



PINELLAS COUNTY RECYCLING MARKET ANALYSIS

JULY 20, 2020

HISTORICAL RECYCLING VALUES AND RECOMMENDED
RECYCLABLES FOR COLLECTION



TASKS

- Review 10 cities/county's acceptable recyclable materials list within Pinellas County
- Determine five-year average value of commonly recycled materials
- Pricing Indexes used include RRS 2019, RRS 2020, RRS 5-year average and The Recycling Partnership- November 2019
- Evaluate packaging materials associated with the “evolving ton” to determine packaging that has a higher prevalence in the recycling stream
- Additional Task: Update commodity values for July 22 Meeting



DELIVERABLES

- An Executive Summary
- A Forecast, Issues, Trends, and Access (FITA's) summary page for each commodity
- Short summary bibliography, organized around each commodity group, Paper, Plastic, Glass, and Metal
- Slide deck in PowerPoint
- Web-based presentation of findings for TMC with RRS team

SUMMARY BIBLIOGRAPHY

MARKETS AND PRICING SOURCES

1. **RRS ACR INDEX**
2. **RISI/FASTMARKETS**
December through May Reports and Pricing
3. **RecyclingMarkets.net**
December through May Pricing
4. **Paper Stock Report**
December through May Pricing
5. **American Metals Markets/Fastmarket**
December through May Pricing and available reports
6. **London Metal Exchange/Comex**
December through May Pricing & available reports
7. **Plastic News**
December through May Pricing and reports
8. **Association of Plastics Recyclers (APR)**
December through May reports
9. **Confidential interviews with mills and brokers**

WEBSITES AND NEWSLETTERS

1. **Resource Recycling**
2. **ISRI Weekly Market Updates**
3. **SWANA**
4. **Pulp and Paper Week**
5. **NWRA Newsletter**
6. **Northeast Recycling Council**
7. **SERDC**
8. **Glass Recycling Coalition**
9. **GPI**
10. **Waste Today**
11. **Waste Advantage**
12. **Waste Management World**
13. **Waste 360**
14. **Bloomberg Commodities**
15. **The Recycling Partnership**
16. **Sustainable Packaging Coalition/Blue Green**
17. **Recycling Today**

GROWTH PROJECTIONS

Global economy in a synchronized slowdown



WORLD ECONOMIC OUTLOOK UPDATE JUNE 2020

GROWTH PROJECTIONS

A Crisis Like No Other, An Uncertain Recovery



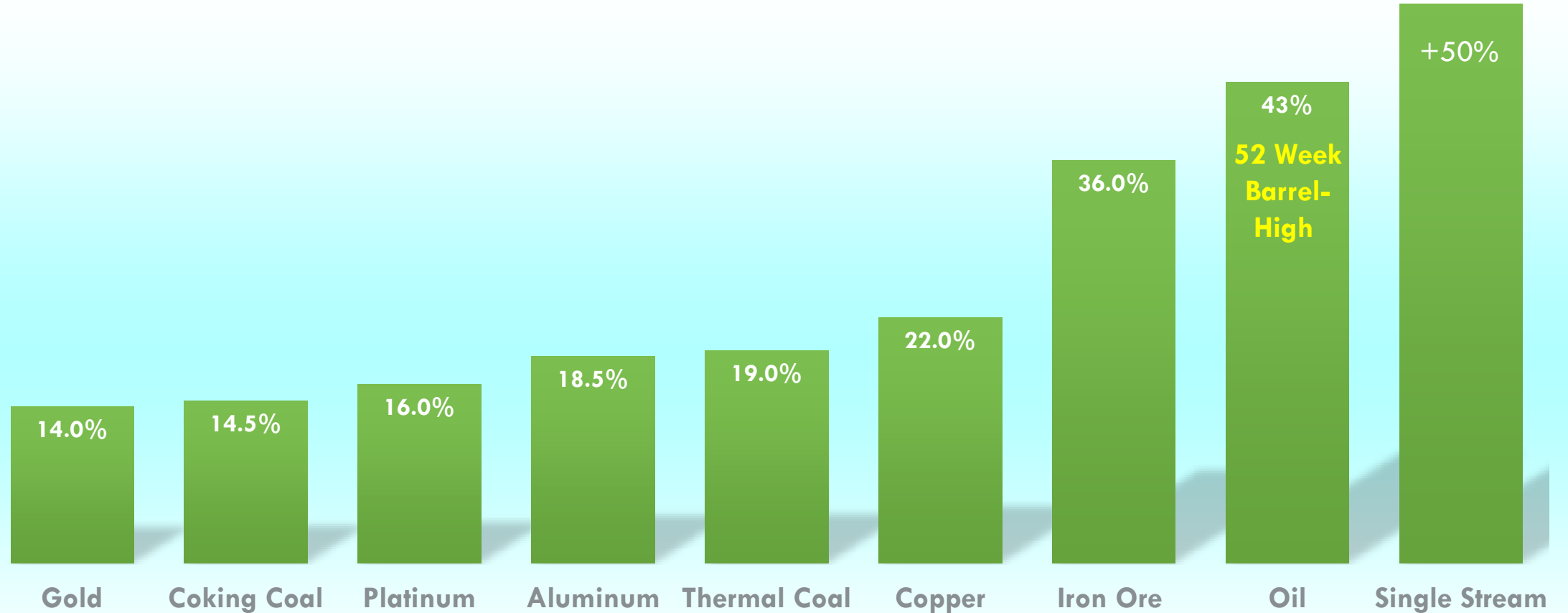
INTERNATIONAL MONETARY FUND

IMF.org #WEO

- News mostly in one direction in N. America, forecast shows acceleration of deceleration
- April GDP was -4%, May GDP was -5.7%

WORLD COMMODITIES VOLATILITY

VOLATILITY VS. AVG. ANNUAL VOLATILITY OF SINGLE STREAM
MACQURIE, BLOOMBERG



HYPER INFLATION OR DEFLATION?

Deflation

- More likely—and in some ways the more dangerous- because unemployment high and demand will weaken
- Happened in 1923 after the Spanish Flu and WW1
- Only way out is gains in employment

Inflation

- “\$ Spending for COVID- “Hundreds of billions”
- M. Friedman: “Inflation is ... produced by a more rapid increase in the quantity of money”... than produced goods
- 1920 Germany



COVID JULY 2020 UPDATE: KEY OBSERVATIONS ON RECYCLING DURING THE PANDEMIC

- Commodities and supply chain valued- Critical to critical supplies
- Operators have demonstrated ability to keep employees safe
- Paper story mottled; container story poor in mid-term
- Transmission through surface contact has not materialized, airborne transmission more of a problem especially in confined spaces
- Vast majority of all MRFs and recycling programs either remained open or opened during shelter in place orders and economic reopening
- Anticipate permanent change in consumer behaviors
- Storm clouds- volatility- U.S. recovery in period of poor behavior, stressed municipal budgets, and cancelled mill capacity

CURRENT PROGRAM MATERIALS IN COUNTY AND MUNICIPAL PROGRAMS



OBVIOUS MATERIALS

- Glass 3 Mix-
- Aluminum cans (UBC)
- Steel Cans (tin)
- Mixed Paper (#54)
- Cardboard (OCC #11)
- Aseptics & Cartons (#52)
- Polyethylene Bottles (PET#1)
- Natural High-Density Polyethylene Bottles and Jars (NHDPE #2)
- Colored Natural High-Density Polyethylene Bottles and Jars (CHDPE #2)
- Mixed Plastics (#3-7)
- Polypropylene (#5)



QUESTIONABLE BUT STILL LIKELY

- Polypropylene (#5)- megatrend at MRFs
- Mixed Plastics (#3-7)- Good movement, low prices, push by garbage industry to limit recyclable materials they share revenue with.
- Aluminum Foil



NOT INCLUDED

- EPS (foam)
- Plastic Film
- Bulky Rigid Plastics

COMMODITIES RESEARCHED- JANUARY THROUGH APRIL 15



PAPER PACKAGING

- Sorted Residential Papers & News (SRPN #56)
- Mixed Paper (#54)
- Cardboard (OCC #11)
- Aseptics & Cartons (#52)



PLASTIC

- Polyethylene Bottles (PET#1)
- Natural High-Density Polyethylene Bottles and Jars (NHDPE #2)
- Colored Natural High-Density Polyethylene Bottles and Jars (CHDPE #2)
- Mixed Plastics (#3-7)
- Polypropylene (#5)
- Bulky Rigid Plastics



