Table of Contents

Introduction ........................................................................................................................................3
Swimming Pools Market Review .........................................................................................................4
  Residential Inground Market............................................................................................................4
  Residential Aboveground Market....................................................................................................19
  Aftermarket ....................................................................................................................................27
Hot Tubs ..............................................................................................................................................34
  Hot Tub Market ..............................................................................................................................34
Appendix .............................................................................................................................................44
Table of Figures ..................................................................................................................................50
  Charts ...............................................................................................................................................50
  Tables ...............................................................................................................................................51
  Maps ...............................................................................................................................................51

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Data and analysis for the PHTA Market Report YE 2019
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Introduction

During 2019, both the residential pool and hot tub industries experienced declines following six years consecutive years of growth in new construction and sales. New pool construction was down 2.5% and hot tubs sales dropped 9%. The overall economy did well in 2019 with strong per capita disposable income and housing sales and low unemployment rates. Nevertheless, sales of new pools and hot tubs fell.

The PHTA 2019 Market Report is a summary of the current state of the residential inground and aboveground pool and hot tub segments told in terms of product sales, ownership characteristics, geographic patterns and more.

As always, all data contained in Yearbook is based on the many ongoing studies conducted each year by Pkdata, a market research organization that has tracked the pool and hot tub industry for over twenty-five years. The firm serves as industry statistics and market research counsel to the PHTA. Throughout the year, Pkdata surveys pool builders, pool and spa products retailers as well as service firms throughout the U.S. All data pertaining to pool and spa consumer profiles are drawn from the firm’s many studies of owner shopping and maintenance habits in addition to relevant demographics. Moreover, Pkdata conducts numerous interviews among executives within leading manufacturing, distribution and supplier organizations concerning key industry issues.

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1 See Appendix for comparative econometrics.
Swimming Pools Market Review

Residential Inground Market

Chart 1: New residential inground pool construction (000), 2010 – 2019

New inground residential pool construction finished slightly down in 2019. A decline of 2.5% isn’t significant statistically, but it is significant in a more symbolic sense: after six straight years of positive growth, including an average of 9.8% the past three, the industry stalled when it seemed to be finally acquiring some momentum.
Map 1: New inground pools by state, 2019

The Sunbelt states (California, Arizona, Texas, and Florida) lead new construction sales with about two-thirds of all new pool construction in 2019.

Map 2: New inground pools by market, 2019
Average growth in new pool construction over the past 10 years has been 3.9%.

Not a lot of surprise here – the warmer climates produce most of the new construction, particularly in the Sunbelt states.

*Sunbelt = Arizona, California, Florida, and Texas*

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2 See Map 14 (page 48) for regional breakout of states.
Had it not been for some marginal growth in key warm weather states, 2019’s loss could have been much worse.
The construction volume of indoor residential pools is exceedingly small, typically averaging 0.5% of total new inground pools resulting in any change being amplified in terms of percentage.
Spas included with new pools dipped somewhat from the previous year. That is probably part of the reason why the average contract price for a new inground pool was lower in 2019.
As might be expected, the warmer regions had the greatest penetration of spas included with new pools.

More than half of new pools in 2019 were constructed utilizing concrete followed by vinyl at about 30%.
Inground pool unit sales were not the only category to drop last year. Dollar sales also declined indicating a decrease in the average selling price of a new inground pool.

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3 All dollar values in this report are retail unless otherwise noted.
The total value of new pool construction was down more than 7% during 2019, due to both a decline in construction volume and a decrease in the average price of new pools.

Chart 11: Average selling price for new inground residential swimming pools, 2015 – 2019
The average selling price of a new inground pool was down almost 5% in 2019. This could signal something of a correction from the previous 4-year ramp-up. Since the end of the recession there have been three such downturns.

**Chart 12: Residential inground pool installed base (000), 2010-2019**

![Bar chart showing the installed base of existing residential pools from 2010 to 2019.](chart)

The installed base of existing residential pools is beginning to level out due to the listlessness within the new construction, as well as the reductive effect of pools being taken out of service.

**Chart 13: Percent change in the existing base of inground residential pools, 2010-2019**

![Bar chart showing the percent change from 2010 to 2019.](chart)
The installed base of inground pools has hovered around 5.2 million for the past four years. As just mentioned, much of this is due to the lack of meaningful growth in the construction of new pools.

