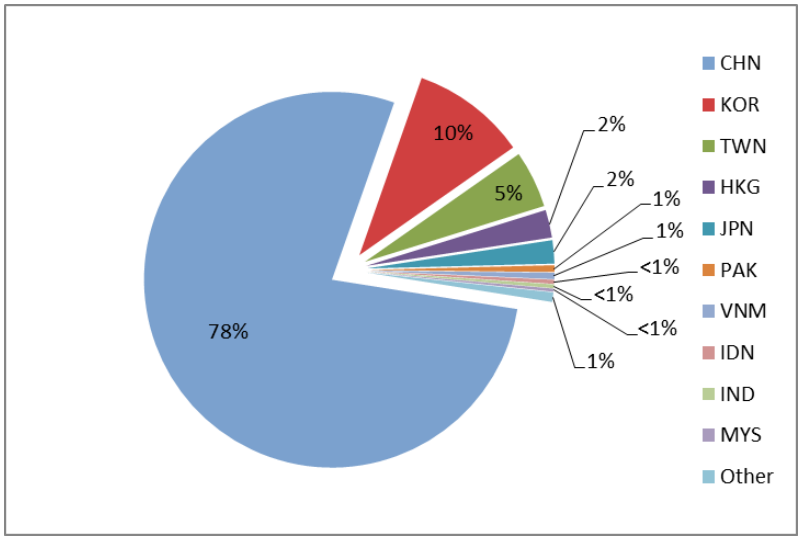
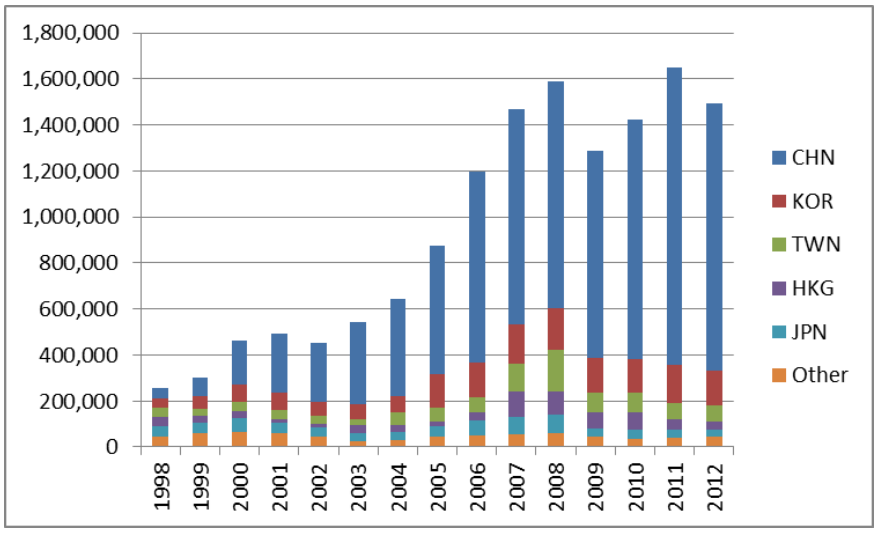


Figure 15a: Non-Ferrous Metal (Excluding Copper Wire) Exports Trend from California by Country (tons)



Aluminum Cans (Figures 16 and 16a)

- Total sea-borne weight exported from California equals 24,000 tons.
- Made up less than 1% of recyclable sea-borne exports by weight.
- Total value of sea-borne exports from California equals $31 million.
- Made up less than 1% of the value of recyclable sea-borne exports.
- Top 3 countries exported to:
    - Korea – 22,000 tons (95%)
    - China – 570 tons (2%)
    - All other countries –700 tons (3%)
- Compared to 2011, exports of Aluminum Cans were up less than ½ of 1% in 2012.
- Aluminum Cans are also included as part of the total weight and value of Non-Ferrous Metal.