METAL

- Aluminum Cans (UBC)
- Steel Cans (tin)
- Aluminum Foil



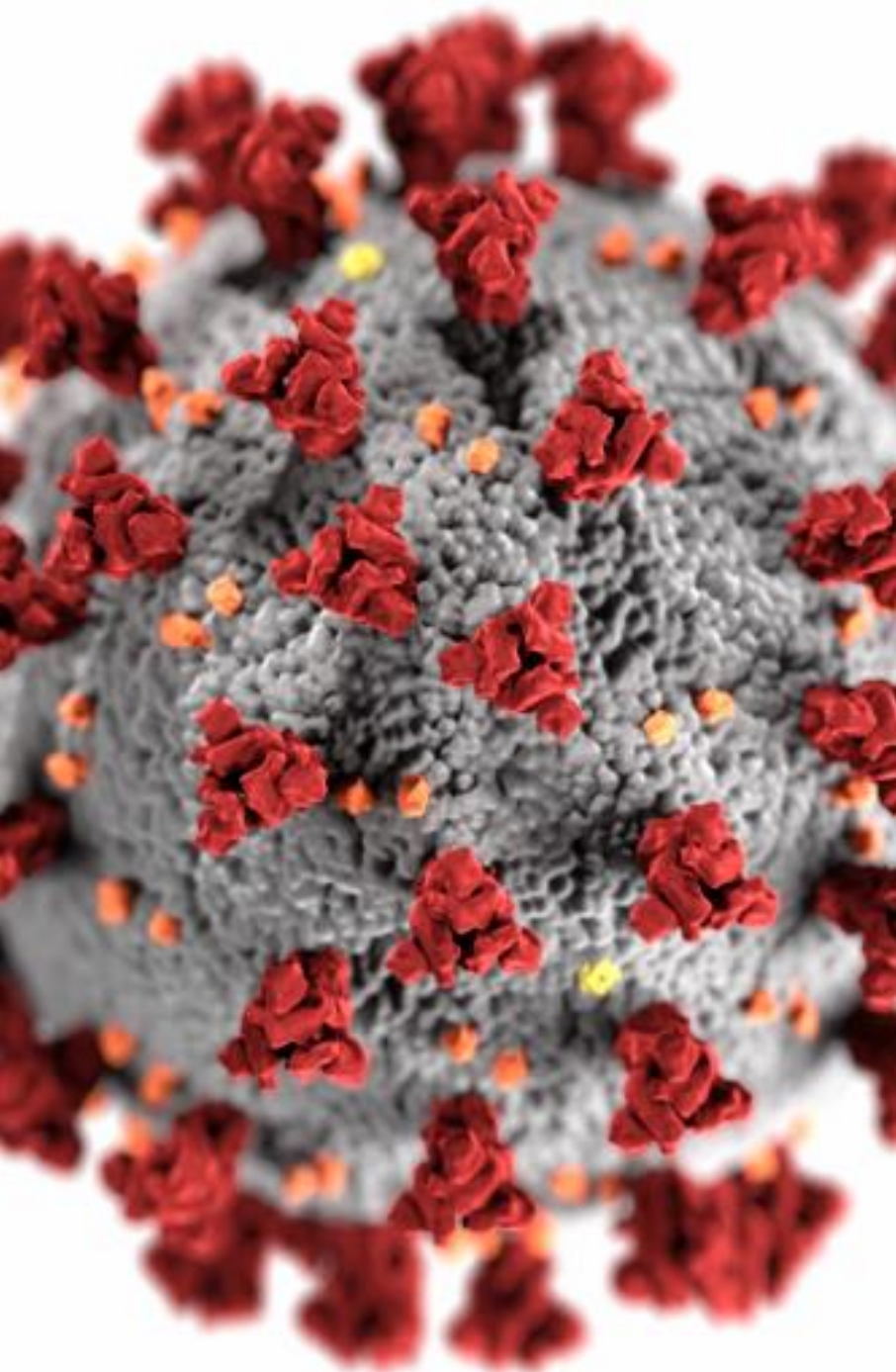
GLASS

- Glass 3 Mix-** (\$/ton del. as recyclable/disposable – including environmental fees/battery surcharge)

QUESTIONABLE COMMODITIES- OVER 50% ACCESS

| | | |
|--|-----------------------------|---|
|  | POLYPROPYLENE (#5) | Value has increased as have markets in the Southeast. |
|  | MIXED PLASTICS #3-7 | Mixed bales of #3-7 have value due to inclusion of PP (#5). Markets in Southeast will accept #3-7 in order to sort and sell PP #5 and remaining polyethylene. |
|  | BULKY RIGID PLASTICS | Bulky Rigid Plastics have stabilized in value and have markets in the Southeast. |
|  | ALUMINUM FOIL | May be placed in mixed metal container or a foil bale; Contamination can be an issue. Markets are available. |

Extruded Polystyrene (foam) and Film Plastics do not have ample markets in the Southeast when found in single stream recyclables.



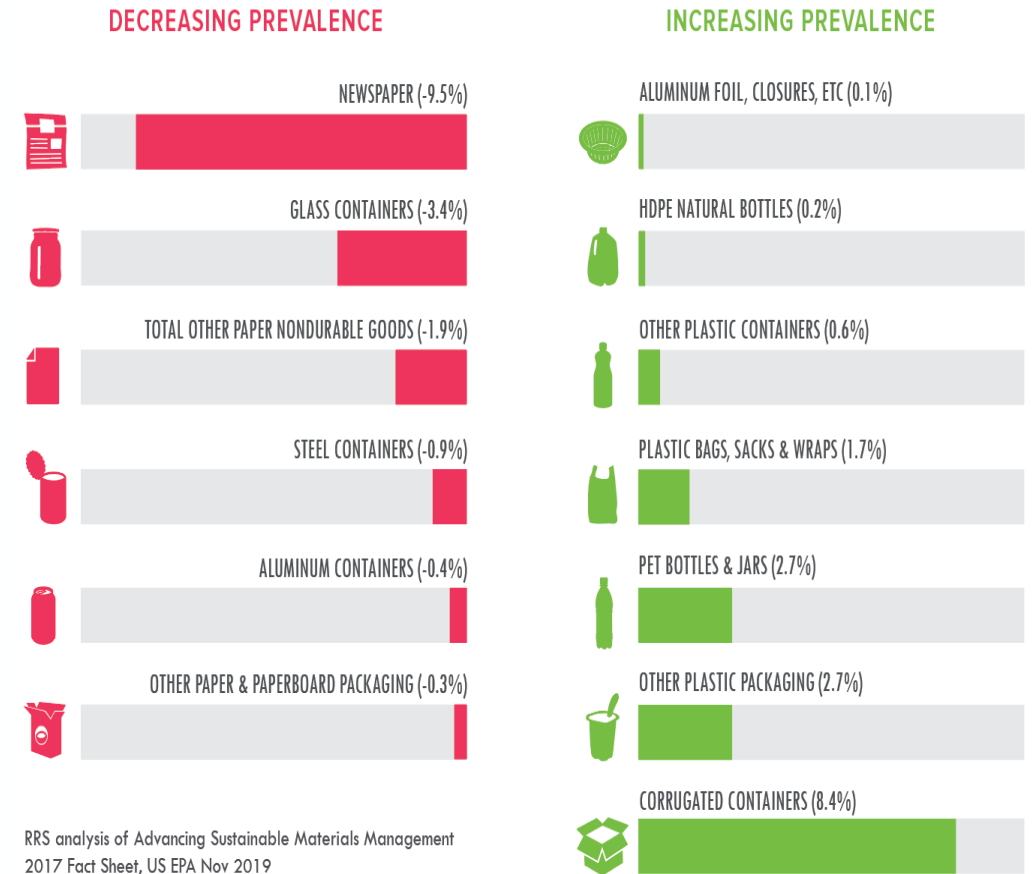
INITIAL IMPACTS FROM COVID-19

- Initial Panic- Some reports indicate that virus can live on surface of recyclables for varying timelines- ***June update: virus is not viable, refuted.***
- Some MRF's and Drop-off facilities have temporarily closed- ***most reopened.***
- PPE requirements and new social distancing orders affect MRF workers and operations. ***June update: good PPE protocol and social distancing make most MRFs safe, still outbreaks.***
- Recycling designated an essential service- ***proved invaluable at beginning of pandemic***
- 8 of 10 deposit states temporarily shut down deposit system, country causing a decrease in supply of bottles and cans- ***this is now re-opening.***
- Short Term Paper and Metal Panic due to loss of commercial volumes- ***paper markets fall back (July '20).***

THE EVOLVING TON COVID-19 EFFECT

SOME CHANGES AND MUTATIONS PERMANENT

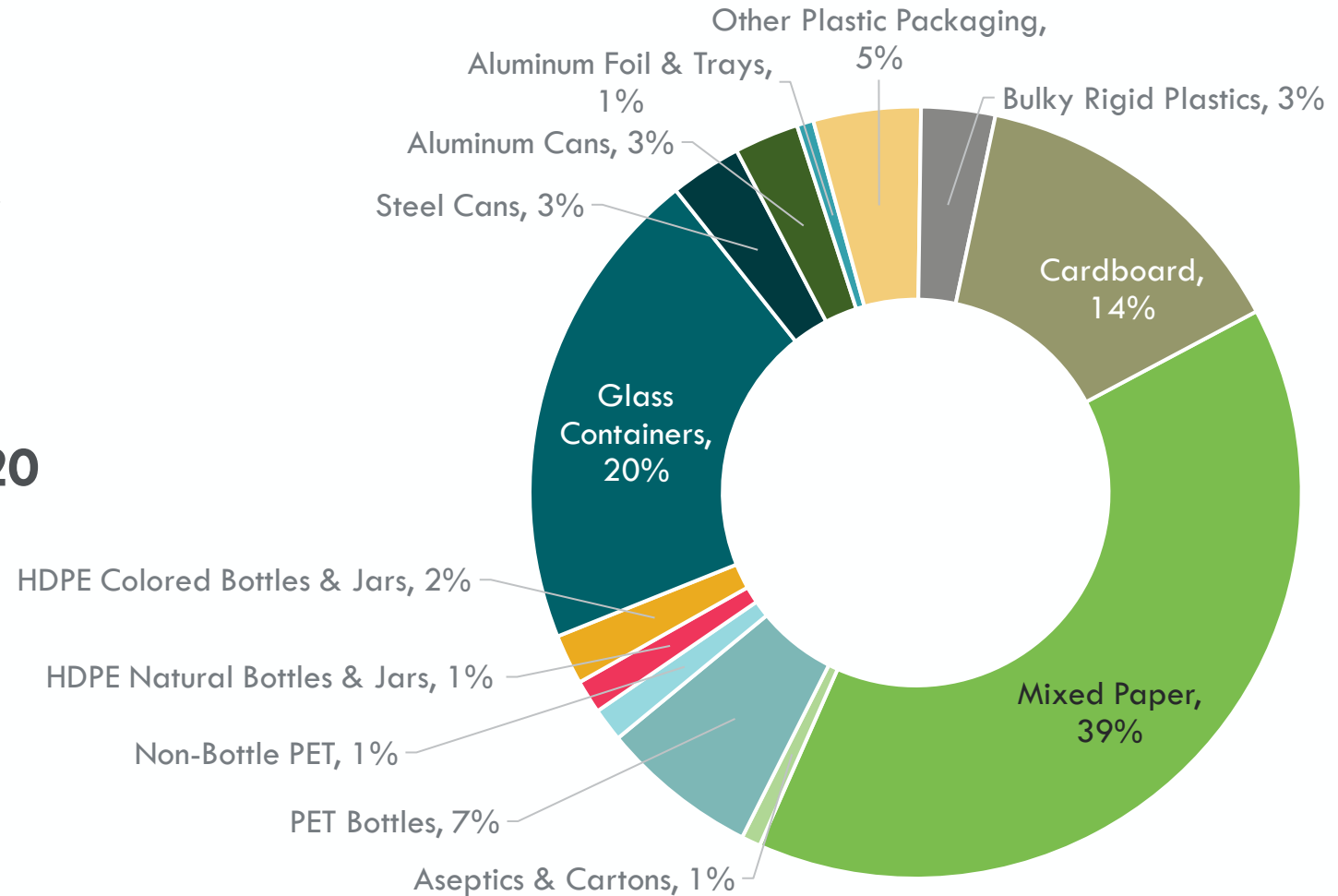
- Consumers: Disposable paper demand- tissues, toweling, wipes, gowns, etc. *Prediction-at home demand to remain solid . Producer capacity retrofitted away from Away-from-Home.*
- Tissue products prominence- hygiene focus maximized- PPE needs in every line of work away from home *Prediction- conflicts with reduced single use products but will remain more important, though "panic" is almost over and mills are running at less capacity.*
- Use of internet and home officing for meetings, purchases, reports, and conferences- growth of e-commerce driving the paper industry, shift to digital communications complete. *Prediction- major, permanent change- why go into work, slash overhead of offices; Negative outlook for printing & writing.*
- Food preferences change- single, convenience use- prepared delivered meals, especially in cities- *Prediction- permanent, especially in cities. Growth industry.*
- Plastic Waste grows from prepared meals industry and public health concerns- *Prediction- permanent change.*