Chart 14: Attrition within the installed base of inground residential pools (000), 2010-2019

During 2019, the depletion rate of residential inground pools was slightly more than 1% of the installed base of inground pools or about 60,000 units removed from use.
Table 1: Top ten inground pool states – percent total installed base, 2019

<table>
<thead>
<tr>
<th>State</th>
<th>2019 Percent Total Inground Pools</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>23.8%</td>
</tr>
<tr>
<td>Florida</td>
<td>20.3%</td>
</tr>
<tr>
<td>Texas</td>
<td>7.9%</td>
</tr>
<tr>
<td>Arizona</td>
<td>6.3%</td>
</tr>
<tr>
<td>New York</td>
<td>4.5%</td>
</tr>
<tr>
<td>Ohio</td>
<td>2.5%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>2.5%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>2.4%</td>
</tr>
<tr>
<td>Illinois</td>
<td>2.4%</td>
</tr>
<tr>
<td>Virginia</td>
<td>2.2%</td>
</tr>
</tbody>
</table>
In terms of the geographical distribution of the installed base, it comes as no surprise that the Sunbelt states of California, Florida, Arizona, and Texas accounted for about two thirds of new inground pools and more than 58% of the installed base in 2019.
We estimate the installed base of residential indoor inground pools to be between 56,000 – 58,000 units throughout the U.S.
There are more than 100B gallons of treatable residential inground pool water throughout the U.S. with the largest volumes in California, Texas, and Florida.
Residential Aboveground Market

Sales of new aboveground pools dipped slightly in 2019. In percentage terms, the loss was on a par with new inground pools, just over two percent.⁴

Chart 17: Aboveground pool unit sales (000), 2010 - 2019

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⁴ The category “aboveground pools” refers to permanent aboveground pools usually manufactured from steel and/or resin components, as opposed to more seasonal pools that are manufactured largely from fabric and/or plastic.
Since 2010, growth within the aboveground pool segment has averaged 3.9%. This is only the third year that sales of aboveground pools have been negative.

Aboveground pool sales were strongest in California, Texas, and Florida.
At the regional level, the South clearly outpaces the rest of the country for new aboveground pool sales.

Aboveground pool sales were down in all regions except for a slight increase in the Northeast.
The average increase in the value of new aboveground sales from 2010 to 2019 is 5.2%. And since dollars are up while units are down, that can only mean that the average selling price of a new aboveground pool in 2019 was substantially up.

The installed base of aboveground pools is shrinking. This is not unexpected given that, like the inground segment, aboveground pool sales are off their pre-recession pace (although not as much) and aboveground pools have a much shorter service life than inground pools.
The geographic distribution of the aboveground installed base of pools is somewhat different compared to the inground pool distribution. Three of the four Sunbelt states also occupy the top spots on the aboveground installed base list, but the composition of the remaining slots is decidedly more Northeast and Midwest.
Map 7: Installed base of aboveground pools by state, 2019

Map 8: Aboveground pool growth, 2018 – 2019
Aboveground pools generally do not have the service life of inground pools, so attrition is always going to exact a greater effect on the aboveground pool installed base. For the last seven years, attrition, or the removal of aboveground pools has outpaced the total sales of new aboveground pools.

With the removal rate exceeding the new installation rate, the installed base of aboveground pools will continue to decrease.
Almost three-quarters of the installed base of aboveground pools are less than 15,000 gallons.

There are more than 33B gallons of treatable aboveground pool water in the U.S. with the largest concentrations seen in the Sunbelt states of California, Texas, and Florida.
Aftermarket

We consider the pool products aftermarket to be the total value of goods and services sold to the existing base of in- and aboveground pools. The total value of the residential pool aftermarket was almost $5.6B in 2019, up almost 4% from the previous year.

Chart 26: Total residential pool aftermarket value, 2010 - 2019 (Service, Equipment & Chemicals)

Chart 27: Retail value of residential pool aftermarket segments (%), 2019

The chemical and equipment segments of the aftermarket each comprise about 40% of the total value of the aftermarket with service making up the remaining 20%.
The dollar value of the equipment aftermarket has been boosted by the increasing adoption of enhanced technologies (e.g. variable speed pumps, automation, connectivity) as well as the continued growth of the renovation segment.
Chart 30: Change in the retail value of aftermarket service (%), 2010-2019