Figure 16: Aluminum Cans Exports from California by Country in 2012 (tons)

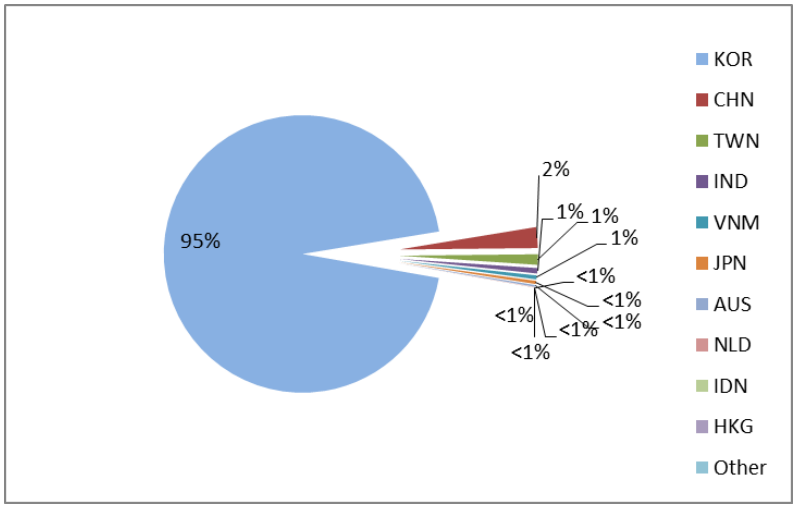
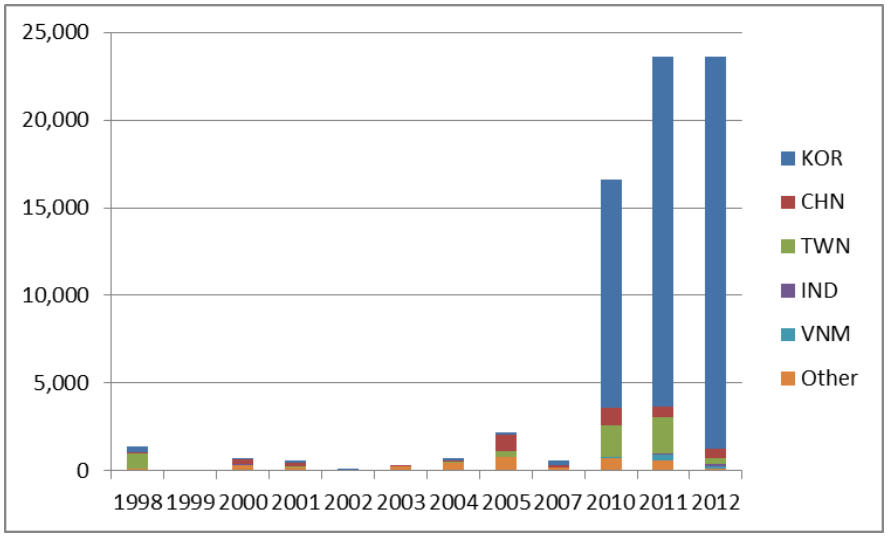


Figure 16a: Aluminum Cans Exports Trend from California by Country (tons)



2013 First Four Months Comparison (Figures 17, 17a and 17b)

We can get a glimpse of 2013 by looking at the percent change of sea-borne recyclable export tonnages. Figure 17 shows the change from 2011 to 2012 and from the first four months of 2012 to the first four months of 2013, for the top 10 export countries. China showed a decline of about 13.5% from 2011 to 2012, and continues to show a decline so far in 2013.

Figure 17: Percent Change of Recyclable Exports from CA ports by Country

Country	% Chg. 2011- 2012	% Chg. April 2012- April 2013
TOTAL ALL COUNTRIES	-10.9%	-6.9%
China	-13.5%	-7.3%
Taiwan	7.4%	-3.2%
Korea, Republic Of	-12.1%	-15.3%
Malaysia	4.4%	1.6%
Hong Kong	-26.1%	24.8%
Thailand	-35.5%	-67.8%
Vietnam	-26.9%	47.1%
Indonesia	1.4%	30.2%
India	29.5%	4.4%
Japan	-62.9%	-26.6%

Figure 17a shows the percent change of exports by commodity group from California ports from April 2012 to April 2013 for all partner countries, and separately for China. Year-to-date (YTD) amounts for the first four months of each year are shown.

