

Yukon Placer Mining Industry, 2003-2006

An overview of placer activity and production

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Even prior to the arrival of European explorers to the Yukon (in the 1700s), placer mining had been conducted by First Nations people, who recovered native copper nuggets from the White River area in southwestern Yukon (Wright, 1976). Explorers from the Hudson Bay Company first reported fine gold on the banks of the Pelly River around 1850. In 1874, coarse gold was discovered on a tributary of the Liard River, and in 1885, significant quantities of gold were found on river bars of the Stewart. Gold was discovered in the Fortymile area on both sides of the border the following year, and by 1893, active mining was taking place on Miller and Glacier creeks in the Sixtymile district.

On August 17, 1896, the discovery of nugget gold on Rabbit Creek (renamed Bonanza) set off the Klondike Gold Rush. By 1900, over a million ounces (30 million grams) was being mined in a season, at that time, completely by hand. Later years saw the arrival of large-scale mining with dredges and heavy equipment.

Today, over 100 years later, placer mining is still an important sector in the Yukon's economy (Yukon Placer Database, LeBarge (comp.), 2007). Over 16.6 million crude ounces (518 tonnes) of placer gold have been produced to date in the Yukon — at today's prices, that would be worth more than \$9 billion (CDN).

Staking activity

Placer staking activity remained flat through most of this reporting period (2003 to 2006) until an increase, which started in 2005 (Fig. 1), ballooned into a huge increase in 2006.

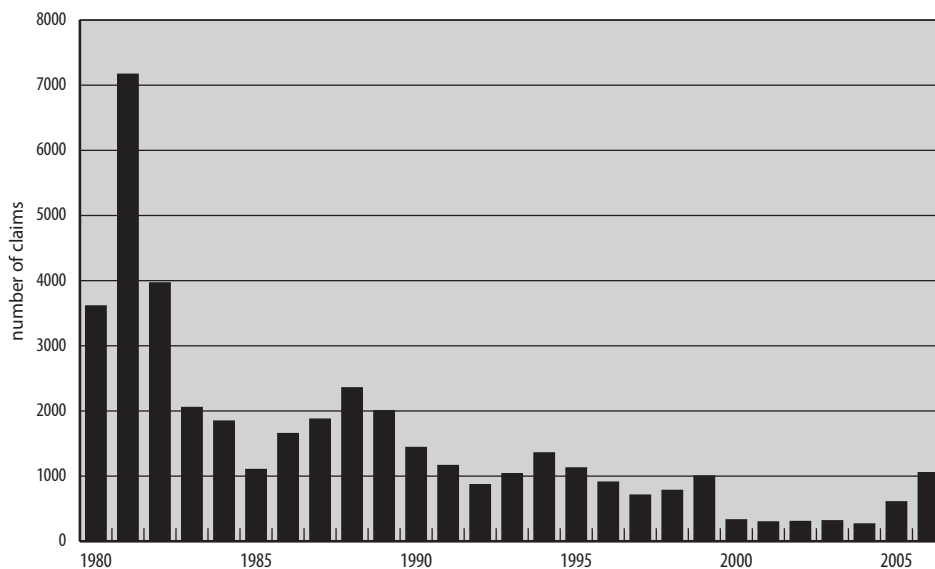


Figure 1. Yukon placer claims staked, 1980-2006.

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Figure 2. Yukon placer leases staked, 1980-2006.

