

A ski slope is not necessarily a degradation slope.

When viewing a large number of DNA-profiles, one phenomenon draws attention immediately: the continuous decrease in peak heights with increasing molecular weight. Never, the complete reason for this decrease is presented.

Here I go:

1. PCR copies specified sites on the genome. PCR depends on temperature rising and temperature falling to accommodate the denaturation of the double DNA-strands and the copying of the free strands into double strands. Time is a limiting factor, causing short stands to achieve higher success in the process so more copies. In highly populated DNA-samples, even the amount of free DNA-monomers can become a limiting factor. Its working can be directly accessed by studying the phenomenon of stutter generation. Larger DNA-templates produce more stutters, so less 'originals'.
2. After PCR, a sample of the result undergoes the so-called electro-dynamic injection to get it in the DNA-analyzer, a kind of electrophoreses actually. So, a physico-chemical process, using the same mechanism as the development of a DNA-profile in the actual DNA-analyzer. Therefore, the sampling of small molecules is favoured even before the analysis has started, because they move faster during the time frame of sampling.
3. During the capillary electrophoreses, the larger molecules take more time to reach the detection cell to get lasered and emit light. So they are submitted a longer stretch of time to the phenomenon of diffusion leading to peak broadening and lowering. The temperature during the process is relatively high. Because part of the peak is 'submerged' in the background noise, a larger part of the peak base becomes invisible.
4. And of course there is degradation. Because degradation - the damaging of the lager DNA-fragments has greater probability - can be excluded in experiments with laboratory samples, it can be shown, that this phenomenon is not the only cause of slopes.