PERCENTAGE COMMODITY BREAKDOWN

ESTIMATE OF ANNUAL CURBSIDE RECYCLABLE MATERIAL GENERATION PER SINGLE-FAMILY HOUSEHOLD

The Recycling Partnership
State of Recycling Report 2020



"Single-family household" is a common parameter of service delivery in municipal recycling programs and is generally defined as an occupied housing with between 1 and 4 dwelling units. Using the U.S. Census American Fact Finder and this parameter, 2017 data finds 97,334,176 occupied single family homes (including mobile homes). The number for multifamily occupied homes is 21,008,278

COMMODITIES WITH POSITIVE VALUE: PAPER AND PLASTICS

| | 2019 RRS Index Value | Pinellas LF Fee | Value above LF | 2020 RRS Index Value | Value above LF | RRS Index 5-Year Value (April 2015-March 2020) | Value above LF | TRP Value | Value above LF | July Covid-19 Update (Panic buying recedes) |
|--|----------------------|-----------------|----------------|----------------------|----------------|--|----------------|---------------|----------------|---|
| Mixed Paper | \$(2.08) | \$39.75 | \$37.67 | \$(4.17) | \$35.58 | 34.47 | \$74.22 | \$(1.88) | \$37.87 | \$13.00 |
| Sorted Residential Papers and News (SRPN) | \$22.50 | \$39.75 | \$62.25 | \$17.50 | \$57.25 | 51.68 | \$91.43 | NR | \$39.75 | \$38.00 |
| Cardboard | \$44.17 | \$39.75 | \$83.92 | \$38.33 | \$78.08 | 90.04 | \$129.79 | \$24.69 | \$64.44 | \$68.00 |
| Aseptics and Cartons | \$27.92 | \$39.75 | \$67.67 | \$31.98 | \$34.69 | \$36.04 | \$75.79 | Neutral value | \$39.75 | \$22.50 |
| PET Bottles | \$266.68 | \$39.75 | \$306.46 | \$218.33 | \$258.0 | 253.22 | \$292.90 | \$188.60 | \$228.35 | \$165.00 |
| Other Plastic Packaging | \$(30.00) | \$39.75 | \$9.75 | \$(30.00) | \$9.75 | \$(3.37) | \$36.38 | \$5.00 | \$44.75 | (\$30.00) |
| Bulky Rigid Plastics | \$52.50 | \$39.75 | \$92.25 | \$37.14 | \$76.89 | 48.87 | \$88.62 | \$48.80 | \$88.55 | \$40.00 |
| Polypropylene | \$234.58 | \$39.75 | \$274.33 | \$120.00 | \$159.75 | 222.92 | \$262.67 | NR | \$39.75 | \$90.00 |

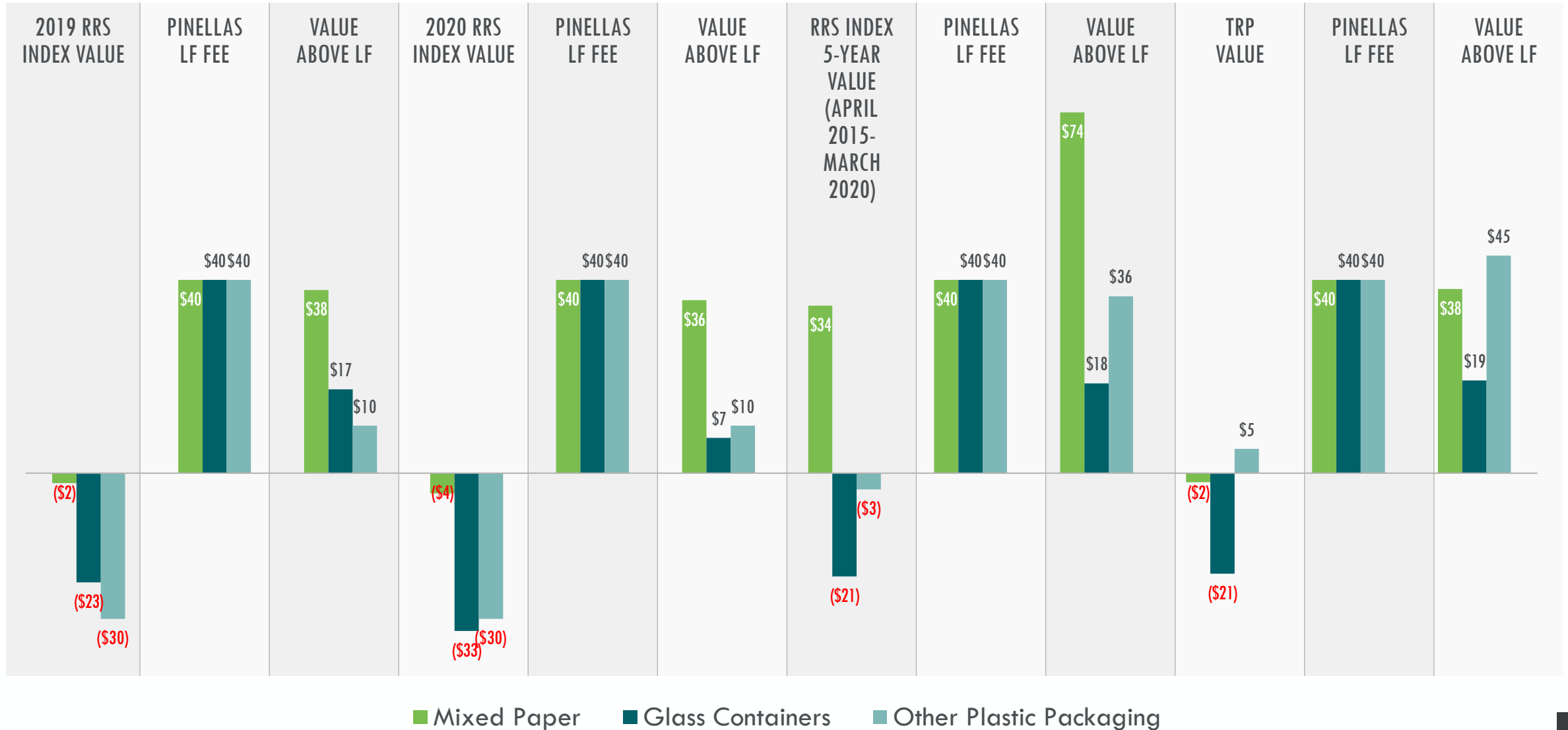
COMMODITIES WITH POSITIVE VALUE: METAL AND GLASS

| | 2019 RRS Index Value | Pinellas LF Fee | Value above LF | 2020 RRS Index Value | Value above LF | RRS Index 5-Year Value (April 2015-March 2020) | Value above LF | TRP Value | Value above LF | July Covid-19 Update (Panic buying recedes) |
|-------------------------------|----------------------|-----------------|----------------|----------------------|----------------|--|----------------|------------|----------------|---|
| Steel Cans | \$99.38 | \$39.75 | \$139.13 | \$88.33 | \$128.08 | 107.07 | \$146.82 | \$80.63 | \$120.38 | \$35.00 |
| Aluminum Cans | \$1,083.40 | \$39.75 | \$1,123.18 | \$986.67 | \$1,026.42 | 1241.98 | \$1,281.73 | \$1,025.00 | \$1,064.75 | \$800.00 |
| HDPE Colored Bottles and Jars | \$286.25 | \$39.75 | \$326.00 | \$201.67 | \$241.42 | 347.42 | \$387.17 | \$262.00 | \$301.75 | \$70.00 |
| HDPE Natural Bottles and Jars | \$674.58 | \$39.75 | \$714.33 | \$1,055.00 | \$1,094.75 | 673.60 | \$713.35 | \$1,008.00 | \$1,047.75 | \$790.00 |
| Glass Containers | \$(22.50) | \$39.75 | \$17.25 | \$(32.50) | \$7.25 | \$(21.29) | \$18.46 | \$(20.70) | \$19.05 | \$(30.00) |

NEGATIVE VALUE COMMODITIES AND LANDFILL COST BREAKING POINT

| | 2019 RRS Index Value | Pinellas LF Fee | Value above LF | 2020 RRS Index Value | Value above LF | RRS Index 5-Year Value (April 2015-March 2020) | Value above LF | TRP Value | Value above LF | July Covid-19 Update (Panic buying recedes) |
|-------------------------|----------------------|-----------------|----------------|----------------------|----------------|--|----------------|-----------|----------------|---|
| Mixed Paper | \$(2.08) | \$39.75 | \$37.67 | \$(4.17) | \$35.58 | \$34.47 | \$74.22 | \$(1.88) | \$37.87 | \$13.00 |
| Glass Containers | \$(22.50) | \$39.75 | \$17.25 | \$(32.50) | \$7.25 | \$(21.29) | \$18.46 | \$(20.70) | \$19.05 | \$(30.00) |
| Other Plastic Packaging | \$(30.00) | \$39.75 | \$9.75 | \$(30.00) | \$9.75 | \$(3.37) | \$36.38 | \$5.00 | \$44.75 | \$(15.00) |

POSITIVE VS. NEGATIVE VALUE PER TON



SUGGESTED COMMODITIES FOR INCLUSION IN PINELLAS COUNTY



PAPER PACKAGING

- Sorted Residential Papers & News (SRPN #56)
- Mixed Paper (#54)
- Cardboard (OCC #11)
- Aseptics & Cartons (#52)



PLASTIC

- Polyethylene Bottles (PET#1)
- Natural High-Density Polyethylene Bottles and Jars (NHDPE #2)
- Colored Natural High-Density Polyethylene Bottles and Jars (CHDPE #2)
- Mixed Plastics (#3-7)
- Polypropylene (#5)
- Bulky Rigid Plastics



METAL

- Aluminum Cans (UBC)
- Steel Cans (tin)
- Aluminum Foil



GLASS

- Glass 3 Mix-** (\$/ton del. as recyclable /disposable – including environmental fees/battery surcharge)

MIXED PAPER (MP, ISRI GRADE #54)



PAST MARKET BEHAVIOR

- Florida has longest freight for mixed paper (MP) and there are historical movement issues, especially in January and February.
- Domestic mills did not have the cleaning equipment to use the new supply from MRFs.
- Over a million tons of new capacity will come online in the next two years for this grade.
- Covid-19 Update- some projects may be delayed or cancelled.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
MP may see some modest increases in coming months, if OCC continues to climb.
- **LONG TERM:**
With the loss of commercial sorted grades and new international demand in Asia, grade will be in supply demand balance in 1-3 years.