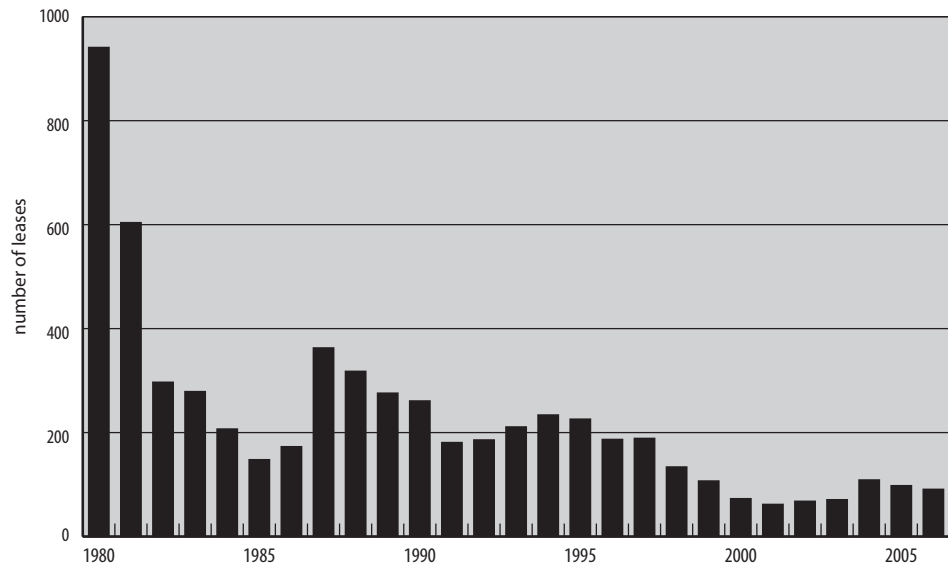


Figure 3. Yukon placer claims in good standing, 1980-2006.

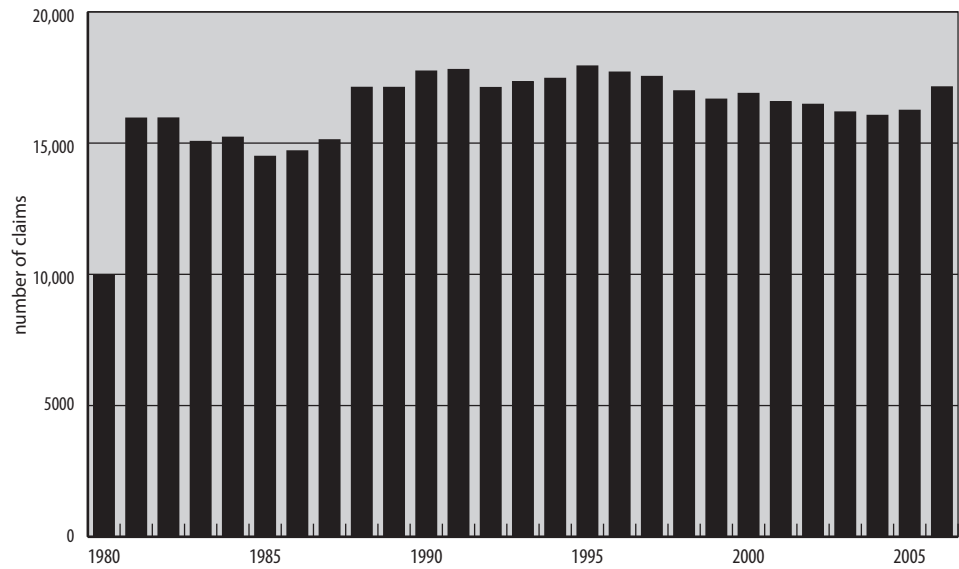
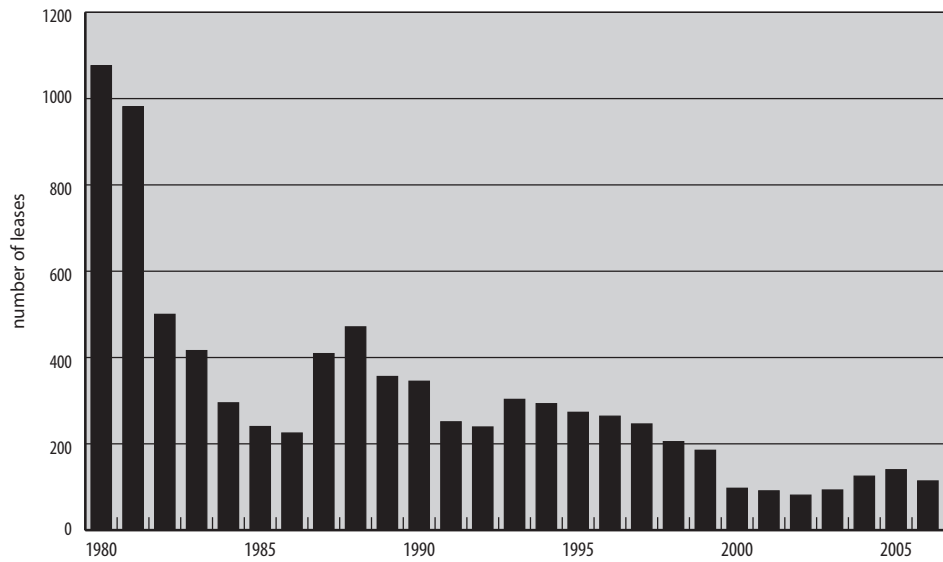


Figure 4. Yukon placer leases in good standing, 1980-2006.