Figure 17a: Percent Change of Recyclable Exports from CA ports from April 2012 to April 2013

	April YTD		
Commodity Group	**%2012 - 2013 (all countries)**	**%2012 - 2013 (China)**	**China's rank[3]**
High-Grade Paper	-22%	-7%	2
Mixed Paper	-4%	-6%	1
Plastics 1, 2, 4 (PET, HDPE, LDPE)	7%	-7%	1
Plastics (PVC, Polystyrene, Other)	-13%	-24%	1
Ferrous	-10%	-4%	3
Non-Ferrous	-11%	-13%	1

Figure 17a above shows a decline of about 24% in PVC, Polystyrene, and Other plastics exported to China in the first four months. While the cause of these declines in early 2013 is not known, it may be a result of the Chinese "Green Fence" campaign that began in February of 2013 to prevent the import of contaminated loads of recyclables.

A closer look at individual recycled plastic commodity exports to China, in Figure 17b, shows the tonnage and percent change for plastics from April 2012 to April 2013. In particular, PVC exports are nearly half of what they were in April of 2012, and most other scrap plastic exports are down as well. While all recyclables shipped to China are subject to the "Green Fence" campaign, plastics may be showing the greatest signs of the policy change.

Figure 17b: Plastic Exports from CA ports to China - April 2012 to April 2013 Tonnage and % Change

Types of Recycled Plastics Exported	**APR 2012 YTD (tons)**	**APR 2013 YTD (tons)**	**%2012- 2013**
Total of All Plastics Listed Below	269,960	225,305	-17%
Other Plastics Other Than Pet Plastics	108,165	92,592	-14%
Waste,Paring,Scrap,Of Plast,Of Polymrs Of Ethylene	71,614	72,976	2%
Of Polyethylene Terephthalate (Pet) Plastics	44,516	35,166	-21%
Waste,Parings,Scrap,Of Plas,Of Polymrs Vinl Chlori	43,011	21,855	-50%
Waste,Paring,Scrap,Of Plast,Of Polymrs Of Styrene	2,654	2,717	2%

[3] Number equals China's ranking as California's export partner. "1" means they were the top export country.

Conclusion

The export of recyclables from California was a significant part of the overall exports market in 2012. Sea-borne exports of all commodities shipped from California ports equaled 71 million tons with a value of $103 billion. Recyclables made up nearly 20 million of those tons (28%) and had a value of over $8 billion (8%).

Most of the recyclable material shipped out still went to China (58%) despite the fact that they received about 13.5% less by weight in 2012 compared to 2011. Early indications from 2013 data suggest that China may receive less material in 2013 since the first four months of 2013 show a decline in almost all recyclable exports to China. But, it remains to be seen how 2013 totals will ultimately turn out. The decline in 2013 exports to China may be a result of China's Operation Green Fence. Chinese customs began Green Fence in February of 2013 as an effort to ramp up inspections of all recyclables to reduce the amount of contaminated loads.

In 2012, China continued to be the top market for high-grade paper, mixed paper, plastics, copper wire, and non-ferrous metal. The top export market for glass in 2012 was India whereas Korea was the top market in 2011. Singapore and China overtook Pakistan as the top markets of used oil and grease in 2012, though this may be due to tonnages not reported in 2011 for those two countries. Korea jumped to the number 2 spot for tires and rubber by taking 20,000 more tons than in 2011.

For most materials, there is not enough capacity at facilities within California to handle the materials that are currently being exported. This makes California vulnerable to changes in these export markets. If one or more collapsed, it is likely that more materials would end up being landfilled in California which could impact our ability to reach 75% recycling by 2020. On the other hand, if we increase our recycled content manufacturing capacity, then more of these materials could be processed into new products here in California. It would mean more green jobs created in California, less greenhouse gases associated with long distance transport, and ensure that these resources stay in California's material stream and economy.

While the data in this report gives a good look at sea-borne exports of recyclables, there are still key unanswered questions yet to be addressed. For example, how much of the exports truly originated in California vs. being collected, consolidated and then shipped from other states for transit through California ports? Some estimates say 60% to 80% may originate in California, but that is a rough estimate and a large range. What is the best way to reliably collect and include data on shipments of recyclables by rail and truck to destinations such as Canada and Mexico? How can we determine the end use of the recyclables that were exported? We will continue to look for answers to these and other questions regarding California's recyclables as we work to meet or exceed the 75% recycling goals established in AB 341 (Chapter 476, Statutes of 2011). Please contact us if you have information that could help.