Keep in Programs.

SORTED RESIDENTIAL PAPERS AND NEWS (SRPN ISRI GRADE #56)



PAST MARKET BEHAVIOR

- After initial oversupply due to National Sword, demand has returned for SRPN and price is significantly more than mixed paper.
- Market was shrinking for SRPN, due to loss of newspaper and increased e-commerce communication, now has movement for all the sorted tons that can be made.



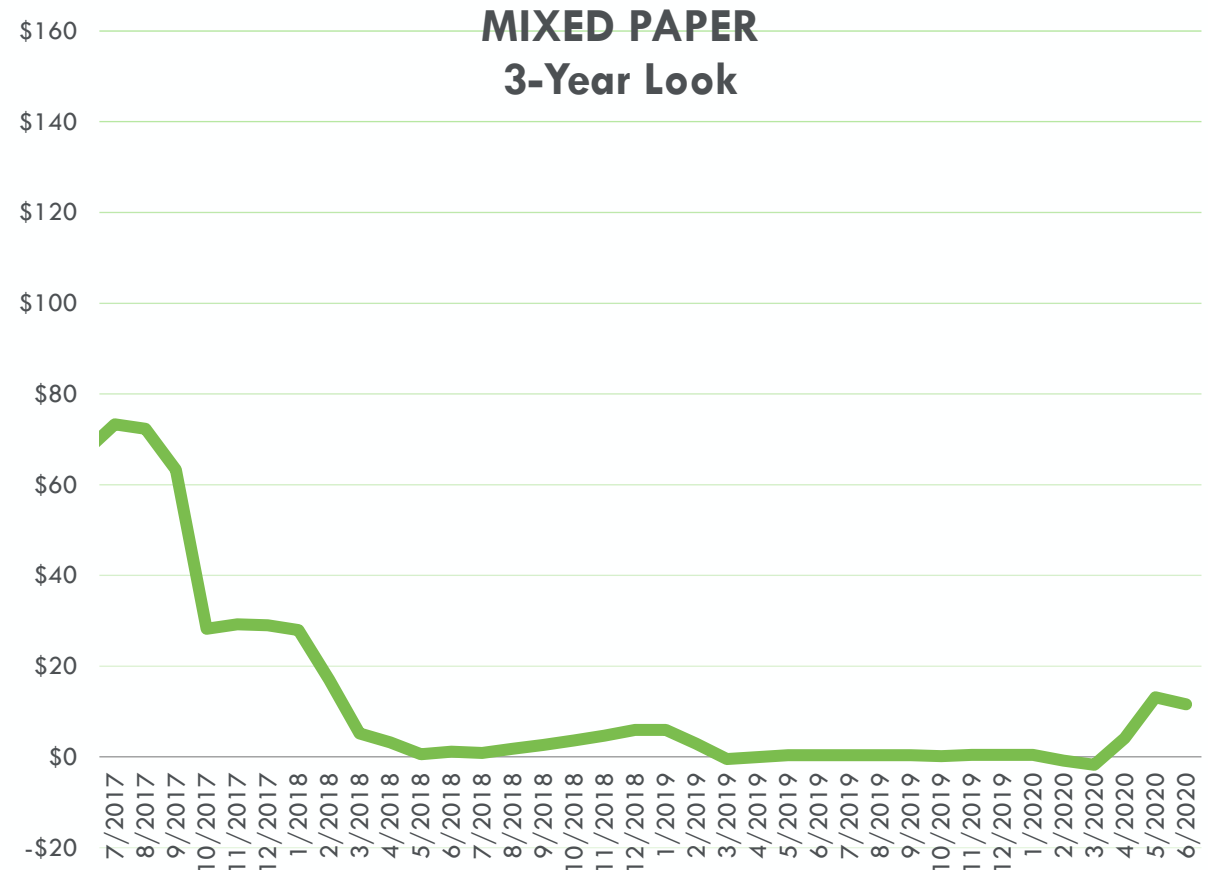
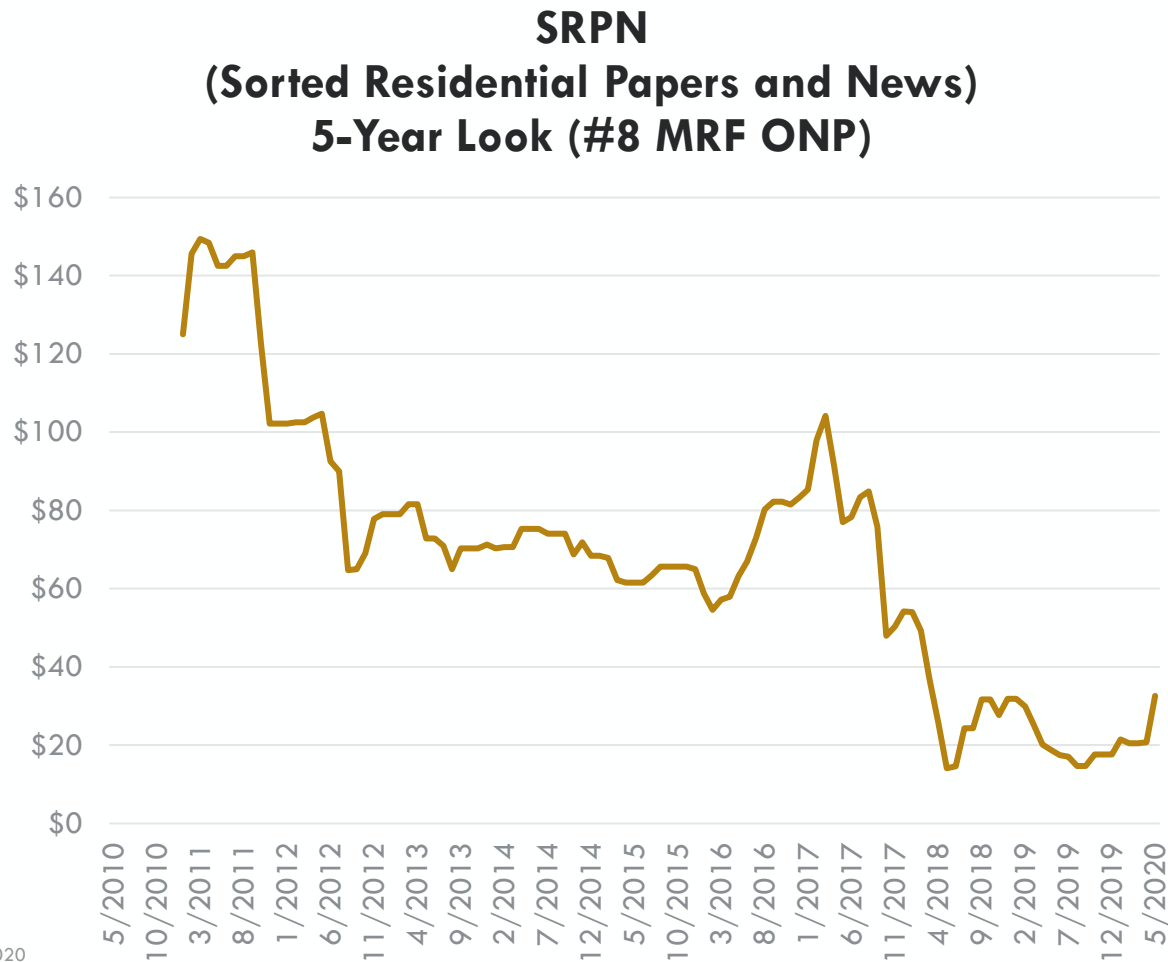
RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
All sorted grades, including SRPN, will see price increases in coming months due to supply shortages both domestic and export.
- **LONG TERM:**
SRPN pricing has separated from mixed paper with good market balance due to lower supply and lower demand.

Keep in programs where sorting exists.

COVID UPDATE ON SPRN AND MP — MRF AVG. VALUE

July 1 MOODY's WARNING- pulp and paper (P&P) grades oversupply will either limit price recovery or drive prices lower over the next 12 months



OLD CORRUGATED CARDBOARD (OCC, ISRI GRADE #11)



PAST MARKET BEHAVIOR

- OCC historically tracked significantly higher in price in the Southeast than the national average.
- Imports to China continued to decline with ban in 2021, and other markets continued restrictions.
- China's need for highly sorted #12 grows demand for this grade.