Placer leases staked in the 2003-2006 time period showed a moderate increase, in contrast to the decline seen in previous years (Fig. 2). The highest number of leases staked was in 2004. There has been a recent trend in the industry to stake placer claims directly, rather than to initially stake placer leases and later convert them to claims, which may account for the relatively flat activity in leases relative to the dramatic increase in claim staking for the reporting period.

A moderate decrease in placer claims in good standing bottomed in 2004, and since then there has been a moderate increase, although the total amount since 1988 has remained relatively unchanged (Fig. 3).

Placer leases in good standing steadily declined in previous years with the lowest number bottoming out in 2002. Since that time, a steady increase has been seen except for a small drop in 2006 (Fig. 4).

The total amount of ground held in placer claims and leases has generally followed the trend of the US dollar world gold price, however, only a moderate increase in ground held was seen from 2003 to 2006, despite a dramatic rise in the US dollar world gold price. This moderation may be in part due to the buffering effect of an increasingly valuable Canadian dollar (Figs. 5 and 6).

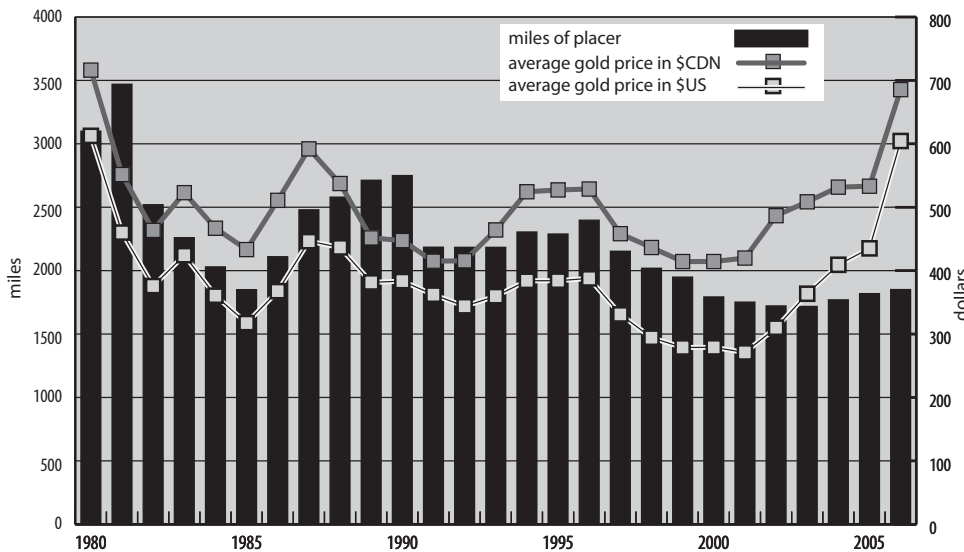


Figure 5. Miles of Yukon placer ground held versus world gold price in U.S. and Canadian dollars.