Appendices

Appendix 1: CA Sea-Borne Tons Exported Categorized by Destination Country and Waste/Scrap Commodity in 2012

	China	Hong Kong	Taiwan	Korea	Malaysia	Vietnam	Thailand	Indonesia	India	All Other	Total
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
High-grade Paper	26,433	230	651	22,961	0	727	0	3,079	1,995	63,872	119,948
Mixed Paper	8,657,686	483	145,043	790,018	18,938	73,149	136,955	163,430	66,412	138,021	10,190,134
Plastics 1, 2, 4	347,443	119,171	5,244	695	3,591	3,326	739	5,170	2,094	630	488,102
Other Plastics	434,471	185,565	6,669	2,835	8,446	4,247	65	13,733	282	1,828	658,140
Copper Wire	6,407	46	268	1,904	0	0	0	0	0	2,263	10,887
Glass	114	0	60	4	0	0	0	0	1,865	1,686	3,730
Tires/Rubber	4,432	10,367	1,604	21,145	243	38,315	13	830	118	9,116	86,183
Used Oil/Grease	235	87	14	0	0	125	52	0	0	545	1,057
Batteries	663	0	0	10,564	21	84	0	0	539	392	12,264
Ferrous Metal	850,716	33,789	2,822,619	1,720,617	476,102	197,624	229,765	72,069	112,830	230,040	6,746,171
Non-Ferrous (excluding copper wire)	1,162,455	35,737	73,371	147,688	3,931	8,274	3,403	5,318	4,997	47,439	1,492,614
Aluminum Cans (included in Non-Ferrous)	574	0	288	22,371	0	110	0	0	150	147	23,641
Total All Selected Materials	11,491,055	385,474	3,055,543	2,718,433	511,272	325,870	370,991	263,628	191,130	495,833	19,809,229
Total All Exports (Recycled and Not)	24,063,959	1,660,712	5,823,730	6,183,834	1,142,891	1,366,065	1,382,001	1,724,282	1,490,769	26,180,809	71,019,051

Appendix 2: CA Sea-Borne Export Market Share in Tonnage Categorized by Destination Country and Waste/Scrap Commodity in 2012

	China	Hong Kong	Taiwan	Korea, Republic of	Malaysia	Vietnam	Thailand	Indonesia	India	All Others	Total
High-Grade Paper	22%	<1%	1%	19%	0%	1%	0%	3%	2%	53%	100%
Other Paper	85%	<1%	1%	8%	<1%	1%	1%	2%	1%	1%	100%
Plastics 1, 2, 4	71%	24%	1%	<1%	1%	1%	<1%	1%	<1%	<1%	100%
Other Plastics	66%	28%	1%	<1%	1%	1%	<1%	2%	<1%	<1%	100%
Glass	3%	0%	2%	<1%	0%	0%	0%	0%	50%	45%	100%
Tires/Rubber	5%	12%	2%	25%	<1%	44%	<1%	1%	<1%	11%	100%
Used Oil/Grease	22%	8%	1%	0%	0%	12%	5%	0%	0%	52%	100%
Batteries	5%	0%	0%	86%	<1%	1%	0%	0%	4%	3%	100%
Copper Wire	59%	<1%	2%	17%	0%	0%	0%	0%	0%	21%	100%
Ferrous Metal	13%	1%	42%	26%	7%	3%	3%	1%	2%	3%	100%
Non-Ferrous (excluding copper wire)	78%	2%	5%	10%	<1%	1%	<1%	<1%	<1%	3%	100%
Aluminum Cans (included in Non-Ferrous)	2%	0%	1%	95%	0%	<1%	0%	0%	1%	1%	100%
Total All Selected Materials	58%	2%	15%	14%	3%	2%	2%	1%	1%	3%	100%
Total All Exports (Recycled and Not)	34%	2%	8%	9%	2%	2%	2%	2%	2%	37%	100%

Appendix 3: Dollar Value of CA Sea-Borne Exports by Destination Country and Waste/Scrap Commodity in 2012