It should be noted that pool service only addresses maintenance, both regular water management and repairs – it does not include pool remodeling.
The exhibit above demonstrates the proportion of pool chemical sales by category. Primary sanitizers, including sodium hypochlorite, calcium hypochlorite, dichlor, and trichlor, comprise most pool chemical sales. Alternate sanitizers are packaged shock, bromine, salt, and biguanides. Specialty chemicals include water balancers, algaecides, enzymes, stain and scale inhibitors, and clarifiers.
Chart 32: Top 10 states for primary sanitizer sales (%), 2019

Clearly demonstrating where the action is for primary pool sanitizer sales, two states – California and Florida – account for nearly 40% of retail dollars in that category. The 39 states falling outside of the top 10 amounted to just 30%.
In the above analysis, “Builder Installer” generally refers to the builder of a new inground pool. “Dealer/Service” are pool products retailers who either own or otherwise have an affiliation with a service firm. In a similar fashion, “Builder/Service” refers to pool builders that own or are otherwise affiliated with a pool service firm. Both of the last two categories participate in the pool remodeling market. Obviously, there is a lot of crossover between builders, dealers, and service firms.
Pad equipment refers to pool components such as pump, filter, and optionally heater and salt chlorine generator. In a departure from most of the other financial exhibits in this report, the sales figures presented here are wholesale since most pad equipment is sold to installers rather than consumers.

The major point of interest here is the increase in internet sales as a share of the total pool equipment category. Note that in this case, Internet refers to all online purchases through unaffiliated websites (meaning online retailers not part of a brick and mortar retailer).
Hot Tubs

Hot Tub Market

Chart 36: Residential hot tub unit sales (000), 2010 – 2019

After six years of gradual increases through 2018, hot tub sales slowed during 2019 with about 232,000 units sold. With sluggish growth and recent decline in unit sales, it does not seem that hot tubs will rebound to sales levels anywhere close to the peak of 400,000 units sold in 2004 anytime soon.
Map 10: New hot tub unit sales by state, 2019

Table 3: Top ten hot tub states – percent of new hot tub sales, 2019

<table>
<thead>
<tr>
<th>State</th>
<th>2019 % New Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>36.5%</td>
</tr>
<tr>
<td>New York</td>
<td>6.6%</td>
</tr>
<tr>
<td>Florida</td>
<td>5.7%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>5.7%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>4.7%</td>
</tr>
<tr>
<td>Washington</td>
<td>4.4%</td>
</tr>
<tr>
<td>Texas</td>
<td>4.0%</td>
</tr>
<tr>
<td>New Jersey</td>
<td>3.8%</td>
</tr>
<tr>
<td>Illinois</td>
<td>3.6%</td>
</tr>
<tr>
<td>Maryland</td>
<td>2.7%</td>
</tr>
</tbody>
</table>
Map 11: New hot tubs by market, 2019

Chart 37: Percent change in residential hot tub sales, 2010 – 2019
Hot tub unit sales were down 9% in 2019 while the average sales growth of new units was a meager 3% over the past decade.

Chart 38: Total wholesale value of hot tub sales ($M), 2010 – 2019

The total wholesale value of hot tubs sold during 2019 was slightly more than $1 billion. While the average wholesale value of a hot tub was up almost 2%, the decline in the total units sold led to the almost 8% decrease in total wholesale value.

Chart 39: Residential hot tub installed base, 2010 – 2019

The existing base of hot tubs has decreased almost 6% over the last ten years although more than two million new hot tubs have sold during that same period.
For 2019, the estimated attrition rate or removal from service was about 5% of the installed base of hot tubs or about 276,000 units.

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Prior to 2014 we utilized a very conservative depletion rate which implied a longer useful service life than actuality. Further research in 2014 prompted us to begin using a depletion rate closer to 5% which we believe more accurately represents the expected useful service life of a hot tub.
For eight of the past ten years, the number of hot tubs removed from service has exceeded the number of new units sold. The average attrition rate as a percent of sales for the past decade has been about 116%.
Table 4: Top ten hot tub states – percent total installed base of hot tubs, 2019

<table>
<thead>
<tr>
<th>State</th>
<th>2019 % Installed Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>23.8%</td>
</tr>
<tr>
<td>Texas</td>
<td>7.7%</td>
</tr>
<tr>
<td>Florida</td>
<td>5.8%</td>
</tr>
<tr>
<td>New York</td>
<td>5.2%</td>
</tr>
<tr>
<td>Illinois</td>
<td>4.8%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>4.2%</td>
</tr>
<tr>
<td>New Jersey</td>
<td>3.9%</td>
</tr>
<tr>
<td>Washington</td>
<td>3.7%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>3.1%</td>
</tr>
<tr>
<td>Michigan</td>
<td>3.0%</td>
</tr>
</tbody>
</table>
The total retail value of the hot tub water treatment chemical business during 2019 was about $709 million down slightly from 2018. Combining the increase in non-chemical water treatment systems such as ozone, UV systems and salt cell generators, and the decrease in the installed base of hot tubs, the overall value of the hot tub chemicals market has deceased.