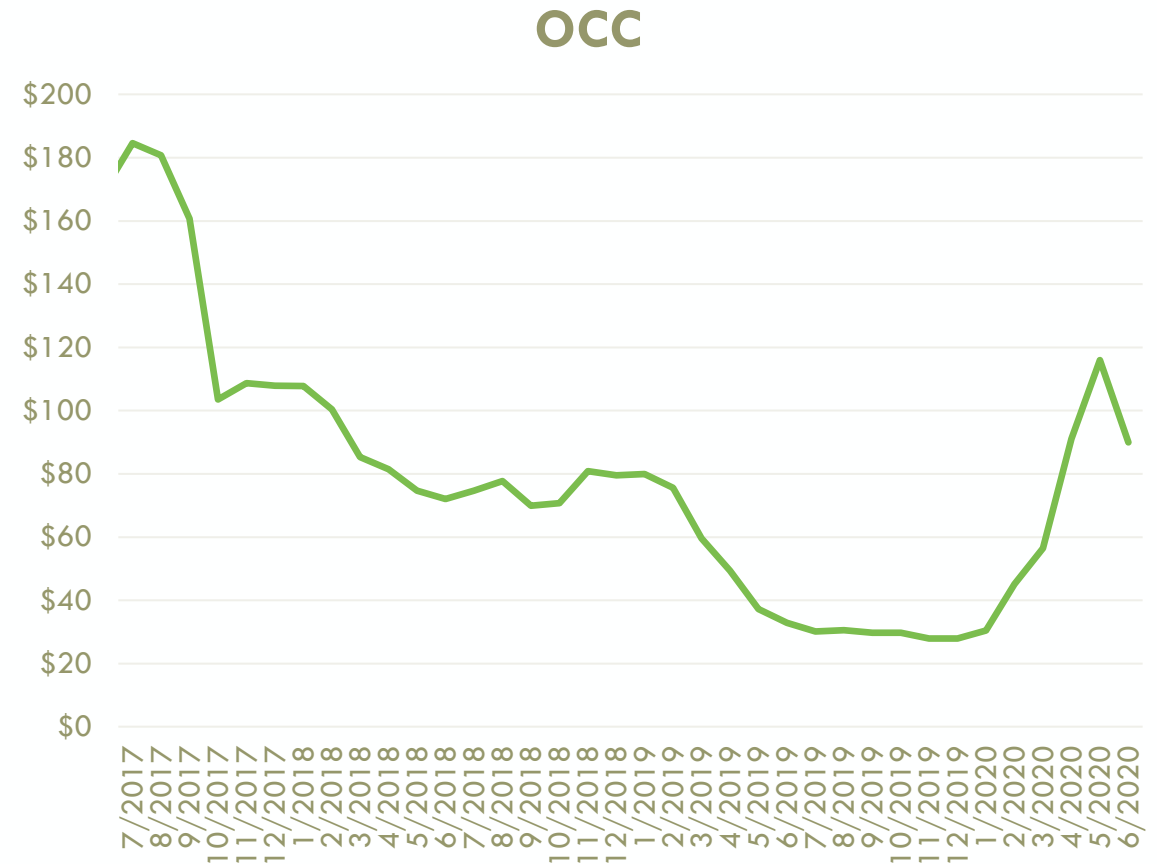
RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
Pricing will continue to increase in the short-term.
- **LONG TERM:**
OCC initially saw increased demand for containerboard but much less than predicted. New capacity and loss of growth indicate, market will be steady to falling over the next two years.

Keep in programs. Capture more OCC through better sorting of small format materials. ***Accept Pizza boxes.***

COVID UPDATE ON OCC

- **July 1 Pricing is down as much as 50%**
- April/May brought supply issues and drove price per ton to increase substantially
- June saw decreases in exports
- June revealed high inventory resulting in mill summer outages and downtime
- Value is decreasing again



ASEPTIC PACKAGING AND GABLE-TOP CARTONS (ISRI GRADE #52)



PAST MARKET BEHAVIOR

- Consumption and recycling of cartons has shown growth, but volumes are still low (~.5% by volume).
- Limited MRFs sort as a separate grade.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
Cartons will have good pricing in the near term due to supply shortage of SOP paired with extremely high tissue demand.
- **LONG TERM:**
Cartons have maintained a positive value. Markets in the Southeast are likely to improve as supply for sorted grades of material increases.

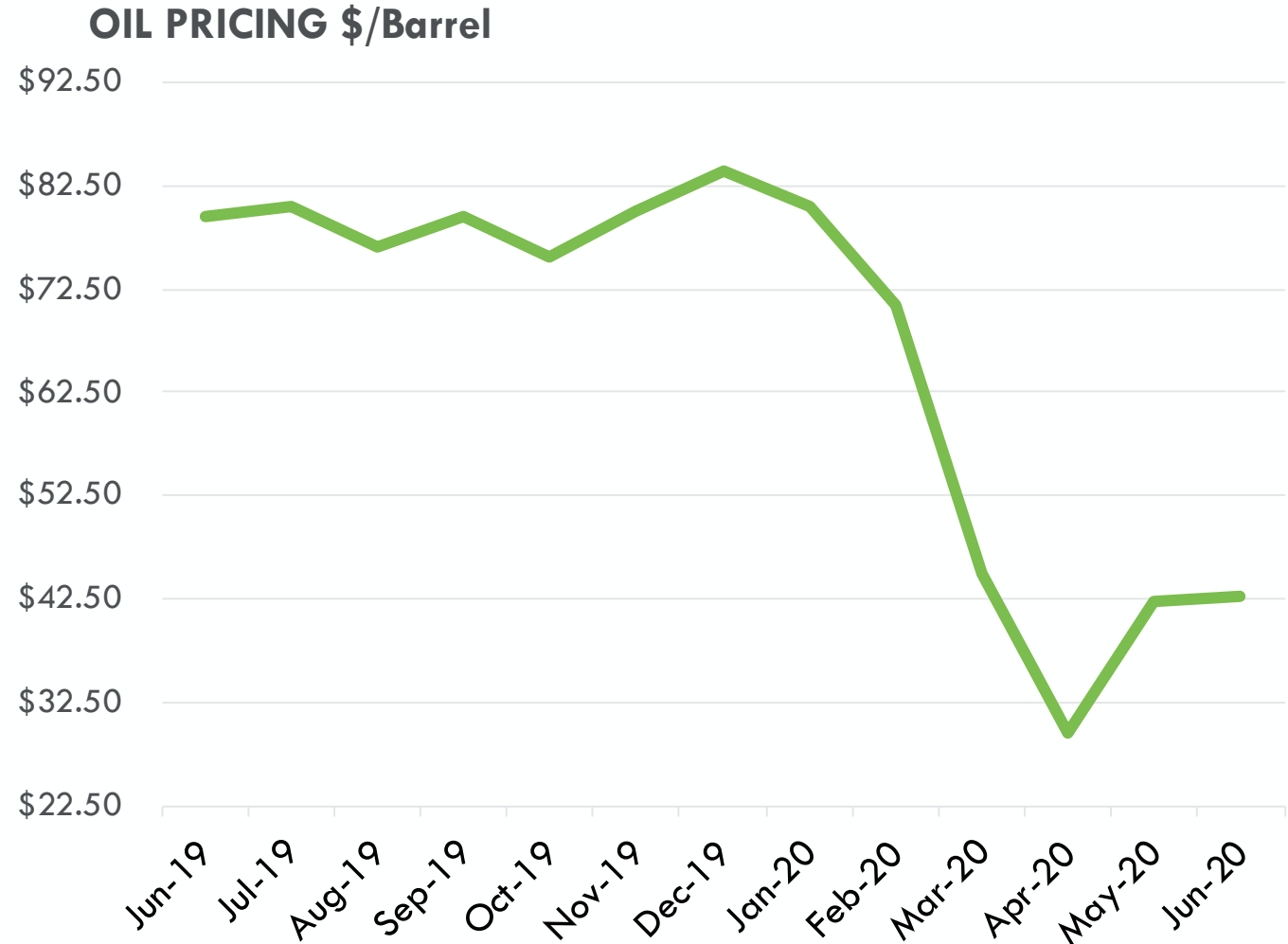
COVID UPDATE ON ASEPTIC CONTAINERS

- Cartons are an additive or a substitute for SOP in tissue mills
- Tissue mills reported as running at 120% capacity due to COVID-19 related demand
- SOP is generated from offices that are closed during stay-at-home orders, and mills are struggling for supply. This will continue and make aseptic containers more valuable



COVID UPDATE ON OIL, RESIN, AND PLASTIC

- Rebound in oil pricing will depend on large consumers- China and U.S.- still around \$35-40 barrel.
- **Resin Prices decreasing and below cost of Post Consumer Resin- \$.32-42 per #.**
- Pressure to cut out #3-7 plastics in many programs by haulers because of decreased value.
- Covid rebound- rPlastics support by plastics value chain show sudden July increase.



PET PLASTIC (#1)



PAST MARKET BEHAVIOR

- Low cost virgin resin historically had capped pricing on recycled PET.
- Nationally, PET recycling rate had been flat for the past 10 years at around 30%.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
Volatile soft oil market and virgin PET oversupply-
offset by loss of deposit system PET bales
and rPET demand. Pricing is uncertain given volatility
in the energy sector.
- **LONG TERM:**
Low cost virgin PE oversupply will push market
down but will see demand driven increase
in rPET (recycled PET).

Keep in programs.

COVID UPDATE - PET

- Supply loss due to suspension of state bottle deposit systems
- Virgin overproduction
- Companies still supportive of rPET in packaging



NATURAL HIGH-DENSITY POLYETHYLENE (HNDPE)



PAST MARKET BEHAVIOR

- Strong domestic end markets, particularly in Southeast have usually absorbed all the supply in the U.S.
- Recycled content demand in single use plastics from CPG brands.
- Domestic consumption has dominated.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
Increasingly soft oil market and distraction of CPGs from sustainability issues may result in lower pricing in the coming months.
- **LONG TERM:**
Lower consumption of consumer goods linked to economic downturn may soften demand for HDPE in packaging.
Low oil and natural gas prices will result in a glut of cheap virgin PE. HDPE pricing should increase over time.

Keep in programs.

COLORED HIGH-DENSITY POLYETHYLENE (RIC #2, ISRI GRADE - HDPE MIXED COLOR BOTTLES)



PAST MARKET BEHAVIOR

- Mixed plastics were key target of China waste import ban in 2018.
- Plastic exports overall saw historic lows, down 38% in 2019 compared to previous year and 60% compared to 2017 creating an oversupply.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT AND LONG TERM:**
3-7 bales will continue to trade at or below zero for the next 2-5 years.