	China	Hong Kong	Taiwan	Korea	Malaysia	Vietnam	Thailand	Indonesia	India	All Other	Total
	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)
High-Grade Paper	$5,310	$47	$190	$3,187	$0	$222	$0	$611	$396	$13,754.02	$23,717
Mixed Paper	$1,265,038	$121	$25,011	$120,537	$3,306	$13,137	$18,412	$30,285	$8,881	$30,437	$1,515,163
Plastics 1, 2, 4	$120,290	$40,263	$1,926	$329	$1,455	$954	$272	$2,480	$1,151	$570	$169,689
Other Plastics	$164,425	$69,101	$5,286	$2,112	$2,826	$1,627	$57	$5,361	$124	$3,284	$254,204
Copper Wire	$39,026	$275	$1,875	$13,803	$0	$0	$0	$0	$0	$17,001	$71,979
Glass	$50	$0	$38	$53	$0	$0	$0	$0	$218	$674	$1,033
Tires/Rubber	$1,971	$6,113	$1,604	$2,123	$99	$5,818	$257	$153	$52	$4,889	$23,078
Used Oil/Grease	$180	$16	$12	$0	$0	$197	$78	$0	$0	$283	$766
Batteries	$718	$0	$0	$10,734	$35	$65	$0	$0	$779	$453	$12,785
Ferrous Metal	$583,293	$19,213	$1,143,169	$666,917	$176,871	$73,139	$87,896	$27,091	$42,624	$158,569	$2,978,783
Non-Ferrous (excluding copper wire)	$2,429,290	$77,954	$88,768	$270,687	$6,737	$8,961	$9,320	$8,096	$9,768	$213,060	$3,122,640
Aluminum Cans (included in Non-Ferrous)	$2,002	$0	$307	$28,334	$0	$219	$0	$0	$175	$263	$31,300
Total All Selected Materials	$4,609,593	$213,102	$1,267,878	$1,090,482	$191,327	$104,120	$116,291	$74,078	$63,993	$442,973	$8,173,838
Total All Exports (Recycled and Not)	$26,275,318	$5,077,832	$5,985,583	$10,137,885	$1,821,368	$1,699,674	$2,386,433	$1,987,340	$1,228,070	$46,474,203	$103,073,707

Appendix 4: CA Sea-Borne Export Market Share of Dollar Value Categorized by Country and Waste/Scrap Commodity in 2012

	China	Hong Kong	Taiwan	Korea, Republic of	Malaysia	Vietnam	Thailand	Indonesia	India	All Others	Total
High-Grade Paper	22%	<1%	1%	13%	0%	1%	0%	3%	2%	58%	100%
Other Paper	83%	<1%	2%	8%	<1%	1%	1%	2%	1%	2%	100%
Plastics 1, 2, 4	71%	24%	1%	<1%	1%	1%	<1%	1%	1%	<1%	100%
Other Plastics	65%	27%	2%	1%	1%	1%	<1%	2%	<1%	1%	100%
Glass	5%	0%	4%	5%	0%	0%	0%	0%	21%	65%	100%
Tires/Rubber	9%	26%	7%	9%	<1%	25%	1%	1%	<1%	21%	100%
Used Oil/Grease	24%	2%	2%	0%	0%	26%	10%	0%	0%	37%	100%
Batteries	6%	0%	0%	84%	<1%	1%	0%	0%	6%	4%	100%
Copper Wire	54%	<1%	3%	19%	0%	0%	0%	0%	0%	24%	100%
Ferrous Metal	20%	1%	38%	22%	6%	2%	3%	1%	1%	5%	100%
Non-Ferrous (excluding copper wire)	78%	2%	3%	9%	<1%	<1%	<1%	<1%	<1%	7%	100%
Aluminum Cans (included in Non-Ferrous)	6%	0%	1%	91%	0%	1%	0%	0%	1%	1%	100%
Total All Selected Materials	56%	3%	16%	13%	2%	1%	1%	1%	1%	5%	100%
Total All Exports (Recycled and Not)	25%	5%	6%	10%	2%	2%	2%	2%	1%	45%	100%