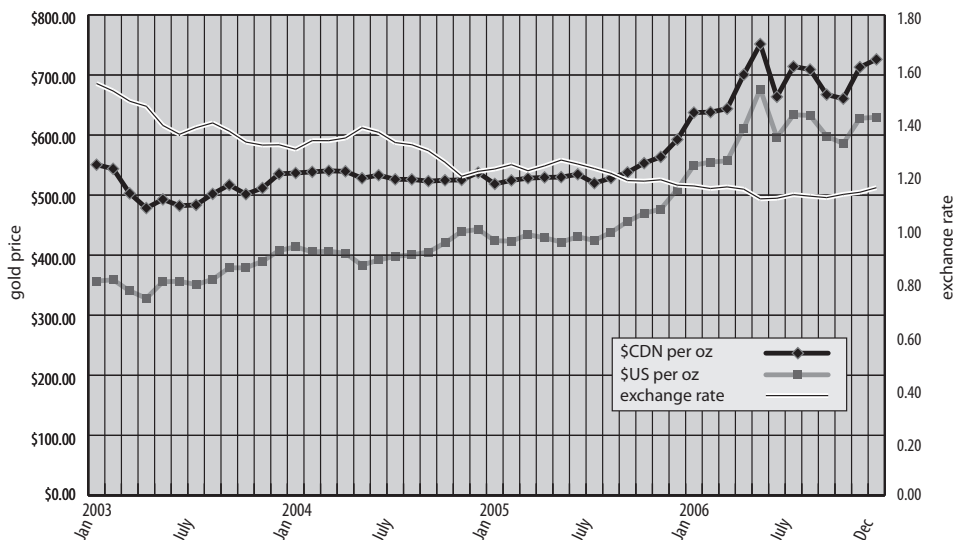


Figure 6. Average monthly gold price in US and Canadian dollars, and US/CDN exchange rate, 2003-2006.

World market gold price

Throughout the reporting period, after a small initial drop, world gold prices in US dollars rose steadily. In Canadian dollars however, the gold price remained flat for much of 2004 and 2005, as the Canadian dollar rose in value against the US dollar (Fig. 6). The highest monthly average price for gold was seen in May, 2006, when the price peaked at \$676 US/oz (\$751 CDN). The lowest price during the reporting period was in April, 2003, when it was \$328 US/oz (\$478 CDN). The average world gold price from 2003 to 2006 was \$455 US/oz or \$566 CDN/oz.

Active and exploratory placer operations

In 2003, there were 135 active mining and 11 exploratory placer operations. Active mining operations decreased in 2004 to 118, while there were 12 exploratory operations.

A small decrease was seen in 2005, when there were 116 active mining operations, however, exploratory operations increased to 15. In 2006, the number of active mining operations again declined, totalling only 106 while exploratory operations also decreased, totalling only 9.

Yukon placer gold production

All of the following production figures are based on royalty records submitted to the Yukon Mining Recorder, Energy, Mines and Resources, Government of Yukon. Under the territorial *Placer Mining Act*, royalties must be reported and paid on Yukon placer gold if it is exported out of the Yukon.

In general, Yukon placer gold production, as reported in royalties, decreased over the reporting period, despite a steadily rising world gold price (Fig. 7).

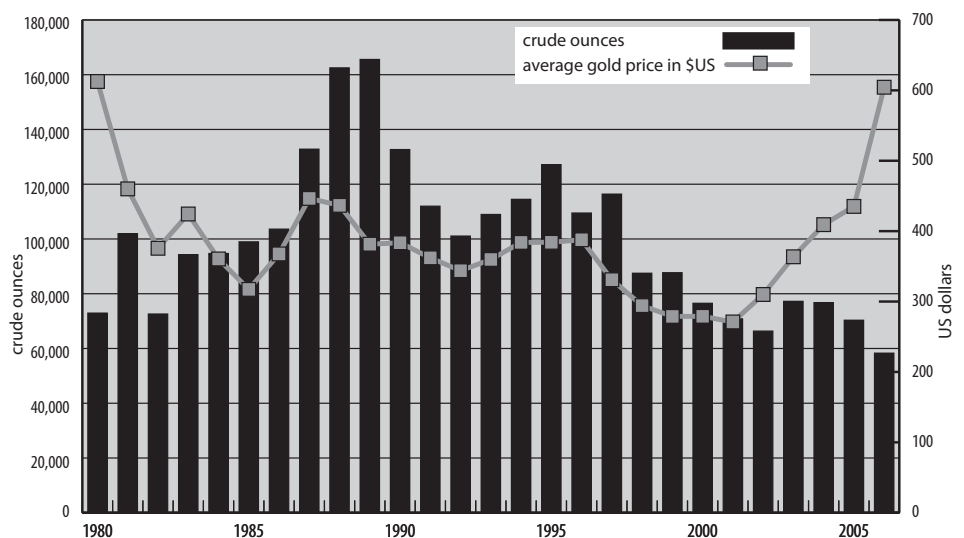
In 2003, the placer industry produced 77,226 crude ounces (2402 kg) of gold, approximately the equivalent of 61,780 fine ounces (1922 kg) valued at \$31.41 million (CDN).