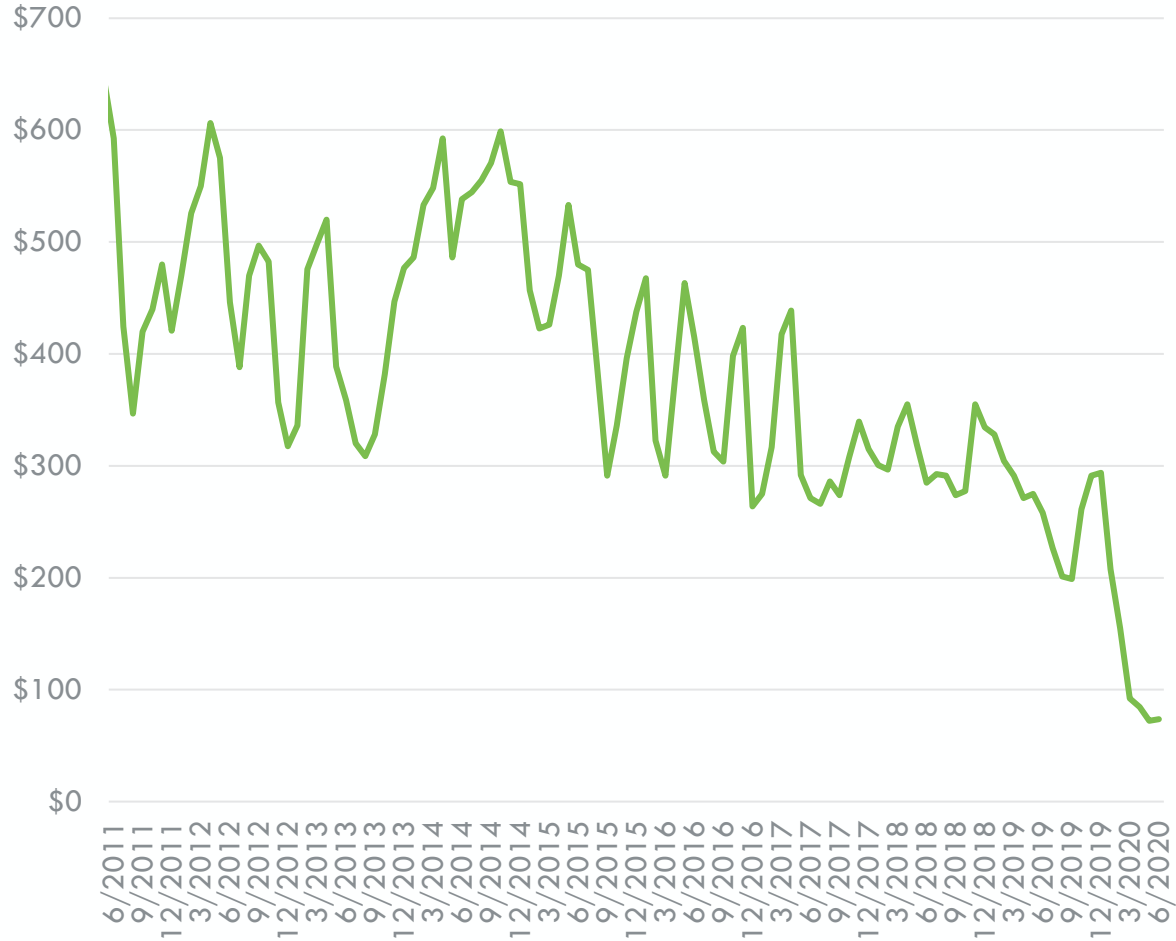
Plastics industry is responding through chemical recycling initiatives which deconstructs polymers.

rCHDPE will eventually become more valuable for recycled content.

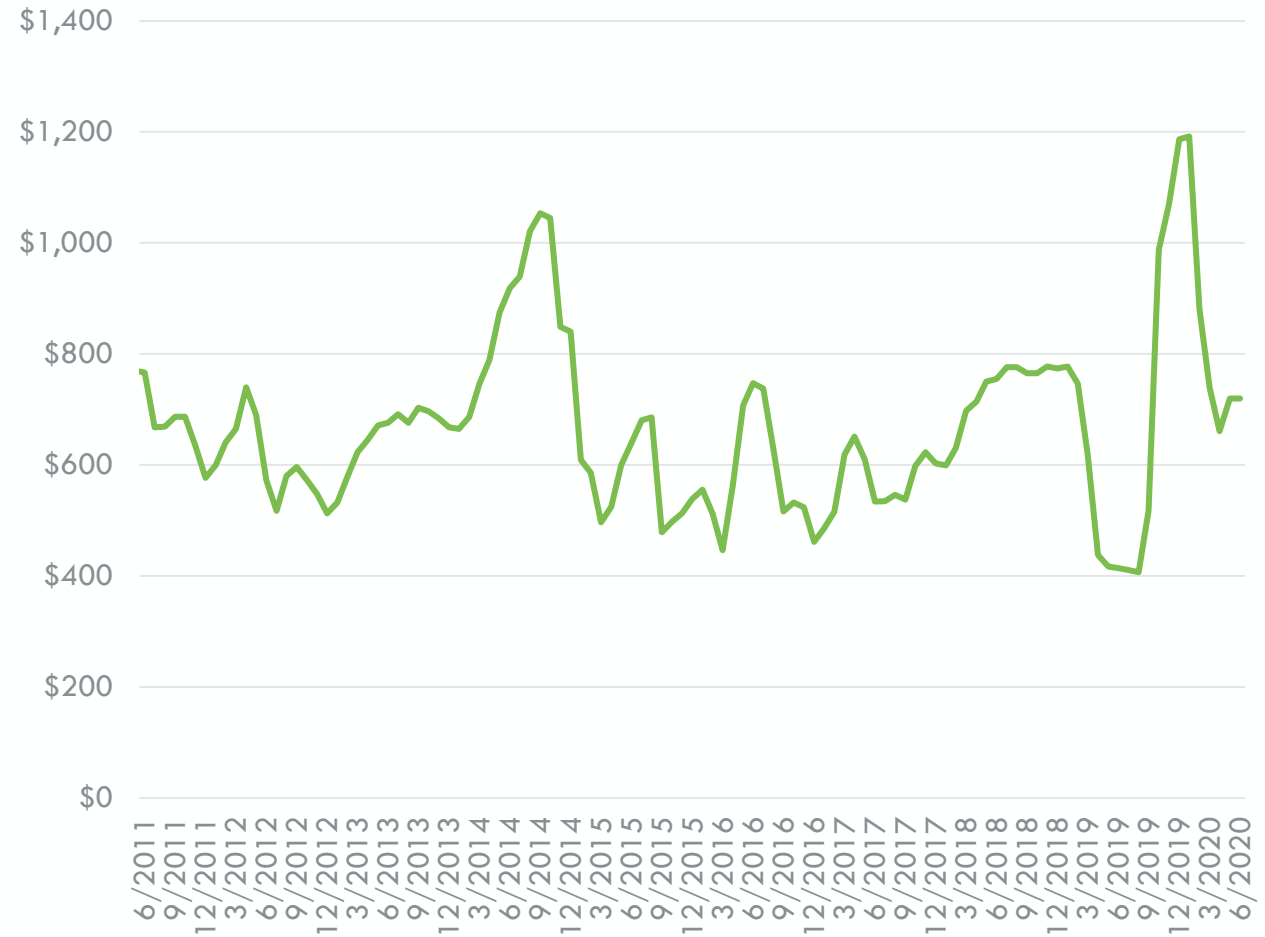
Keep in programs.

COVID UPDATE — CHDPE AND NHDPE

Colored HDPE



NATURAL HDPE



MIXED PLASTIC (RIC #3-#7, ISRI GRADE - MIXED SORTED 3-7 BOTTLES AND CONTAINERS)



PAST MARKET BEHAVIOR

- National sword significantly decreased imports to China.
- Residential programs began deleting #3-7 from programs.
- Some markets collected mixed plastics to separate PP (#5) and remaining polyethylene due to higher value.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT AND LONG TERM:**
#3-7 bales will continue to trade at or below zero for the next 2-4 years. Rise of chemical recycling and brand support will change the trajectory.

Cost of sorting with no markets for 3, 6, and 7, is not justified- lost PP and residual polyethylene is justified.

However, balance decision with likelihood of major company investments in chemical recycling.

COVID UPDATE — PLASTICS #3-7

- Reduced North American post-collection supply, especially in the U.S
- Haulers attempt to cut out 3-7 plastics in many programs despite good movement (and very low prices) to increase profitability during contract renewal processes, while significantly increasing processing fees – troubling trend, especially when haulers control disposal options. Policies on recycling should be left to policymakers

POLYPROPYLENE (RIC #5, ISRI GRADE — PP POST CONSUMER)



PAST MARKET BEHAVIOR

- Was an emerging grade with volatile demand.
- Market tracked with virgin PP and oil markets as a lower quality, low-cost substitute.
- Pricing was at historic low, but Pricing in SE tracks consistently higher than the national average due to high relative demand.



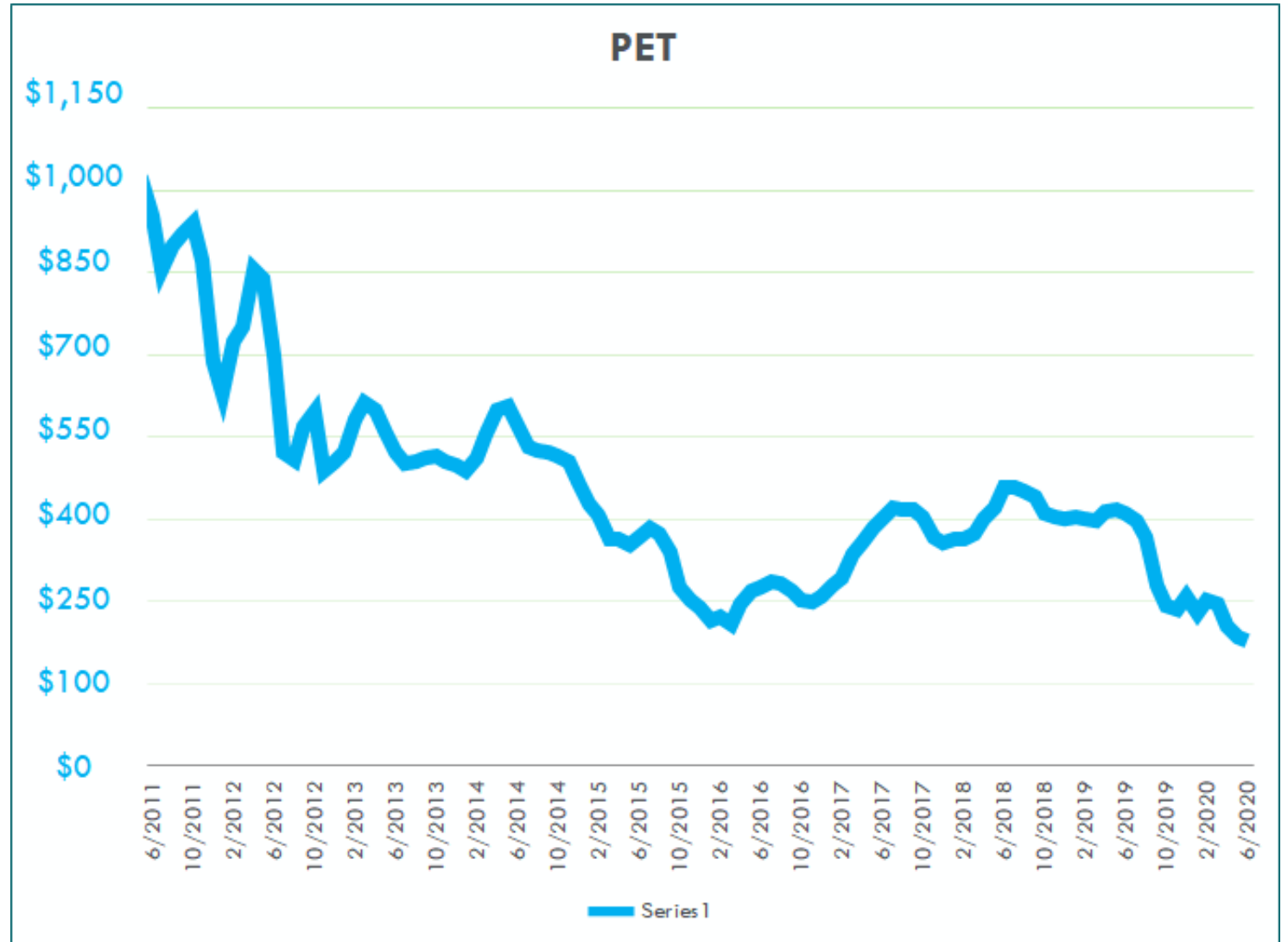
RRS FORECAST AND RECOMMENDATIONS

- **SHORT AND LONG AND TERM:**
New virgin PP capacity and low oil / natural gas markets will keep #5 bale pricing low for next 1-3 years.
- Expect low prices until clear rPP market emerges. New PP Recycling Coalition from The Recycling Partnership with big war chest will buoy positive feedback for this material.