Minerals were recommended by most dealers as a primary sanitation tool and these favorable dealers utilized minerals on average in about a quarter of the new hot tubs they sold in 2019. Three-quarters of the dealers suggest chlorine and utilize it on almost half of their hot tub sales.
Chart 44: Percent of hot tub dealers recommending alternative methods of sanitation, 2019

All the dealers recently surveyed recommend minerals with the most popular reasons including a good alternative for people with chemical sensitivities, the best alternative to chlorine and bromine and very cost effective.

Almost all dealers recommend ozone systems with the most favorable features including the superior water quality and the need for less chemicals. Several dealers noted that they install an ozone system on every tub they sell.

Chart 45: Percent of hot tub owners utilizing a professional pool/hot tub cleaning company

Most homeowners perform their own maintenance and chemical treatments for their hot tub. Only about 20% of homeowners report utilizing a professional company for cleaning and water treatment of their hot tubs.
Appendix

The following tables compare various macroeconomic indicators with sales of inground and aboveground swimming pools and hot tubs. While some indicators are more correlative than others, many of the leading gauges of the economy have steadily increased the past six years. However, while sales of pools and hot tubs have been generally favorable during that period, the sales have not maintained the pace of growth of the predictive indicators.

Chart 46: New and existing single-family home sales, 2010-2019

Chart 47: Consumer confidence sentiment vs. inground pool construction and hot tub sales, 2010–2019

Source: University of Michigan, University of Michigan: Consumer Sentiment [UMCSENT], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/UMCSENT, February 26, 2019.; Pkdata


Source: Bureau of Labor Statistics ((Seas) Unemployment Rate); Pkdata
Chart 49: U.S. single family housing starts vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019


Chart 50: Real per capita disposable income vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019

Source: U.S. Bureau of Economic Analysis, Real Disposable Personal Income: Per Capita [A229RX0], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/A229RX0, March 11, 2020; Pkdata
Chart 51: Real personal consumption expenditures per capita vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019


Chart 52: Producer price index vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019

Chart 53: Homeownership rate vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019

Source: U.S. Census Bureau, Homeownership Rate for the United States [RHORUSQ156N], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/RHORUSQ156N, March 17, 2020; Pkdata.
Map 14: Breakout of states by region
Table of Figures