In 2004, a total of 76,757 crude ounces (2387 kg) of gold were produced, the equivalent of 61,406 fine ounces (1910 kg) valued at \$32.64 million (CDN).

A total of 70,322 crude ounces (2187 kg) were reported as royalties in the 2005 season, the equivalent of 56,258 fine ounces (1750 kg) valued at \$29.99 million (CDN).

In 2006, reported production of gold dropped considerably to 58,294 crude ounces (1813 kg), roughly equivalent to 46,635 fine ounces (1450 kg) valued at \$31.96 million (CDN).

Figure 7. Yukon placer gold production vs US gold price, 1980-2006.



The total Yukon placer gold production, from 2003 to 2006, for each placer district is shown on Figure 8. More than 87% of the total Yukon production came from the unglaciated districts; as in past years, the Indian River drainage was the highest producing area followed by Klondike, West Yukon (Sixtymile, Fortymile and Moosehorn Range) and Lower Stewart. The remaining 13% of placer gold came from

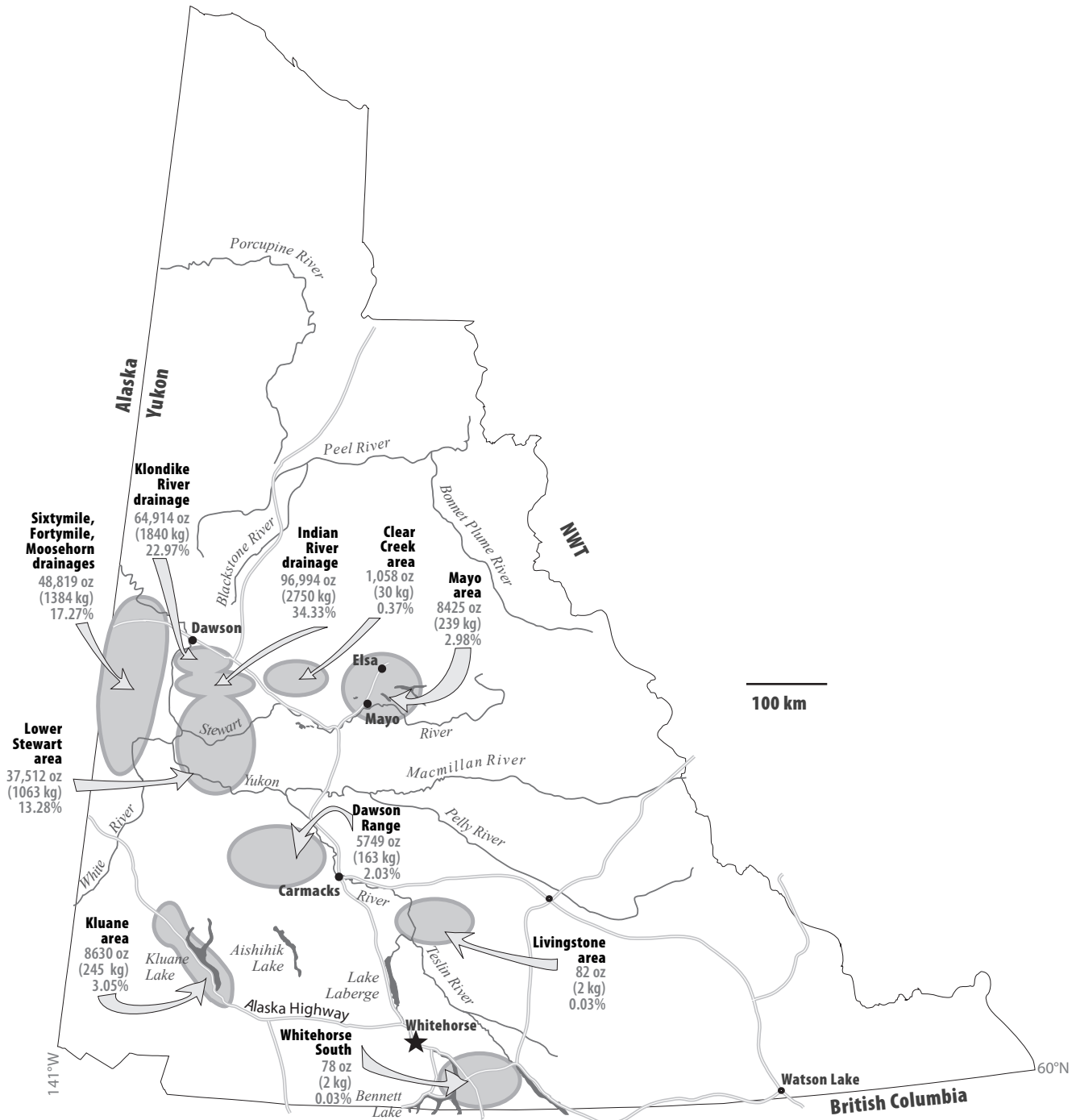


Figure 8. Map of Yukon placer gold production, 2003–2006. Total recorded placer gold production 2003–2006 was 282,600 crude ounces. Numbers include recorded production and percentage of Yukon production.

the glaciated districts of Mayo, Clear Creek, Dawson Range, Kluane, Livingstone and Whitehorse South. The relative contributions of each placer district to the total Yukon production was similar for each year from 2003 to 2006, with the exception of 2006, when Indian River drainages experienced a 7% decrease, and Klondike River drainages increased their contribution by 7%. This was a result of lower production from Sulphur, Gold Run and Dominion creeks and higher production from Klondike River, Last Chance Creek and Paradise Hill.

Table 1 shows the 25 most productive streams for each year from 2003 to 2006. Dominion Creek was the dominant producer for all of the reported years, followed in various orders by Sixtymile River, Hunker, Thistle and Last Chance creeks, and Indian River.

Placer exploration

Although it is usually unreported, exploration on placer mining properties has been a part of the process for many miners since they began to mine. Traditional methods of sampling and exploration include auger, reverse circulation and churn drilling, and geophysics, including seismic surveys, ground-penetrating radar and magnetometer surveys. Trenching and bulk sampling also continue to be well used methods of testing placer ground.