Appendix 5: Summary of CA Port Exports of Recyclables by Weight, Value, and Market Share in 2012

Material	Tons	% All Recycle Exports (tons)	% All CA Exports (tons)	Dollars ($1000)	% All Recycle Exports ($1000)	% ALL CA Exports ($1000)	$$/Ton
High-Grade Paper	119,948	1%	<1%	23,717	<1%	<1%	$198
Mixed Paper/ Cardboard and Paperboard	10,190,134	51%	14%	$1,515,163	19%	1%	$149
Plastics 1,2, 4	*488,102*	*2%*	*1%*	*$169,689*	*2%*	*<1%*	*$348*
Other Plastic	*658,140*	*3%*	*1%*	*$254,204*	*3%*	*<1%*	*$386*
Glass	*3,730*	*<1%*	*<1%*	*$1,033*	*<1%*	*<1%*	*$277*
Tires/ Rubber	*86,183*	*<1%*	*<1%*	*$23,078*	*<1%*	*<1%*	*$268*
Used Oil/ Grease	*1,057*	*<1%*	*<1%*	*$766*	*<1%*	*<1%*	*$725*
Batteries	*12,264*	*<1%*	*<1%*	*$12,785*	*<1%*	*<1%*	*$1,043*
Copper Wire	*10,887*	*<1%*	*<1%*	*$71,979*	*<1%*	*<1%*	*$6,612*
Ferrous Metal	*6,746,171*	*34%*	*9%*	*$2,978,783*	*36%*	*3%*	*$442*
Non-Ferrous Metal (excluding copper wire)	1,492,614	8%	2%	$3,122,640	38%	3%	$2,092
Aluminum Cans (included in Non-Ferrous Metal)	23,641	<1%	<1%	$31,300	<1%	<1%	$1,324
Total All Selected Recycled Materials	19,809,229	100%	28%	$8,173,838	100%	8%	$413
Total CA Sea Exports (Recycled and Not)	71,019,051	N/A	100%	$103,073,707	N/A	100%	$1,451

Appendix 6: Country Code Abbreviations (listed by export rank)

1	CHN	China	26	AUS	Australia	51	JOR	Jordan
2	TWN	Taiwan	27	BEL	Belgium	52	SLB	Solomon Islands
3	KOR	Korea, Republic Of	28	GBR	United Kingdom	53	KAZ	Kazakhstan
4	MYS	Malaysia	29	NLD	Netherlands	54	CMR	Cameroon
5	HKG	Hong Kong	30	UGA	Uganda	55	MNG	Mongolia
6	THA	Thailand	31	BOL	Bolivia	56	TJK	Tajikistan
7	VNM	Vietnam	32	NIC	Nicaragua	57	MOZ	Mozambique
8	IDN	Indonesia	33	ARG	Argentina	58	LKA	Sri Lanka
9	IND	India	34	NZL	New Zealand	59	KEN	Kenya
10	JPN	Japan	35	HND	Honduras	60	LAO	Laos
11	SLV	El Salvador	36	DOM	Dominican Republic	61	CXR	Christmas Island
12	PAK	Pakistan	37	ITA	Italy	62	GHA	Ghana
13	PER	Peru	38	CRI	Costa Rica	63	GUY	Guyana
14	ECU	Ecuador	39	TUR	Turkey	64	FRA	France
15	GTM	Guatemala	40	ZAF	Republic Of South Africa	65	AFG	Afghanistan
16	MEX	Mexico	41	GRC	Greece	66	PYF	French Polynesia
17	PHL	Philippines	42	BRA	Brazil	67	ISR	Israel
18	COL	Colombia	43	RUS	Russia	68	TON	Tonga
19	CHL	Chile	44	ESP	Spain	69	IRL	Ireland
20	SGP	Singapore	45	LBN	Lebanon	70	DNK	Denmark
21	BGD	Bangladesh	46	PAN	Panama	71	SAU	Saudi Arabia
22	ARE	United Arab Emirates	47	NCL	New Caledonia	72	QAT	Qatar
23	EGY	Egypt	48	SWE	Sweden	73	GEO	Georgia
24	CHE	Switzerland	49	TZA	Tanzania			
25	DEU	Germany	50	WSM	Western Samoa			