Charts
Chart 1: New residential inground pool construction (000), 2010 – 2019 ................................................................. 4
Chart 2: Change in new residential pool construction, 2010 – 2019 ............................................................................. 6
Chart 3: Percent new residential pool construction by region, 2019 ................................................................. 6
Chart 4: Change in new inground pool sales by region, 2019 vs. 2018 ................................................................. 7
Chart 5: New residential inground indoor pool construction, 2010 - 2019 .......................................................... 8
Chart 6: Percentage of new inground pools that include a spa, 2010-2019 .......................................................... 9
Chart 7: Spas included with new pools by region (%), 2019 ......................................................................................... 10
Chart 8: New residential inground pools by type, 2019 ......................................................................................... 10
Chart 9: Total value of new inground residential pool construction, 2010 - 2019 ................................................... 11
Chart 10: Change in the total value of new inground pool sales, 2010 – 2019 ....................................................... 12
Chart 11: Average selling price for new inground residential swimming pools, 2015 -2019 .......................... 12
Chart 12: Residential inground pool installed base (000), 2010-2019 ................................................................. 13
Chart 13: Percent change in the existing base of inground residential pools, 2010-2019 .............................. 13
Chart 14: Attrition within the installed base of inground residential pools (000), 2010-2019 .......................... 14
Chart 15: Range of existing base of indoor inground pools by region, 2018 ............................................................ 17
Chart 16: Residential inground installed base pool gallon size by region (%), 2018 ........................................... 17
Chart 17: Aboveground pool unit sales (000), 2010 - 2019 .................................................................................... 19
Chart 18: Change in new aboveground pool sales, 2010-2019 ................................................................. 20
Chart 19: Percent of new aboveground sales by region, 2019 ........................................................................... 21
Chart 20: Change in new aboveground pool sales by region, 2018 - 2019 ............................................................ 21
Chart 21: Change in the total value of new aboveground pool sales, 2010-2019 .............................................. 22
Chart 22: Aboveground pool installed base, 2010 - 2019 .................................................................................... 22
Chart 23: Attrition within the installed base of aboveground pools (000), 2010 - 2019 ........................................ 25
Chart 24: Rate of change in the installed base of aboveground pools (%), 2010 – 2019 .......................... 25
Chart 25: Residential aboveground installed base pool gallon size (%), 2018 .................................................. 26
Chart 26: Total residential pool aftermarket value, 2010 - 2019 (Service, Equipment & Chemicals) .......... 27
Chart 27: Retail value of residential pool aftermarket segments (%), 2019 .......................................................... 27
Chart 28: Change in the retail value of the chemical aftermarket (%) , 2010-2019 .................................... 28
Chart 29: Change in the retail value of aftermarket equipment (%), 2010-2019 ........................................... 28
Chart 30: Change in the retail value of aftermarket service (%), 2010-2019 .................................................. 29
Chart 31: Dollar value of pool chemical sales by category at retail (%), 2019 .................................................... 30
Chart 32: Top 10 states for primary sanitizer sales (%), 2019 .......................................................................... 31
Chart 33: Wholesale value of pool pad equipment ($M), 2010-2019 ............................................................ 32
Chart 34: Change in wholesale value of pool pad equipment, 2010-2019 ..................................................... 33
Chart 35: Preferred consumer retail channel for pool equipment purchases (%), 2019 vs. 2010 .................. 33
Chart 36: Residential hot tub unit sales (000), 2010 – 2019 ............................................................................... 34
Chart 37: Percent change in residential hot tub sales, 2010 – 2019 ......................................................... 36
Chart 38: Total wholesale value of hot tub sales ($M), 2010 – 2019 .............................................................. 37
Chart 39: Residential hot tub installed base, 2010 – 2019 ............................................................................. 37
Chart 40: Hot tub attrition (000), 2010 – 2019 ...................................................................................... 38
Chart 41: Hot tub attrition as a percentage of new residential hot tub unit sales, 2010 – 2019 .................. 39
Chart 42: Retail value of hot tub chemicals ($M), 2010 – 2019 ................................................................. 42
Chart 43: Percent of hot tub dealers recommending primary method of sanitation for new hot tubs sold*, 2019 .......................................................................................... 42
Chart 44: Percent of hot tub dealers recommending alternative methods of sanitation, 2019 ........ 43
Chart 45: Percent of hot tub owners utilizing a professional pool/hot tub cleaning company ............. 43
Chart 46: New and existing single-family home sales, 2010-2019 .............................................................. 44
Chart 47: Consumer confidence sentiment vs. inground pool construction and hot tub sales, 2010-2019

Chart 48: U.S. Unemployment rate vs inground pool construction and hot tub sales, 2010-2019

Chart 49: U.S. single family housing starts vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019

Chart 50: Real per capita disposable income vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019

Chart 51: Real personal consumption expenditures per capita vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019

Chart 52: Producer price index vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019

Chart 53: Homeownership rate vs. inground pool construction and aboveground pool and hot tub sales, 2010-2019

Tables
Table 1: Top ten inground pool states – percent total installed base, 2019
Table 2: Top ten aboveground pool states – percent total installed base, 2019
Table 3: Top ten hot tub states – percent of new hot tub sales, 2019
Table 4: Top ten hot tub states – percent total installed base of hot tubs, 2019

Maps
Map 1: New inground pools by state, 2019
Map 2: New inground pools by market, 2019
Map 3: Inground pool growth, 2018 – 2019
Map 4: Installed base of inground pools by state, 2019
Map 5: Inground Gallons (M), 2019
Map 6: New aboveground pool unit volume by state, 2019
Map 7: Installed base of aboveground pools by state, 2019
Map 8: Aboveground pool growth, 2018 – 2019
Map 9: Aboveground gallons (M), 2019
Map 10: New hot tub unit sales by state, 2019
Map 11: New hot tubs by market, 2019
Map 12: Installed base of hot tubs by state, 2019
Map 13: Hot tubs base by market, 2019
Map 14: Breakout of states by region