An upsurge of placer exploration in 2004 was due, to a large extent, to activity by a single joint venture. Boulder Mining Corporation, a Vancouver-based company, began exploration of a prospect in the Indian River area south of Dawson City, along with Western Prospector Group. The property was discovered by long-time prospector and miner, Pete Risby, and consists of a large-volume bench deposit which lies above the modern valley of Indian River. Generalized stratigraphy consists of a Tertiary-age, 'White Channel' gold-bearing gravel on a bedrock terrace, which is in part overlain by glaciofluvial and glaciolacustrine sediments deposited during the earliest pre-Reid glaciation. Exploration on this property consisted of an extensive program of auger drilling, rotonic drilling, ground-penetrating radar, bulk sampling and geological mapping. In 2005, two pits on the property were mined and 436 crude ounces (13 561 g) were recovered.

Klondike Star Mineral Corporation conducted a program of auger drilling and test mining in the Indian River valley in 2005 and 2006. Its target was also the White Channel gravel, as well as the underlying Cretaceous conglomerate which may be a paleoplacer deposit.

Several large mining operations relocated to new ground in 2006, the result of both favourable exploration results in new areas and diminishing or exhausted reserves in extensively mined areas. This appears to have had a negative effect on the amount of gold produced, as operators expended time, effort and money towards setting up new mines instead of sluicing gravel at established properties.

One of the exploration highlights in 2006 was the extensive development of the lower Sixtymile River between the mouth of Ten Mile Creek and the confluence of Sixtymile and Yukon rivers. In addition to testing and mining of several areas in the main valley and adjacent benches, several kilometres of road and an airstrip were constructed. This improved access is favourable for increased development and testing of nearby drainages such as Twenty Mile Creek and Thirteen Mile Creek, as well as the upstream reaches of the Sixtymile River.

The long-term health of the Yukon's placer mining industry requires that new placer gold reserves be discovered as traditional mining areas become depleted. With the application of new placer exploration and research techniques, and new ideas, additional placer gold reserves will continue to be found in non-traditional, more complex geological settings.