Keep in programs. Begin sorting in all programs.

COVID UPDATE - #5 PP (TUBS AND LIDS)

- COVID reduced N. American post-collection supply, especially U.S. collection rates (#3-7)
- Demand for virgin plastics surged
- **MID to LONG TERM**
- >60% decline in price continues



MIXED BULKY RIGIDS (ISRI GRADE MIXED BULKY RIGID PLASTICS)



PAST MARKET BEHAVIOR

- Mixed bulky rigids were a casualty of National Sword.
- Markets that sourced mixed bulky rigids do so primarily to target HDPE and PP.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT AND LONG TERM:**
Increase virgin capacity and low oil and natural gas prices will result in a glut of cheap virgin PP and HDPE, keeping bale prices low.

Keep or include in programs.

ALUMINUM CANS (USED BEVERAGE CANS (UBC), ISRI DESIGNATIONS “TALC” AND “TALDON”



PAST MARKET BEHAVIOR

- World demand for all aluminum went down for the first time in 10-years.
- Plastic had been replacing aluminum packaging.
- Large U.S. mills, Novelis and Constellium, stopped making can sheet and produces automotive body sheet.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
Supply disruption- may be short term price gain, but dissolves as mills get back to work.
- **LONG TERM:**
Pricing will remain low through 18 months

Keep in Programs - required to help fund programs, even at 40% of its recent price.

COVID UPDATE ALUMINUM (UBC)

- Short-term supply chain made pricing steady in 2nd quarter- down 2% in July
- UBC collection dropped off steeply March through early May- deposit operations and drop off's stopped- choking off cleanest 25% of supply
 - Many deposit states coming back online in late May and June
 - March shutdown actually helped MRF UBC pricing- cleanest UBC kept MRF aluminum deductions lower because of loss of deposit material
 - Due to low street price and employee safety, many scrapyards have discontinued buy-back retail operations purchasing UBCs, although reopening for bulk scrap
- Virgin aluminum is 40% less than 2-years ago, Covid-19 increased negative trends:
 - “Aluminum and UBC in particular hit hardest by the coronavirus”- Joe Pickard, ISRI
 - Collapse in N. American aluminum demand, mainly from important automotive (May off 26%) & aerospace sectors

STEEL CANS



PAST MARKET BEHAVIOR

- Steel in U.S. comes from recycled scrap, rather than ore.
- China has command of steel market.
- MRF-generated steel cans were discounted due to contamination.

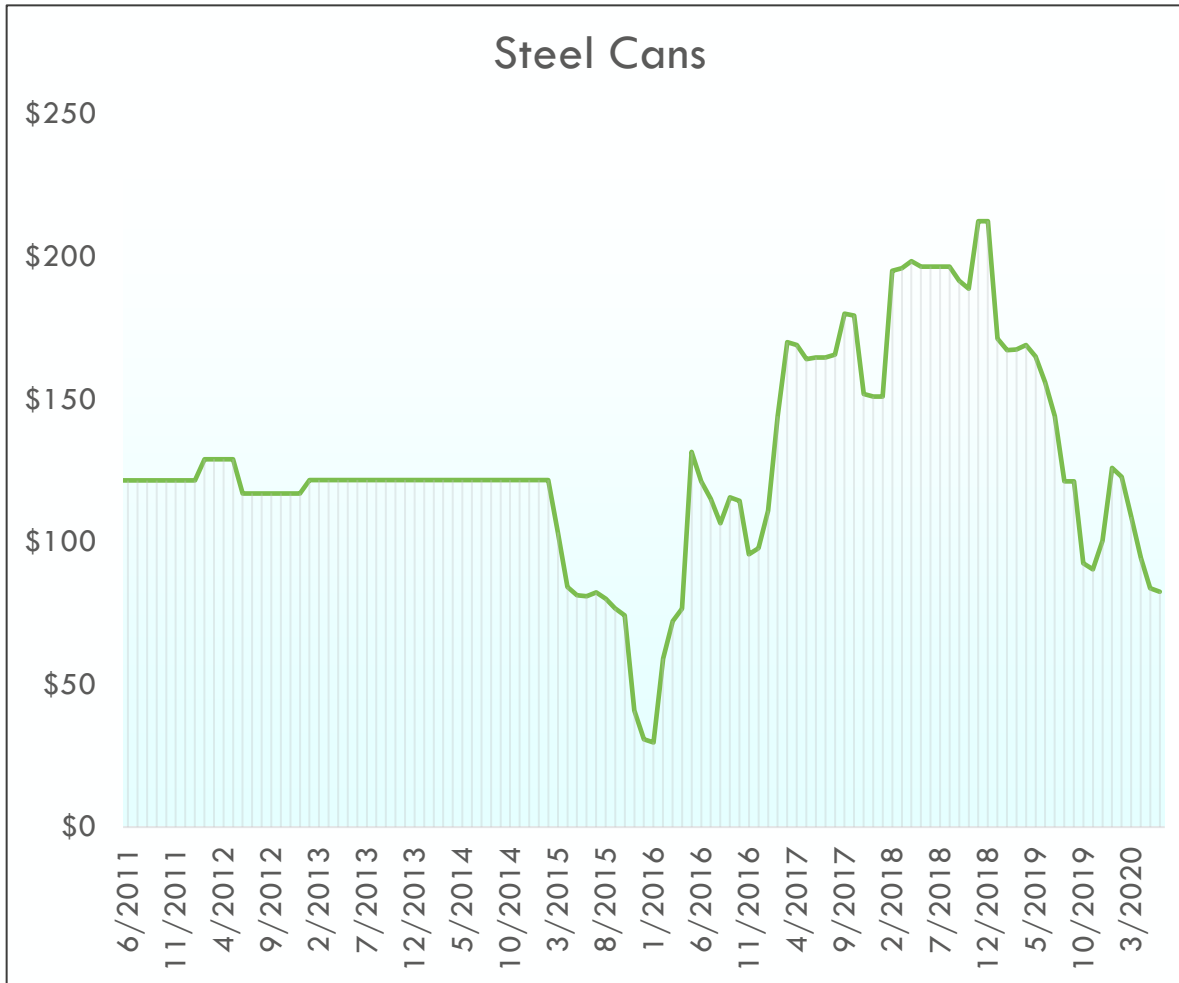


RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
Disruption to supply and demand brings market further down through outbreak.
- **LONG TERM:**
There will be some recovery but any extended recession will result in the market to remain low.

Keep in programs. Has always been a positive market.

COVID UPDATE - STEEL CONTAINERS



- Steel pricing firmed in late June after Covid freefall
- Mills operating at <60% capacity- most affected by construction and automobile industry losses
- Weak market prior to COVID-19 -Steel can bale pricing had a sharp decline in the 2nd half of 2019, dropping 60% due to overproduction out of China

ALUMINUM FOIL



PAST MARKET BEHAVIOR

- World demand for all aluminum went down for the first time in 10-years.
- Foil usually trades below UBC.
- Large US mills, stopped making can sheet to produce produce automotive body sheet.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT TERM:**
Supply disruption-there may be short term price gain, but that dissolves as mills get back to work.
- **LONG TERM:**
Foil trends like UBC, though non-UBC scrap aluminum has a use as both can sheet and/or secondary aluminum - pricing will remain low through 18-months.

GLASS 3 MIX GLASS (BOTTLES AND JARS)



PAST MARKET BEHAVIOR

- MRF quality of recovered glass had been a significant issue.
- Glass container market was losing share to other types of packaging or use of virgin alternatives.



RRS FORECAST AND RECOMMENDATIONS

- **SHORT AND LONG TERM:**
3-mix glass will continue to trade low and may decrease further, as fiberglass for construction slows with the economy, and glass packaging continues to decline.

Glass is popular to recycle and the public expects to have convenient access.

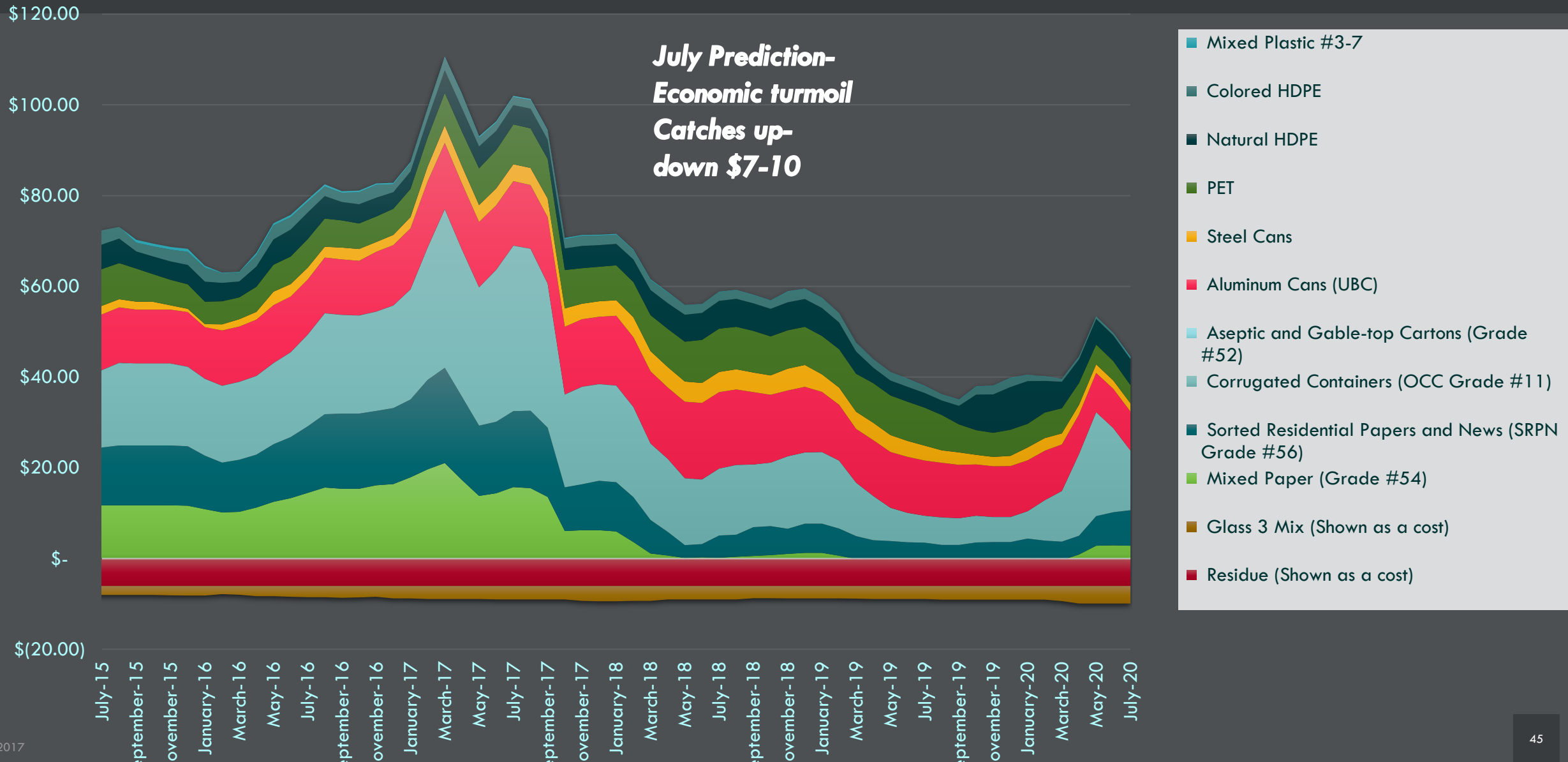
Keep in programs but evaluate if markets disappear completely.



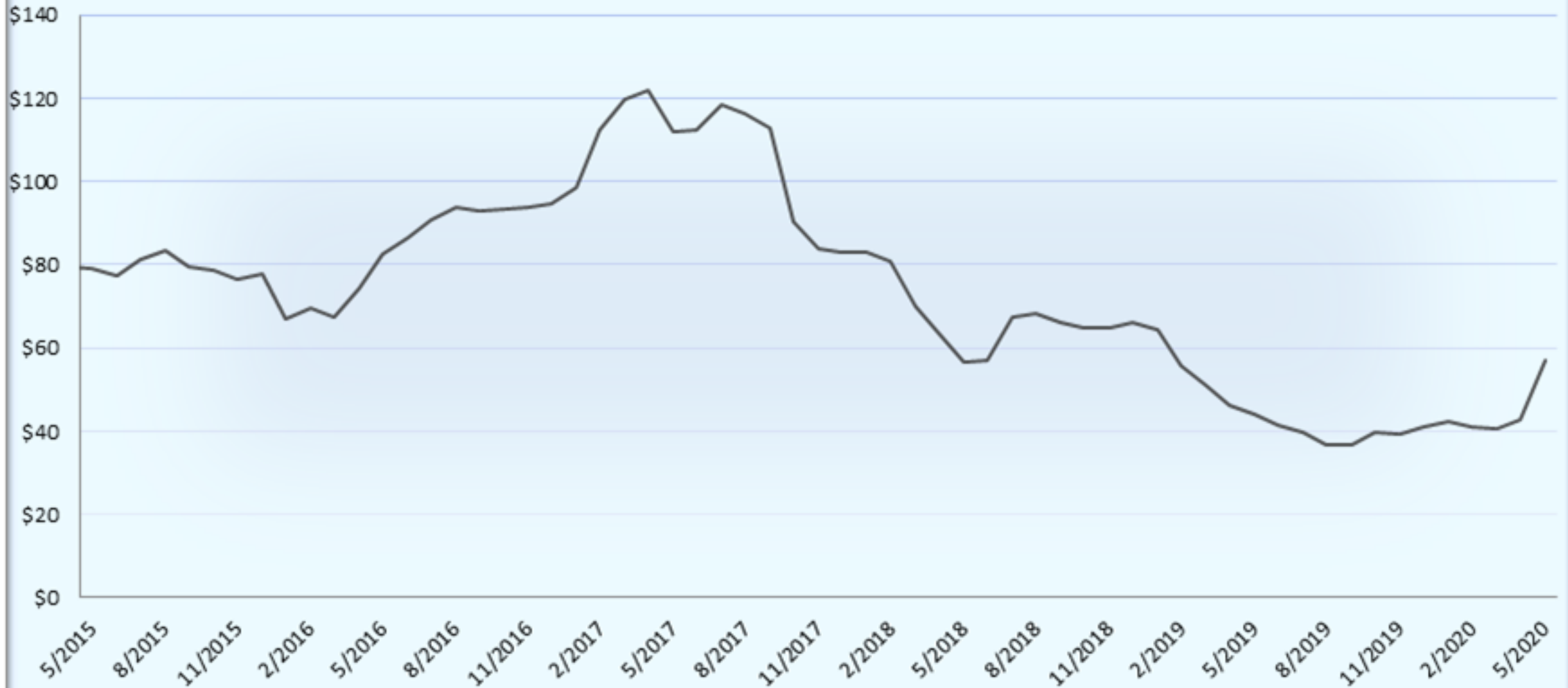
COVID UPDATE — 3 MIX GLASS

- State run deposit systems were shut down, thereby decreasing clean cullet supply
- Deposit systems have and are returning, May-June
- Value has decreased
- Need to have proper glass cleaning at MRFs

AVERAGE RESIDENTIAL SINGLE STREAM COMMODITY REVENUE



5-Year SE Region Average Commodity Revenue



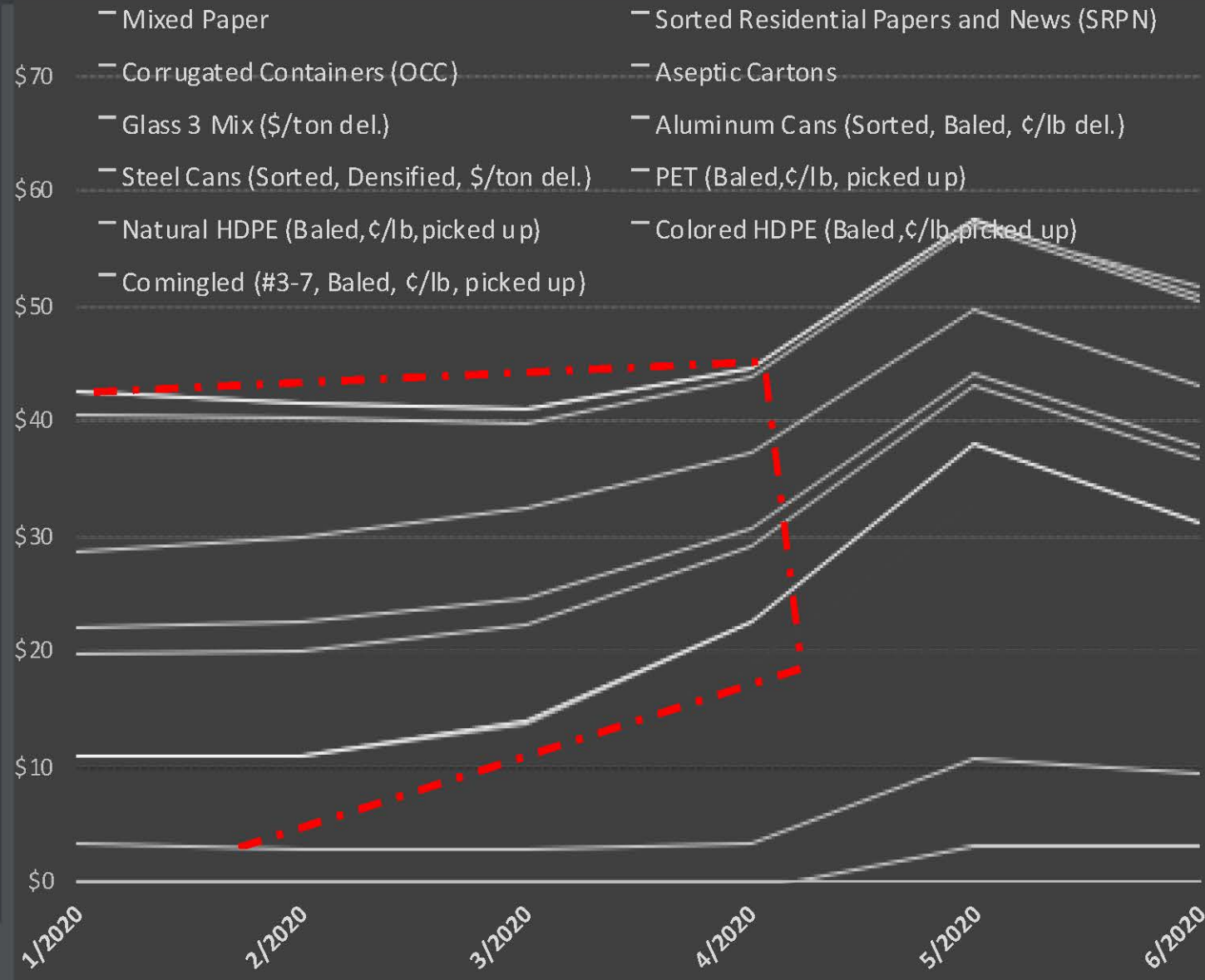
COVID-19 RECYCLABLE CONTAINERS CURVE

1. Virgin vengeance- huge drops in key commodities make scrap expensive: Energy, oil and metals all headed in the wrong direction through May

- Overcame strong push by brands and environmentalist to establish rPlastics
- World metal oversupply
- GDP, Unemployment
- Away-from-home losses

2. Short-lived Stabilization

- May/June due to no deposit materials
- How long before economy kicks in or out?





ABBHEY PATTERSON

apatterson@RECYCLE.COM

MICHAEL TIMPANE

mtimpaine@RECYCLE.COM