Table 1. The 25 most productive drainages in Yukon, 2003–2006.

2003 rank	Drainage	crude ounces	crude grams
1	Dominion	15,134	470 712
2	Sixtymile	10,476	325 838
3	Last Chance	9603	298 691
4	Hunker	8344	259 531
5	Thistle	4814	149 739
6	Gold Run	3637	113 125
7	Indian	3268	101 636
8	Bonanza	3109	96 696
9	Black Hills	2016	62 692
10	Sulphur	1500	46 644
11	Gladstone	1436	44 668
12	Lightning	1009	31 382
13	Scroggie	864	26 863
14	Quartz	862	26 811
15	Nansen	855	26 603
16	Henry Gulch	854	26 550
17	Kate	702	21 831
18	Hattie Gulch	503	15 643
19	Kirkman	474	14 748
20	Matson	454	14 123
21	Clear	357	11 095
22	Back	319	9908
23	Henderson	302	9383
24	Upper Bonanza	274	8531
25	Duncan	235	7324

2004 rank	Drainage	crude ounces	crude grams
1	Dominion	17,953	558 392
2	Sixtymile	12,247	380 933
3	Thistle	6166	191 796
4	Last Chance	5994	186 441
5	Hunker	4157	129 309
6	Indian	3510	109 187
7	Gold Run	2744	85 354
8	Sulphur	2058	64 004
9	Gladstone	1922	59 779
10	Black Hills	1747	54 334
11	Bonanza	1678	52 189
12	Kirkman	1263	39 272
13	Matson	1228	38 203
14	Scroggie	1185	36 849
15	Henderson	1136	35 333
16	Duncan	1112	34 577
17	Nansen	864	26 884
18	Ten Mile	828	25 751
19	Hattie Gulch	627	19 503
20	Eldorado	552	17 169
21	Owl	550	17 108
22	Lightning	538	16 734
23	Eureka	537	16 694
24	Kate	476	14 790
25	Quartz	469	14 579

2005 rank	Drainage	crude ounces	crude grams
1	Dominion	16,559	515 050
2	Sixtymile	10,436	324 609
3	Hunker	6053	188 284
4	Indian	5379	167 294
5	Thistle	5359	166 675
6	Bonanza	2998	93 247
7	Gladstone	2601	80 913
8	Gold Run	2142	66 614
9	Last Chance	1986	61 784
10	Black Hills	1469	45 679
11	Sulphur	1263	39 294
12	Scroggie	1047	32 555
13	Kirkman	1019	31 679
14	Lightning	751	23 357
15	Quartz	726	22 581
16	Matson	701	21 796
17	Kate	693	21 544
18	Henderson	680	21 148
19	Nansen	648	20 168
20	Upper Bonanza	565	17 571
21	Paradise Hill	528	16 424
22	Back	461	14 342
23	Duncan	440	13 700
24	Eureka	386	12 016
25	Mechanic	382	11 892

2006 rank	Drainage	crude ounces	crude grams
1	Dominion	10,715	333 289
2	Sixtymile	6964	216 610
3	Hunker	5684	176 786
4	Thistle	4775	148 516
5	Indian	2867	89 162
6	Last Chance	2596	80 744
7	Gold Run	2309	71 817
8	Gladstone	2202	68 498
9	Bonanza	2015	62 679
10	Paradise Hill	1586	49 343
11	Henderson	1384	43 045
12	Klondike	1145	35 602
13	Matson	1070	33 296
14	Scroggie	860	26 747
15	Quartz	807	25 111
16	Kirkman	790	24 559
17	Ten Mile	785	24 403
18	Lightning	731	22 739
19	Jackson Hill	696	21 636
20	Upper Bonanza	661	20 554
21	Sulphur	520	16 180
22	Duncan	506	15 724
23	Kate	418	12 998
24	Green Gulch	371	11 526
25	Eureka	369	11 463

Acknowledgements

Thanks are due to Catherine Welsh for her diligent compilation of many of the statistics used in this paper. The paper also benefited from a review by Diane Emond, Acting Head of Technical Services, Yukon Geological Survey. World gold prices were obtained from Kitco (www.kitco.com) and US/Canadian dollar exchange rates were obtained from Oanda (www.oanda.com).

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